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VIBRATION INSTRUMENTATION

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Switch / Termination Boxes

Switch Boxes / Termination Boxes

A cost effective method for obtaining data from permanently mounted accelerometers is the use of switch or termination boxes. By providing a convenient termination for cables and easy connectivity, these boxes enable safe and fast data collection when using portable acquisition systems. Switch boxes have a single BNC connector for data collection and 6 or 12 channel rotary dial for channel selection. Termination boxes are not switched, but provide a separate BNC connection for each channel. All Wilcoxon switch boxes have differential switching (switching of both the signal and common). By not tying the commons for each channel together at the box, greater noise immunity is achieved. Additional features unique to Wilcoxon Research include radio frequency interference filtering, NEMA 4 or 4X ratings, optional bias output meter and optional cord grips / conduit fittings.

Model	# of Channels	Output
CB2	2	Single BNC per channel
CB4	4	Single BNC per channel
JB06-1H	6	Single BNC per channel
JBS Series	48	Switch Selectable
VL6B	6	Switch Selectable
VL12B	12	Switch Selectable
VL Expandable	12 - 48	Switch Selectable

TECH TIP

AVOIDING GROUND LOOPS

In order to provide proper shielding and prevent ground loops, shield and common grounding should be carefully considered. Ground loops are developed when a common line (i.e. signal return/shield) is grounded at two points of differing electrical potential (see Figure 1).

For sensors with *coaxial cable*, the center conductor carries the signal and power, while the outer braid provides shielding and signal return. Normally, the cable shield is electrically isolated from the sensor housing. This isolates the shield from the mounting point of the machine and prevents ground loops. If a non-isolated sensor is used, it is recommended that an isolated mounting pad be used to break possible ground loops.

For sensors using *two conductor/shielded cable*, the signal and power are carried on one lead and the signal common on the other. The cable shield serves to protect the signal from ESD and electromagnetic interference (EMI). The shield should be grounded at only one point, normally to the readout equipment (see Figure 2).

Note: In all cases it is very important that the cable shield terminations be properly grounded. Failure to do so in high EMI/ESD environments can result in damage to the sensor electronics.

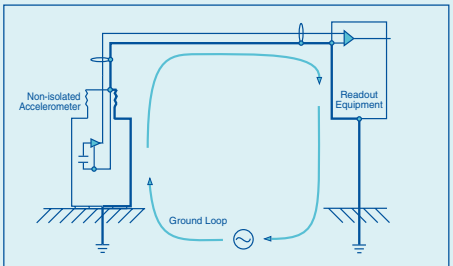


Figure 1: Ground Loop from Improper Grounding

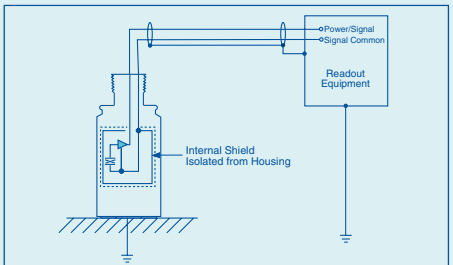


Figure 2: Multiconductor/Shield Configuration

Model CB2 & CB4

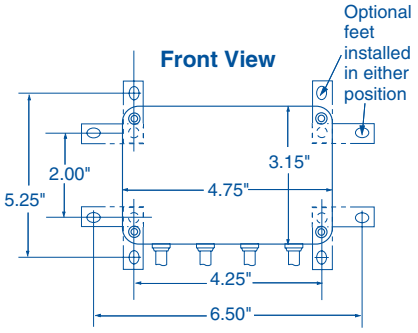
Cable Termination Boxes

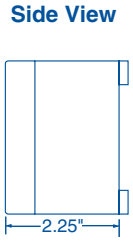
ELECTRICAL	
Inputs	Terminal block, 3 inputs / channel (+, -, shield)
Outputs	BNC jack per channel, electrically isolated
ENCLOSURE	
Rating	NEMA 4X / IP65
Material	ABS
Door Attachment / Removal	4 captive stainless steel screws
Dimensions	3 1/8" x 4 3/4" x 2 1/4" (H x W x D)
ENVIRONMENTAL	
Temperature Range	–40 to 180°F (–40 to 82°C)
Resistance	Resists humidity & outdoor environments

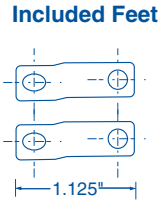
PART NUMBER	CHANNELS
CB2	2
CB4	4

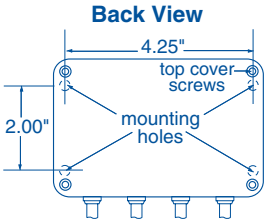
FEATURES:

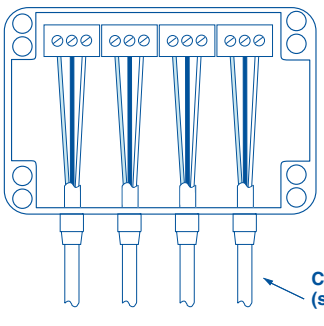
- Cost effective
- Connects remotely installed accelerometers to portable data collectors
- Weatherproof enclosure & protective BNC cap covers
- 2 & 4 channel versions
- Cord grip inputs provide quick & secure cable entry into enclosure
- Ferrite bead for RF rejection

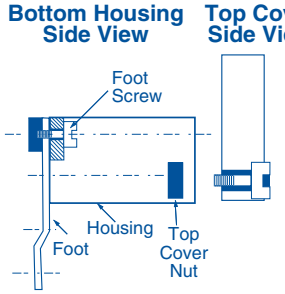


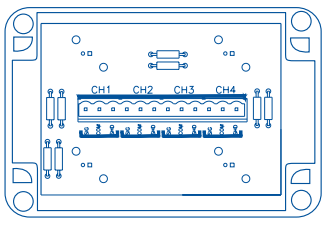












Parts Included:
(4) termination plugs (CB4 only)
(2) termination plugs (CB2 only)
(4) feet
(4) screws
(4) washers
(1) installation instructions

Model JB06-1H

Junction Box

FEATURES:

- Multiple Channel
- Can be used with an external constant current power supply

Description

The Wilcoxon Research JB06-1H Junction Box is a field installed termination box for pemanently installed vibration sensors. Commercially available portable data collectors can record the sensor readings from a convenient central location, away from noisy or unsafe environments. The JB06-1H consists of two subassemblies—the inside termination panel for sensor termination and data collection, and the enclosure.

Each sensor cable is electrically terminated by attaching wire leads from the transducer cable to the terminal block on the back of the termination panel.

The JB06-1H is contained in a 14 gauge steel enclosure and has a NEMA 4 rating. NEMA 4 enclosures are intended for indoor or outdoor use, and provide a degree of protection against windblown dust, rain, and hose directed or splashing water.

The JB06-1H can also be used with an external constant current power supply (such as the Wilcoxon Models P702B and P704B) so that other diagnostic equipment (oscilloscopes, signal analyzers, etc.) can be used for vibration analysis.

JB06-1H Specifications

Channels	six
Output Connector	BNC socket
Enclosure	NEMA4 (14 gauge steel enclosure for indoor and outdoor use)
Sensor Compatibility[1]	All two-wire sensors with one signal lead and one common lead

Notes:

[1] Compatible sensors includes piezoelectric vibration transducers (accelerometers), velocity sensors, pressure sensors, temperature sensors, force transducers and flow and level sensors. Consult the factory for more information on Wilcoxon Research compatible sensors.

Special Order: NEMA 4X rated splash proof, corrosion resistant, stainless steel enclosure for harsh environments (Model JB06-1SS). Please consult Wilcoxon Customer Service for more information.

Model JBS Series

Switchable / Multichannel Junction Boxes

The JBS Series Junction Boxes are multiple channel connecting centers for terminating and switching the outputs of up to 48 two-wire vibration sensors. Commercially available portable data collectors can record the sensor readings from a ***safe, central location***, solving the problem of taking measurements in noisy, inconvenient or harsh machinery locations.

FEATURES INCLUDED IN ALL MODELS

- All rotary switches are sealed, military quality with gold contacts to eliminate problems with contact noise.
- Electro-Static Discharge (ESD) protection for each sensor channel.
- Analog DC voltmeter measures supply and sensor bias voltages to verify proper operation of the sensors.
- Termination panel is inside at the rear of the switch box.
- All JBS Models are contained in a 14 gauge steel enclosure with a NEMA 4 rating. The NEMA 4 rated enclosures are sealed and have quick opening latches and hinged doors. They are intended for indoor or outdoor use, and provide a degree of protection against windblow dust, rain, and hose directed or splashing water.
- Selector switch and meter mounted internally on hinged panel for environmental protection.

SPECIFICATIONS

All Models

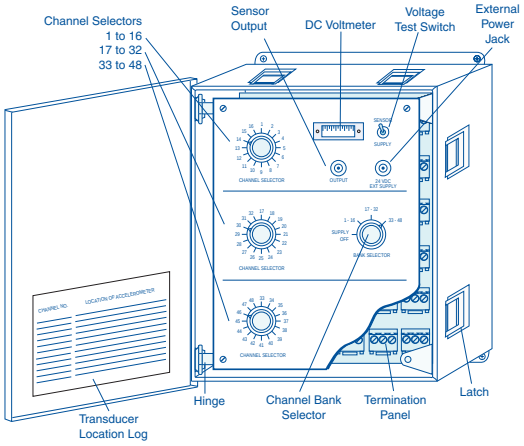
Output Connector	BNC
Housing	NEMA 4 (14 gauge steel enclosure for indoor and outdoor use)

Model JBS-32H

Channels	32
Size (H x W x D)	16" x 12" x 6"

Model JBS-48H

Channels	48
Size (H x W x D)	16" x 12" x 6"



OPTIONS:

- Third lead for use on sensors with an internal temperature probe (add suffix T to model number when ordering)
- Internal AC power supply — for line voltages, order Model JBS-XXX-YYY (insert proper line voltage). Available line voltages include 100, 120, 200, 220, and 240.
- External battery pack (requires battery charger), BP24
- Battery charger, LA24

SPECIAL ORDER:

- NEMA 4X rated splash proof, corrosion resistant, stainless steel enclosures for harsh environments. Please contact your Applications Engineer for more information.

Model VL6B & VL12B

VibraLINK® Low Cost, Switchable Junction Boxes

DESCRIPTION

The VL6B & VL12B enables switching of up to six or twelve sensors to a single output. The selected output goes to a BNC connector.

- A manual selector switch directs the desired measurement channel to a single BNC output.
- The accelerometer inputs are 2 part plug / socket type.

The VL6B & VL12B 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.

FEATURES

- 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,ground loops, and signal coupling from adjacent channels
- Ferrite beads for RF rejection prevents EMI pick-up that can cause "ski slopes" in data
- All wiring is in the printed circuit board and shielded by two ground planes to minimize RF pickup from portable radios that can lead to "ski slopes" in data

SPECIFICATIONS

Input

Connectors	2 part plug / socket type
Channels	6 (VL6B) 12 (VL12B)

Output

Connector	
Local	BNC
Gain	1

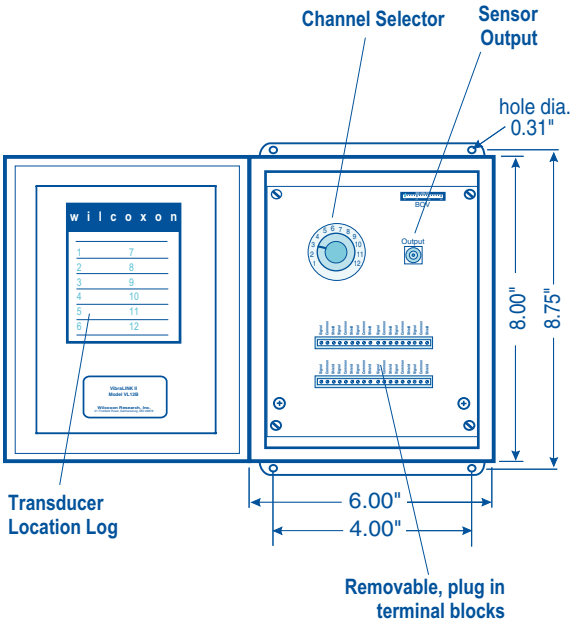
Available Enclosures:

Designator	Material	Rating	Dimensions
L	Thermoplastic	NEMA 4X (IP66)	8x6x4
S	Stainless Steel	NEMA 4X (IP66)	8x6x4

Other Options:

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

Model Numbers: VL12B — ex: VL12BLGM
VL6B — ex: VL6BLGM



Model VL Expandable

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 through each cable grip fitting. 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.

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 that can cause "ski slopes" in data
- All wiring is in the printed circuit board and shielded by two ground planes to minimize RF pickup from portable radios that can lead to "ski slopes" in data

SPECIFICATIONS

Input

Connectors	2 part plug / socket type
Channels	12 channels per card

Output

Connector	
Local	single BNC per card
Gain	1

Models Available:

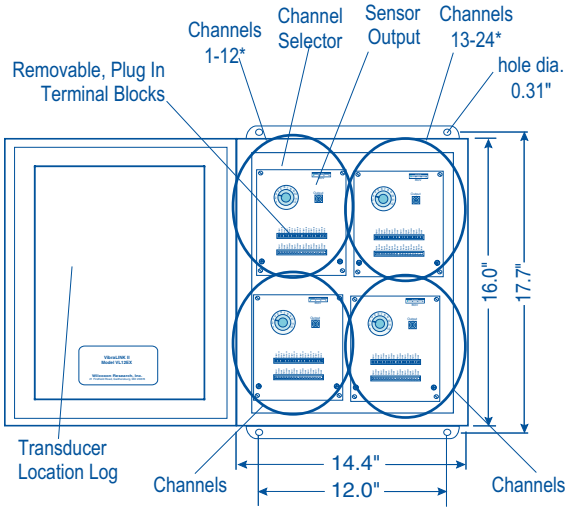
Model	Description
VL12	12 Channel Add-on Board Only
VL12EX	12 Channel Junction Box
VL24EX	24 Channel Junction Box
VL36EX	36 Channel Junction Box
VL48EX	48 Channel Junction Box

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



*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.

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