



HIGH-FREQUENCY 48V SERIES TRANSISTOR INVERTER OPERATION MANUAL



H260B

EXEN CORPORATION

☆ SAFETY PRECAUTIONS

- ☆ This inverter is a power supply equipment dedicated to high frequency 48V vibrators. Don't use it for any purpose other than using high-frequency 48V vibrators.
- ☆ For safety operation, be sure to read this operation manual completely and understand the contents and the DANGER, WARNING and CAUTION messages before operation. Improper machine use may result in injury or failure.
Also, please read the operation manuals of the inner vibrator and high-frequency vibration motor carefully.
- ☆ The following symbols represent DANGER, WARNING and CAUTION messages to be observed when using the inverter to prevent injury or damages to users or other persons.



DANGER

【DANGER】 indicates an imminent dangerous situation which may lead to death or serious injury.



WARNING

【WARNING】 refers to a hazard that may cause death or serious injury.



CAUTION

【CAUTION】 refers to a hazard that may cause minor or moderate injury.

 WARNING

(To prevent death)

-  Do not use this product without a ground-fault interrupter. Otherwise, you may get an electric shock.
-  Do not use this product in the presence of water, moisture or dust. Otherwise, you may get an electric shock.
-  Use a power outlet with a grounded wire connected to it. Use of an ungrounded electrical outlet may result in electric shock.
-  Connect an output cable to the terminal box inside the inverter. The output cable can be extended and connected to a distribution board. Please be sure to make connection work, in the condition that an input plug is pulled out from the power supply. Otherwise, there is a possibility of receiving an electric shock.

 CAUTION

(To prevent injury or damages)

-  Be sure to operate this product within the voltage specified in the nameplate. Use of a voltage higher than the one indicated on the nameplate may result in a malfunction or electric shock.
-  When moving the inverter, be sure to turn "OFF" the breaker and disconnect the input plug from the power supply. Failure to do so may cause the inverter to suddenly activate, resulting in electric shock or unexpected injury.
-  Do not install this product in a waterlogged or dusty area.
Entering water or dust inside of the product may damage it to fail.
-  When using this product, keep it away from rain, water and dust. It may cause a failure.
-  If the vibrators of more number than the number of designated are started simultaneously, since it will become the cause of failure, please avoid it.

○ INTRODUCTION

Thank you for purchasing our high-frequency 48V vibrator dedicated power supply equipment inverter.

Be sure to read this operation manual carefully before using the inverter.

Please understand the performance of this product well, handle properly, inspect and maintain, and use it safely and efficiently for a long time. Please keep this instruction manual in a safe place.

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○ SAFETY



CAUTION

(For personal protection during operation)

- When using a vibrator, wear a safety helmet, anti-vibration gloves, safety boots, hearing protection, face protection (protective glasses and mask), safety harness, and make sure to work with safety equipment.



Safety helmet



Anti-vibration gloves



Safety boots



Hearing protection



Face protector



Safety harness

- When extending the input cable, make sure that the green wire is grounded, and do not handle it incorrectly. Wrong wiring may result in electric shock.
- When inspect this product, certainly pull the input plug out from the power source, otherwise it may cause an electric shock.

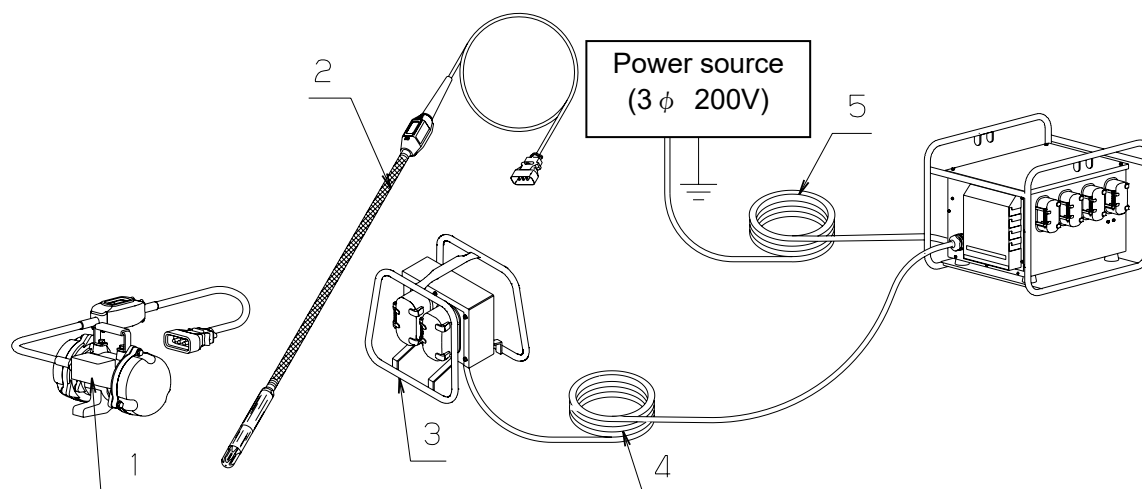


CAUTION

(For longer service life)

- In order that the plug terminals always make good connection, remove any dirt or rust from them before inserting the plug into the outlet. Poor plug connection is one of the main causes of machine failure.
- This product is an electrical product. Do not use it in a place where water or moisture is present. Otherwise, moisture may cause failure of the electronic components.
- Extend the input cable when the inverter is used away from the power supply. Refer to "SELECTING AN EXTENSION CABLE" (page 6) for the size and the maximum length of the extension cable.
- Extend the output cable if you want to use the vibrator at a distance from the inverter. Refer to "SELECTING AN EXTENSION CABLE" (page 6) for the size of the maximum length of the extension cable.
- When using a vibrator, the number of vibrators that can be used depends on the capacity of the vibrator.
Refer to "NUMBER OF VIBRATOR UNITS THAT CAN USE" (page 7) to avoid overloading.
- If the supply voltage rises significantly, the inverter's protection circuit will be activated and the inverter will stop. Please investigate the cause of the stoppage, restore the system, and resume operation. If operation is continued while the cause has been unknown, there is a possibility of breaking down.
- The output frequency of this product can be adjusted from 100 - 240Hz. Please avoid resonance and use it, adjusting output frequency to the optimal position. If resonance is caused, there is a possibility that a formwork and vibrator may be damaged.
- Do not use this product's power switch to turn the vibrator "ON, OFF" (start/stop). Otherwise, there is a possibility of breaking down.
- Install the unit in an airy place. Do not cover the inverter with a plastic sheet or any other material. Doing so may cause the internal temperature to rise, resulting in failure.

○ SELECTING AN EXTENSION CABLE



1	High frequency vibration motor
2	Inner Vibrator
3	Optional equipment
4	Output cable
5	Input cable

■ Size and applicable limits length of input extension cable

Unit : m

Model	Cable size			
	3.5mm ²	5.5mm ²	8.0mm ²	14mm ²
H260B	35	60	85	150

■ Size and applicable limits length of output extension cable

Unit : m

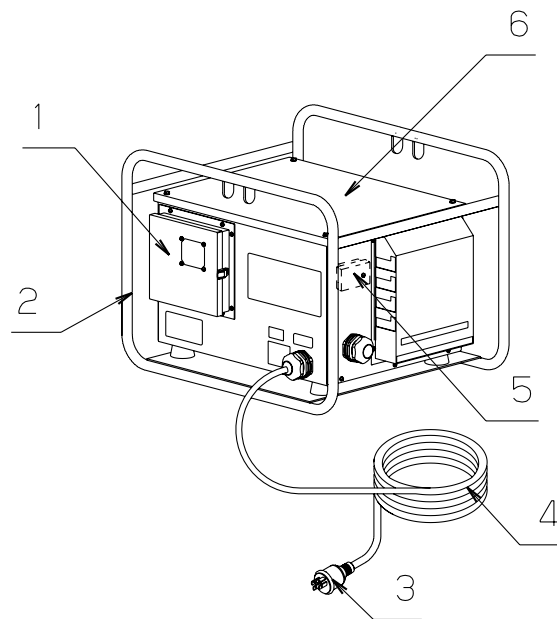
Model	Cable size			
	3.5mm ²	5.5mm ²	8.0mm ²	14mm ²
HBM 30	100	150	200	400
HBM 40	60	100	140	250
HBM 50	30	60	80	150
HBM 60	20	40	60	100
CSV 50	60	100	140	250
HKM5CSK	170	260	400	680
HKM55PSK	170	260	400	680
HKM154VS	100	150	200	380
HKM304VS	40	70	100	170
HKM30LF	40	70	100	170
HKM55BL/LF	30	40	60	100
HKM75BL/LF	20	30	50	80

○ NUMBER OF VIBRATOR UNITS THAT CAN USE

Model	HBM (Inner vibrator)					HKM (Vibration Motor)			HKM (Vibration Motor)		
	30	40	50	60	CSV 50	5CSK 55PSK	154VS	304VS	30LF 30LFS	55BL 55LF	75BL 75LFS
H260B	20	13 (12)	8 (6)	5 (4)	13 (12)	36 (30)	20 (18)	9 (7)	9 (7)	5	4

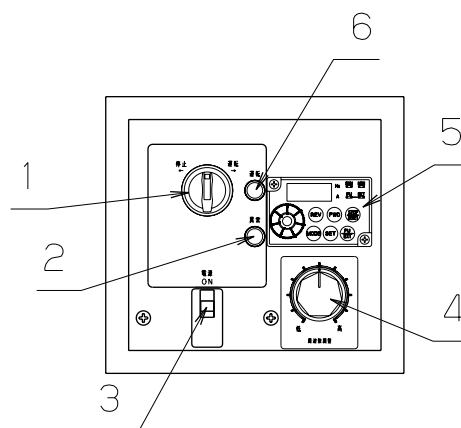
※ The values in the parentheses () in the table are estimates of the number of vibrator that can be used when the vibrators are simultaneously and continuously used under overload conditions.

○ PART OF NAMES



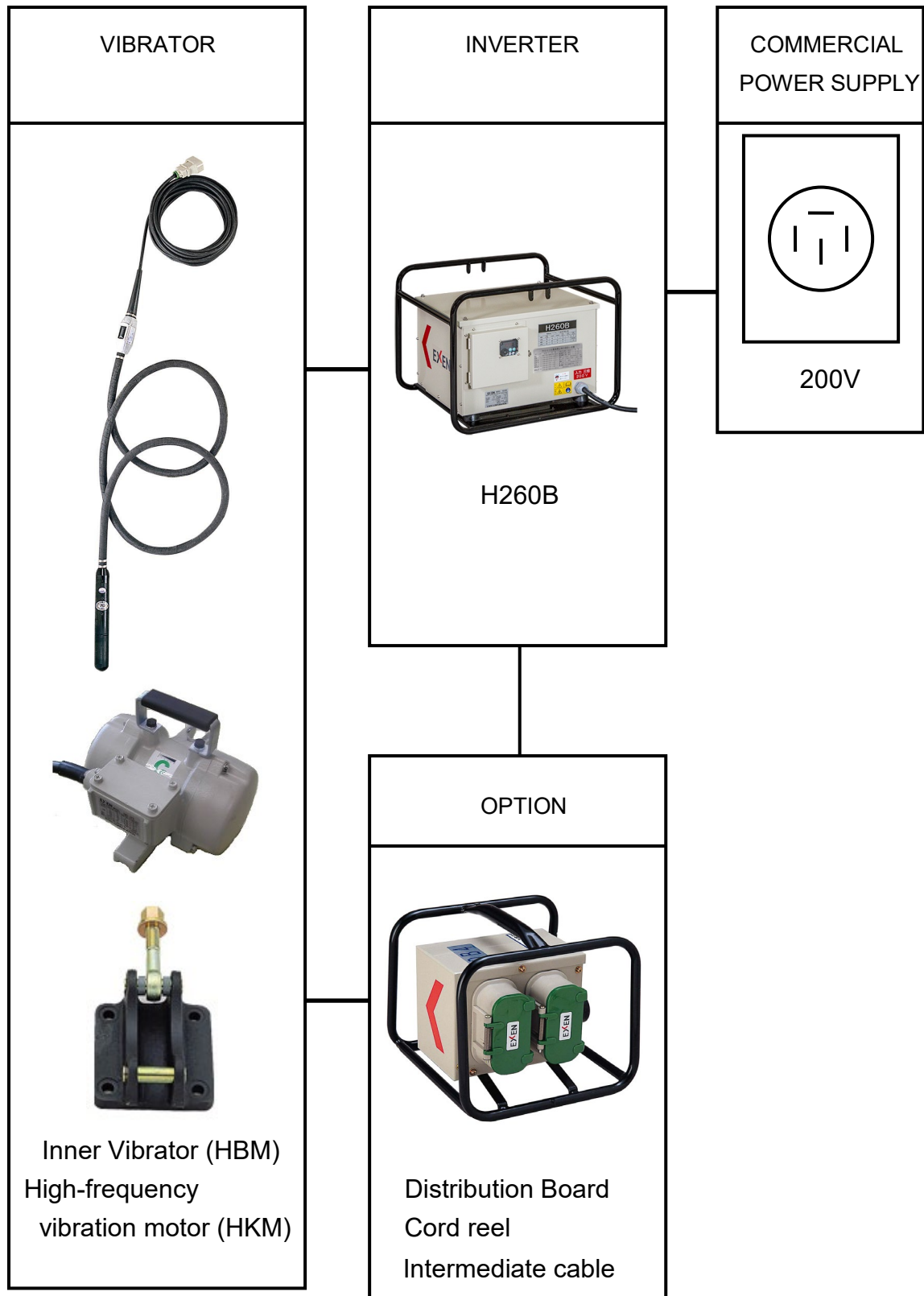
1	Operation panel	4	Input cable
2	Frame	5	Terminal block (Inside the Inverter)
3	Plug	6	Box cover

■ Inside of operation door



1	Start switch (Start/Stop)	4	Variable frequency knob
2	Indicator light (Abnormality)	5	Digital Frequency Indicator
3	Breaker	6	Indicator light (Operation)

○ SYSTEM CONFIGURATION



○ OPERATIONS

 **When using this product, place it in a well-ventilated area with little unevenness.**

Also, keep it away from rain and water. There is a risk of electric shock."

1. Make sure the breaker of the inverter is "OFF".
2. Plug the inverter into the power supply and turn the breaker to "ON". After about 5 seconds, the inverter will output high-frequency power.
 - ※ Be sure to operate this product within the voltage specified in the nameplate.
3. Make sure that the vibrator switch is OFF.
4. Plug the vibrator into the inverter outlet.
 - ※ Make sure that the hook of the outlet case cover is securely attached to the plug and not to unplug even if you pull it.
5. Hold the vibrator hose so that the head assembly is suspended.
6. After preparation has been completed (by sending a sign to the person operating the switch), turn the vibrator switch ON. Start placing ready-mixed concrete.
 - ※ Refer to the vibrator's operation manual for the vibrator's operating procedure.
 - ※ When operating the high-frequency vibration motor mounted in the formwork, adjust the output frequency with the variable frequency knob so that it does not resonate.
7. When the work is finished (by sending a sign to the person who operating the switch), turn the vibrator switch OFF.
8. Unplug the vibrator from the inverter outlet.
 - ※ Unfasten the clips on the cover of the outlet case and remove the plug.
9. Turn the start switch of the inverter to the "STOP" side.
10. Turn the inverter breaker to "OFF" and unplug the input plug from the power supply.

○ CONNECTING THE OUTPUT CABLE



Be sure to disconnect the plug from the power supply before making connections. Otherwise, you may get an electric shock.

- Connect the output cable to the terminal block inside the inverter. The output cable can be extended and connected to the distribution board. Follow the steps below.
 1. Make sure that the plug is unplugged from the power source.
 2. Remove the box cover of the inverter.
 - ※ Pass the output cable through the connector. Use an output cable of 3.5 mm² or larger.
 3. Connect the cables to the terminal block "U, V, and W" inside the inverter.
 4. Securely fasten the cable with the connector to prevent it from being disconnected.
 5. Tighten the box cover.
 6. Connect the output cable to the optional equipment (distribution board or power distribution box).
- ※ For details on how to connect to the optional equipment, refer to the instruction manual of the optional equipment.

○ CLEANING AND TRANSPORTATION AFTER USE

- After use, clean well and bundle the cable.
 1. Remove the concrete adhering to the body before it hardens.
 2. Clean the dust and concrete on the inverter outlets and vibrators.
 3. Do not wash the inverter with water.
 4. The cable will be easy to carry if it is rounded up small and tied to the frame in two places.
 5. To carry, hold the frame. Don't grab or pull the cable.

○ INSPECTION

- Be sure to inspect the following items before and after delivery to the site. It prevents any trouble as much as possible during use.

1. Is there any dirt or rust on the plugs or terminals?
2. Are there any wear or cracks on the cable?
3. Is there any dirt or rust on the outlet's connectors?
4. Can the switch be turn ON and OFF properly?
(Switch is always off at the time of shipment.)
5. Can the vibrator be used?
6. Is it possible to adjust the output frequency with the variable frequency knob?
7. Make sure that the digital frequency indicator is displayed.
8. Is the insulation resistance value correct? (DC500V, 10MΩ or more)
 - (1) Use an insulation resistance meter for 500V as a tester.
 - (2) Please measure between one pole each of the plug and the outlet and the inverter body.

 **When measuring insulation resistance, never measure between each pole of the plug and outlet.
Semiconductor components might be broken.**

○ TROUBLESHOOTING

Operation	Phenomenon	Cause	Remedy
Vibrator Enabled	Stops when a load is applied.	Failure of internal parts	Replacement of internal parts
		Overload	Reduce the load
Vibrator Disabled	It doesn't work. (No driving noise.)	Broken cable	Repair it
		Switch malfunction	Replace the switch
		Failure of internal parts	Replacement of internal parts

○ CAUSES AND COUNTERMEASURES IN CASE OF ABNORMAL STOP

Operation panel indicator		Cause	Measure
<i>Uu</i>	UV	Power supply under voltage	Restore the power supply voltage to 200V.
<i>E.OC1</i>	E.OC1	Overcurrent during load operation	Restore short-circuit and ground fault on the load side.
<i>E.OC2</i>	E.OC2	Overcurrent during load operation	Restore short-circuit and ground fault on the load side.
<i>E.OC3</i>	E.OC3	Overcurrent during load operation	Restore short-circuit and ground fault on the load side.
<i>E.OV1</i>	E.OV1	Overvoltage during load operation	Do not turn "ON/OFF" the power frequently on the load side.
<i>E.OV2</i>	E.OV2	Overvoltage during load operation	Do not turn "ON/OFF" the power frequently on the load side.
<i>E.OV3</i>	E.OV3	Overvoltage during load operation	Do not turn "ON/OFF" the power frequently on the load side.
<i>E.OV3</i>	E.OV3	Overvoltage during load stop	Restore the power supply voltage to 200V.
<i>E.THT</i>	E.THT	Overload	Ensure that the model and number of vibrators are appropriate.
<i>E.THM</i>	E.THM	Overload	Ensure that the model and number of vibrators are appropriate.
<i>E.FIN</i>	E.FIN	Overheat of the cooling fin	Clean inside of the main unit and inspect the cooling fan.
<i>E.ILF</i>	E.ILF	Missing phase of power supply	Check the power supply cable and the interphase voltage balance.
<i>E.OLT</i>	E.OLT	Overload	Ensure that the model and number of vibrators are appropriate.
<i>E. bE</i>	E.BE	Brake malfunction	Do not turn the power "ON/OFF" frequently on the load side.
<i>E. GF</i>	E.GF	Ground-fault during the load start-up	Restore the ground-fault on the load side.
<i>E. LF</i>	E. LF	Open phase of output	Restore the open phase on the load side.
<i>E.PUE</i>	E.PUE	PU missing	Restore the connection with the communication cable of the operation panel.
<i>E. 5</i>	E.5	CPU error (Inverter failure)	Please contact with EXEN.
<i>E.CPU</i>	E.CPU		
<i>E.I OH</i>	E.IOH	Inrush current suppression circuit malfunction	Do not turn the power "ON/OFF" frequently.

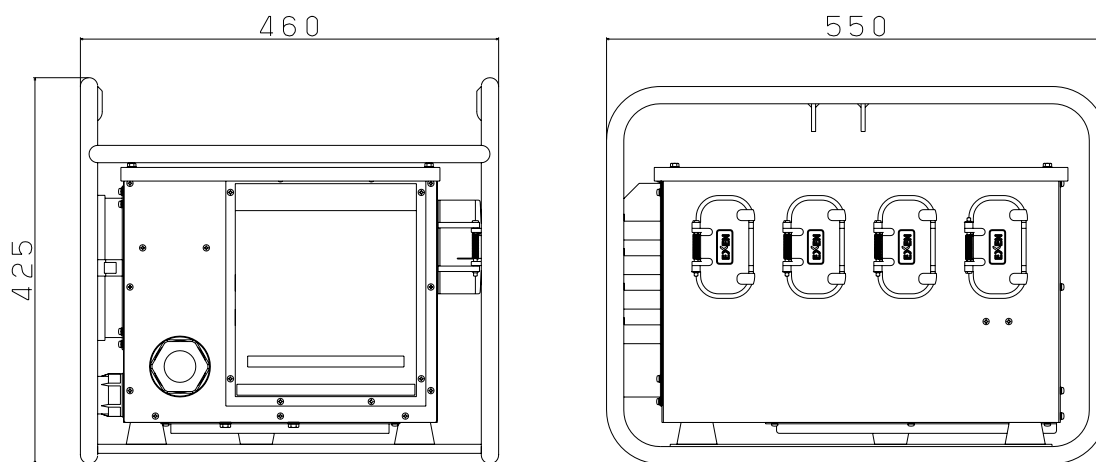
○ SPECIFICATIONS

Model	Input				Output				Number of output outlets	Total weight (kg)
	Rating capacity (kVA)	Voltage (V)	Current (A)	Frequency (Hz)	Rating capacity (kVA)	Voltage (V)	Current (A)	Frequency (Hz)		
H260B	6.4	200	18.5	50/60	6.0	48	72.0	100~240	4	49.0

■ Dimension table

Model	Dimension(mm)		
	L	W	H
H260B	550	460	425

■ Dimension drawing



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