

Operating Manual

Mark Levinson®
N°20.6
Monaural Reference Amplifier

Important safety instructions

Read all instructions and precautions carefully and completely before operating your N°20.6 Monaural Reference Amplifier.

1. **ALWAYS** disconnect your entire system from the AC mains before connecting or disconnecting any cables, or when cleaning any component.
2. This product is equipped with a three-conductor AC mains power cord which includes an earth ground connection. To prevent shock hazard, all three connections must **ALWAYS** be used. If your electrical outlets will not accept this type of plug, an adapter may be purchased. If an adapter is necessary, be sure it is an approved type and is used properly, supplying an earth ground. If you are not sure of the integrity of your home electrical system, contact a licensed electrician for assistance.
3. AC extension cords are not recommended for use with this product. If an extension cord must be used, be sure it is an approved type and has sufficient current-carrying capacity to power this product.
4. **NEVER** use flammable or combustible chemicals for cleaning audio components.
5. **NEVER** operate this product with any covers removed.
6. **NEVER** wet the inside of this product with any liquid.
7. **NEVER** pour or spill liquids directly onto this unit.
8. **NEVER** block air flow through ventilation slots or heatsinks.
9. **NEVER** bypass any fuse.
10. **NEVER** replace any fuse with a value or type other than those specified.
11. **NEVER** attempt to repair this product. If a problem occurs, contact your Mark Levinson® dealer.
12. **NEVER** expose this product to extremely high or low temperatures.
13. **NEVER** operate this product in an explosive atmosphere.
14. **ALWAYS** keep electrical equipment out of the reach of children.

Thank you for choosing the Mark Levinson® N°20.6 Monaural Reference Amplifier.

A great deal of effort went into the design and construction of this precision device. Used properly, it will give you many years of enjoyment.

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Unpacking and placement

Unpacking Unpack your N°20.6 Monaural Reference Amplifier and keep all packing materials for future transport. Because of the weight of the unit, handles are provided front and rear so two people may lift and carry the amplifier comfortably and without risk of injury.

Carefully inspect the product for damage and flaws. If you discover any, contact your Mark Levinson dealer immediately.

Placement To get the best performance from the N°20.6, speaker cables should be as short as possible. Place the N°20.6 as close to the loudspeakers as is practical.

Place the N°20.6 at least three feet away from the turntable and preamplifier; otherwise, the N°20.6 may induce hum in these sensitive components.

Ventilation The N°20.6 may be placed in a cabinet or on a shelf, but adequate ventilation must be provided to prevent overheating. The clearance provided by the unit's feet must be maintained to ensure unrestricted air flow through the heatsinks and vents in the bottom of the chassis. (Placing the N°20.6 on carpeting, for example, may prevent adequate ventilation.) Clearance above the unit must also be maintained to allow air circulation and to prevent heat buildup.

The N°20.6 incorporates thermal sensors located near each group of output devices. If the heatsink temperature becomes excessive, these sensors will shut off the amplifier before damage results. After a brief cooling period, the amplifier can be reactivated via the front panel switch. If this occurs regularly during normal use, it's an indication that the ventilation provided for the amplifier is inadequate. If there's adequate ventilation and the problem continues, see your Mark Levinson dealer immediately.

This product doesn't comply with EIA rack-mount standards. A 19" rack-mountable front plate is available from your Mark Levinson dealer.

Custom installations For custom installations and cabinetry, this information may be helpful:

- All temperature measurements are made at the top of the heatsink, 3.5" behind the front plate.
- Normal heatsink temperature at idle after warmup, with unrestricted airflow at 22°C (72°F) ambient temperature: 44°C (111.2°F).
- Maximum permissible heatsink temperature before thermal protection is activated: 80°C (176°F).

To facilitate special installations and custom cabinetry, drawings are included in this manual (see "Dimensions").

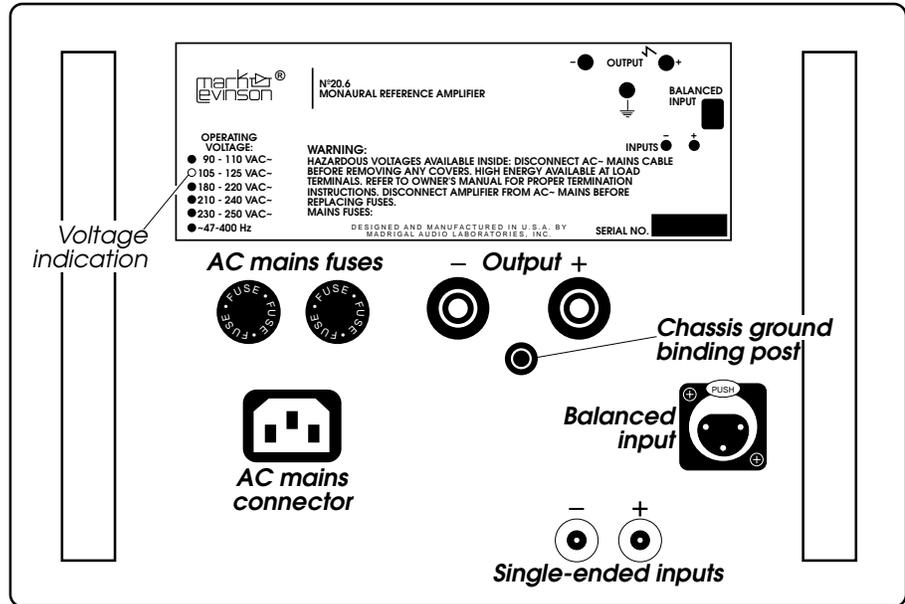
PRECAUTION

For your protection, review "Important safety instructions" before you install your N°20.6.

Voltage selection

The N°20.6 can be internally set for 100V, 120V, 200V, 220V, or 240VAC mains operation. Make sure that the label on the rear panel indicates the correct AC operating voltage for your location.

Figure 1: Rear panel



If the voltage indicated is incorrect, see your Mark Levinson dealer.

If you wish to change the AC operating voltage of your N°20.6, contact your Mark Levinson dealer.

A pair of N°20.6 amplifiers may be powered by a 15-ampere AC mains line. For optimum performance into lower impedance loads, however, it's recommended that the AC mains outlets used for the N°20.6 be capable of supplying a minimum of 15A @ 100V or 120VAC, and 7.5A @ 200V, 220V, or 240VAC **per amplifier**. If other devices are also powered from the same AC circuit, their additional power consumption must be considered.

Two slow-blow 250V 3AG fuses (10A @ 100V or 120VAC, and 5A @ 200V, 220V, or 240VAC) are located on the rear panel of the N°20.6. Replace the fuses with the same type only.

PRECAUTION

ALWAYS remove the AC cord before removing the fuses.

Signal connection

Connectors The N°20.6 incorporates RCA-type and XLR-type connectors for audio signal input.

The Madrigal-designed RCA-type connectors used for single-ended audio interconnection are a great improvement over ordinary RCA-type connectors. The gold-plated XLR-type connectors employed are of European design, and are made to professional application standards.

Cables When connecting the N°20.6 to a preamplifier, we recommend Madrigal Audio Laboratories HPC Interconnect Cable. HPC is available in various lengths, terminated with RCA, XLR, and Camac connectors. For more information, see your Mark Levinson dealer.

Connection methods and operating modes The N°20.6 can be operated in either single-ended or balanced mode. In each of these modes, the N°20.6 can be operated either normally (non-inverting) or inverting.

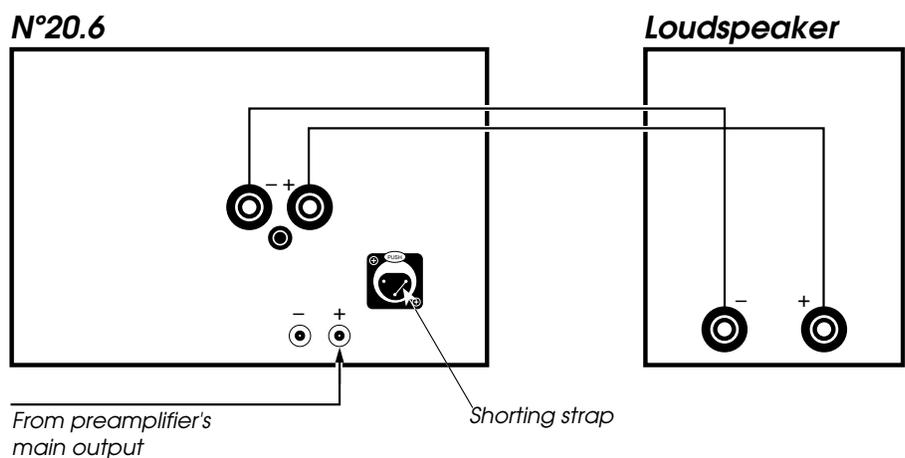
This manual describes the connections for single-ended normal (non-inverting), single-ended inverting, and balanced normal (non-inverting) operation. If you have questions about these or other methods of signal connection, see your Mark Levinson dealer.

Single-ended normal (non-inverting) operation

Typical audio systems require that the amplifier be non-inverting. This means that the output signal of the amplifier will be in phase with the input signal.

For single-ended normal operation, connect the appropriate channel of the preamplifier's main output to the non-inverting (+) input on the rear panel of the N°20.6. Be sure to insert the shorting strap (included in the accessory pack) between pins 1 and 3 of the XLR-type connector on the rear panel of the N°20.6.

Figure 2: Connections for single-ended normal (non-inverting) operation

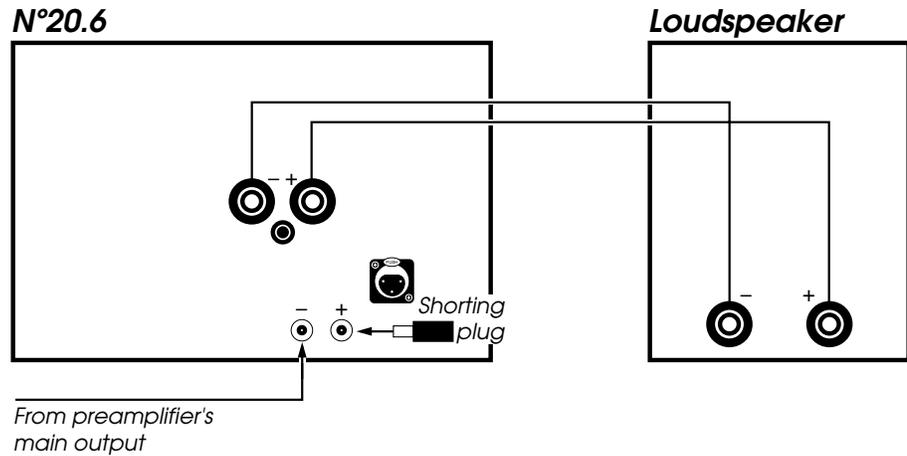


Single-ended inverting operation

If one component in the system inverts the signal and absolute phase at the loudspeaker is desired, inverting operation should be used. In this mode, the output signal of the amplifier will be 180° out of phase with the input signal.

For inverting operation, connect the appropriate channel of the preamplifier's main output to the inverting (-) input on the rear panel of the N°20.6. Insert a shorting RCA-type connector (available from your Mark Levinson dealer) into the non-inverting (+) input on the rear panel of the N°20.6.

Figure 3: Connections for single-ended inverting operation



Balanced normal (non-inverting) operation

If your preamplifier is equipped with a balanced main output, and particularly if long cable lengths are required between your preamplifier and the N°20.6, it's best to wire the N°20.6 for balanced operation.

For balanced operation, connect the preamplifier's main output to the XLR-type input connector on the rear panel of the N°20.6. The pin assignments of this connector are:

Figure 4: Female input connector



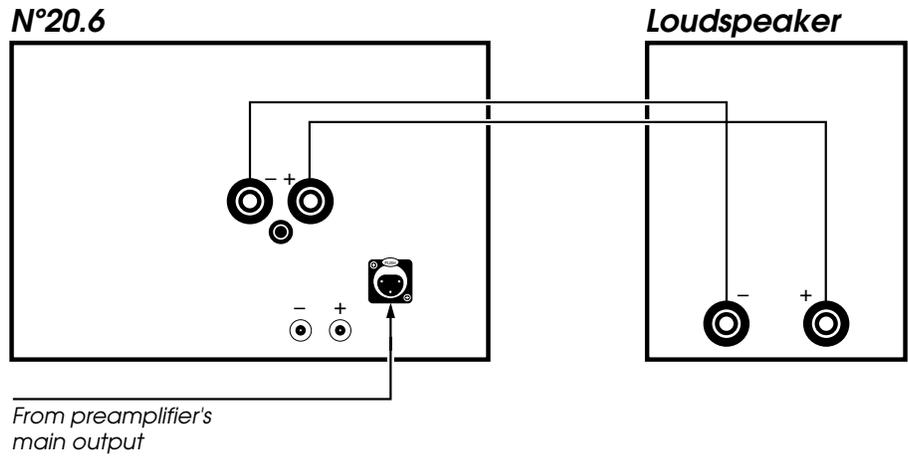
- Pin 1: Signal ground
- Pin 2: Signal + (Non-inverting)
- Pin 3: Signal - (Inverting)
- Connector ground lug: Chassis ground

Connect the XLR-type male line-mount connector to the preamplifier's main output cable (carefully observing pin assignments). Refer to your preamplifier's operating manual to verify that the pin assignments of its output connector correspond to Figure 4. If they don't, wire the connector so that the appropriate output pin connects to the equivalent input pin.

When complete, connect your preamplifier's main output to the XLR-type input connector on the rear panel of the N°20.6.

Note: For proper balanced operation, no connector (pre-shorted or otherwise) should be inserted into the RCA-type inputs on the rear panel of the N°20.6.

Figure 5: Connections for balanced normal (non-inverting) operation



Speaker connections

PRECAUTION

NEVER connect the N°20.6 output terminals to any device other than a loudspeaker.

PRECAUTION

NEVER short-circuit the amplifier output terminals.

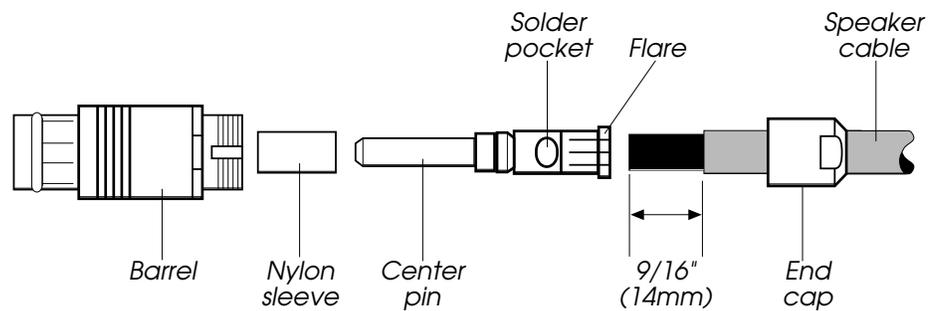
The N°20.6 is equipped with special gold-plated, self-locking speaker connectors to optimize power transfer to the speaker cables. These connectors are rated at 50A continuous/80A peak current capability and represent an audible improvement over conventional connectors. Two color-coded line-mount speaker connectors are included in the accessory pack for use with the N°20.6.

To take full advantage of the sonic quality of the N°20.6, we recommend using high-quality speaker cable. For more information, see your Mark Levinson dealer.

Assembling the speaker connectors

Note: If you have no experience in soldering, please contact your Mark Levinson dealer for assistance.

Figure 6: Line-mount speaker connector assembly



1. Disassemble the male connector by rotating the end cap counterclockwise.
2. Slide the end cap over the cable.
3. Remove 9/16" (14mm) of insulation from the end of the speaker cable.
4. Insert the cable conductor into the center pin. The insulation should fit snugly into the flare.
5. Solder the cable to the center pin via the solder pocket. A high-wattage soldering gun may be necessary to provide adequate heat.

Don't over-solder. Excessive solder may cause the center pin to short to the connector housing. This will prevent the amplifier from operating properly.

6. Assemble the connector by inserting the center pin through the nylon sleeve and into the barrel. Hold the barrel and tighten the end cap with a 12mm open-end wrench (an adjustable wrench may also be used).

Connecting the speakers

When the speaker cables are complete, connect the + (positive or red) output post of the N°20.6 to the + (positive or red) input terminal of the appropriate loudspeaker. Connect the - (negative or black) output post of the N°20.6 to the - (negative or black) input terminal of the appropriate loudspeaker.

Chassis ground

A black binding post is provided on the rear panel of the N°20.6 for connection to chassis ground. This connector is for use where the chassis of two or more components must be interconnected to reduce hum.

PRECAUTION

***NEVER** use this binding post as a loudspeaker connection.*

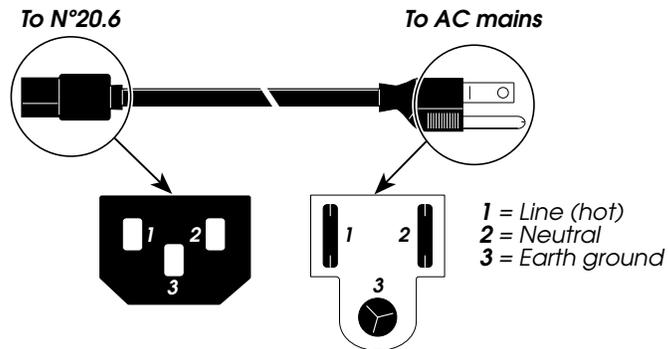
Power connection

After making your loudspeaker connections, apply power to your preamplifier and allow it to stabilize. (Mark Levinson preamplifiers, for example, require about one minute to stabilize.)

Connecting the AC power cord

Connect the AC power cord (included in the accessory pack) to the AC connector on the rear panel of the N°20.6, then to the AC mains outlet.

Figure 7: AC power cord polarity



Turn on the N°20.6 by setting the power switch on the front panel to the "I" (on) position.

Note: You may hear a transient "click" or "pop" through your speakers a few seconds after you operate the N°20.6's power switch. This noise is normal and won't damage your speakers.

Performance tips

The N°20.6 won't achieve its sonic potential right away — its sonic performance is close to the optimum after about 100 hours of use. For the best performance, you may leave your N°20.6 powered at all times, except when you won't be using it for a long period (see "Important Safety Instructions").

The N°20.6 is designed to be "power-cycled" (that is, turned on and off) without affecting its longevity. After the amplifier is turned on after being left unpowered, allow for about one hour of warmup before expecting optimal sonic performance.

Protection circuitry

Under certain conditions (an electrical malfunction or inadequate ventilation), the N°20.6's protection circuitry may activate, turning off the amplifier before damage results. When this happens, the power switch on the front panel will be set automatically to the "O" (off) position. After a brief cooling period, you can reactivate the amplifier by setting the power switch to the "I" (on) position.

If this occurs regularly during normal use, see your Mark Levinson dealer immediately.

Note: While the protection circuitry is active, the power switch won't stay in the "I" (on) position. If, after the amplifier has cooled, the power switch still won't engage, the protection circuitry still detects a malfunction; see your Mark Levinson dealer immediately.

Bridged operation

When greater power output is desired, two N°20.6 amplifiers may be bridged to drive load impedances of at least 2Ω.

Note: Make sure the loudspeaker is rated to handle extremely high power levels. For example, the output power of a pair of bridged N°20.6 amplifiers is four times that of a single unit driving the same load (see the chart below).

<u>Nominal Load Impedance</u>	<u>Bridged Power Output</u>
8Ω	400W
4Ω	800W
2Ω	1250W*

*Continuous sine-wave power. Pulsed power will be higher.

Connections for balanced bridged operation

When using N°20.6 amplifiers in bridged mode with loudspeakers that are biamp-able, we strongly recommend using a high-quality electronic crossover and operating in the biamp mode.

For the best bridged performance, we recommend balanced interconnection. If your preamplifier provides balanced output, follow the steps below.

Figure 8: Connections for balanced bridged operation

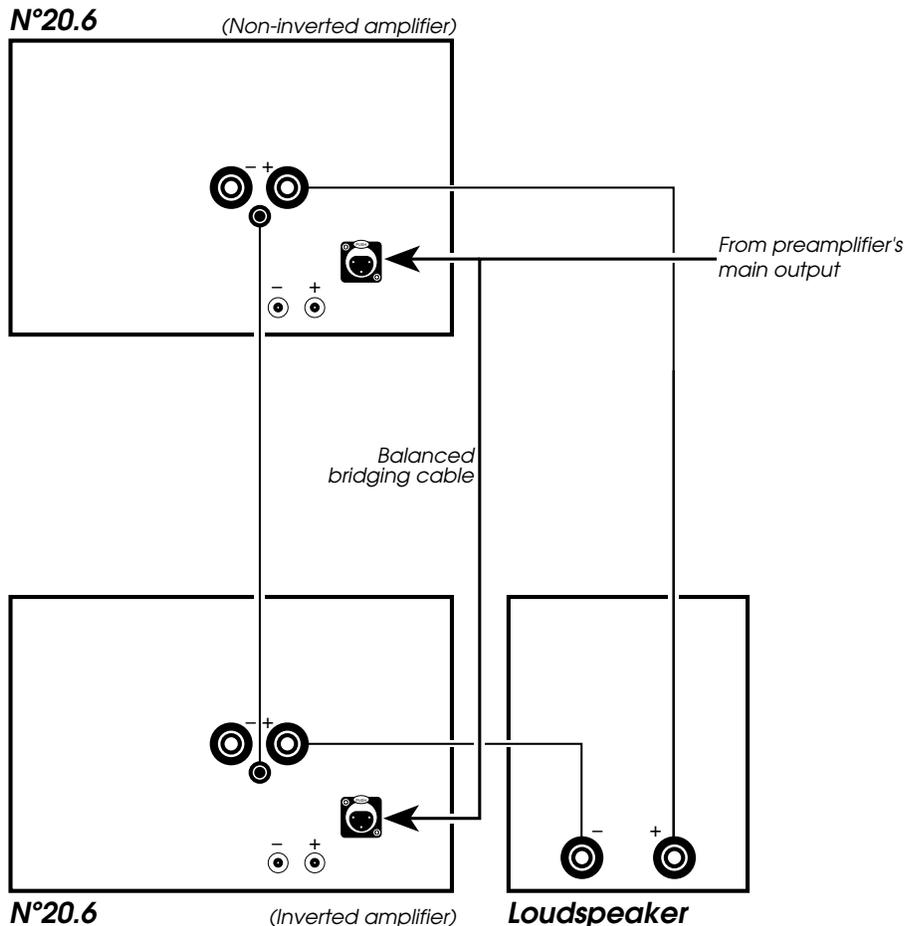
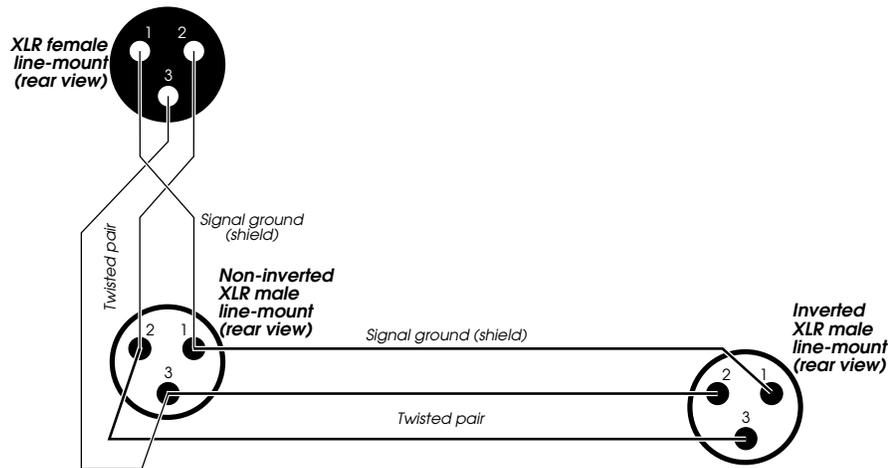


Figure 9: Balanced bridging cable



Note: If fabricating the cable, be sure to use high-quality audio interconnect cable (such as Madrigal HPC).

Connect the bridging cable's female XLR-type connector to the appropriate channel of your preamplifier's balanced main output.

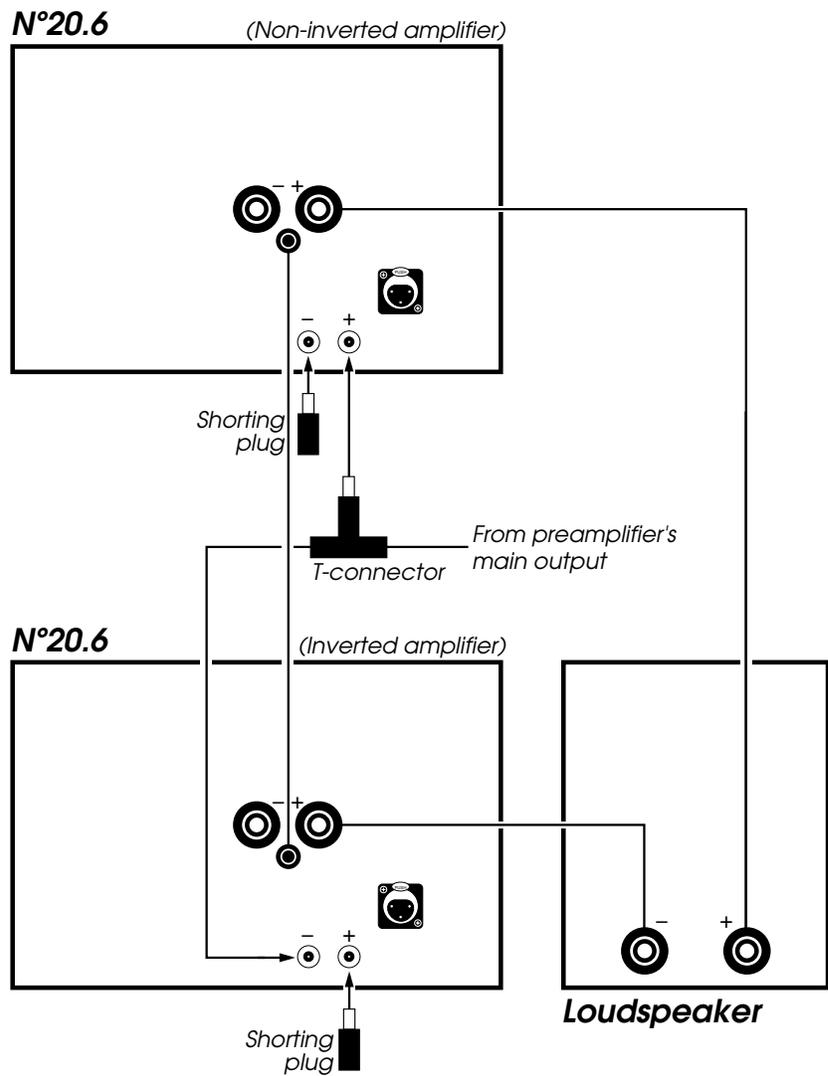
2. Connect the bridging cable's male XLR-type connectors to the balanced inputs of the inverting and non-inverting N°20.6 amplifiers.
3. Connect the positive (+) output of the normal (non-inverted) amplifier to the + (positive or red) input terminal of the loudspeaker. Connect the positive (+) output of the inverted amplifier to the - (negative or black) input terminal of the loudspeaker.
4. Connect another short piece of heavy-gauge speaker wire between the chassis ground binding post of each amplifier.

Connections for single-ended bridged operation

If your preamplifier provides only single-ended output, follow the steps below.

1. Connect the appropriate channel of the preamplifier's main output to the non-inverting (+) input of the normal (non-inverted) amplifier. Using a second preamplifier main output from the same channel, or a T-connector (available from your Mark Levinson dealer), connect this input to the inverting (-) input of the inverted amplifier.
2. Insert an RCA-type shorting plug (available from your Mark Levinson dealer) in each of the two remaining unused inputs.

Figure 10: Connections for single-ended bridged operation



3. Connect the positive (+) output of the normal (non-inverted) amplifier to the + (positive or red) input terminal of the loudspeaker. Connect the positive (+) output of the inverted amplifier to the - (negative or black) input terminal of the loudspeaker.
4. Connect another short piece of heavy-gauge speaker wire between the chassis ground binding post of each amplifier.

Care and Maintenance

Cleaning To remove dust from the cabinet of the N°20.6, use a feather duster. To remove dirt and fingerprints, we recommend isopropyl alcohol and a soft, lint-free cloth.

Poor connections cause sonic degradation. We recommend, therefore, that you clean all speaker connections with denatured alcohol at least once a year. See your Mark Levinson dealer for other ways to optimize connections.

Fuses Two slow-blow 250V 3AG fuses (10A @ 100V or 120VAC, and 5A @ 200V, 220V, or 240VAC) are located on the rear panel of the N°20.6. Replace the fuses with the same type only.

PRECAUTION

ALWAYS remove the AC cord before removing the fuses.

Specifications

The correlation between published specifications and sonic quality is unreliable. A list of numbers reveals virtually nothing. All technical measurements must be subject to qualitative as well as quantitative interpretation.

Measurements of the N°20.6 yield excellent results by any standards. However, only those specifications that apply to the actual operation of the amplifier are included here.

- **Rated power:** 100W minimum continuous sine-wave power into 8Ω, from 20Hz-20KHz with no more than 0.2% THD (FTC). 200W minimum continuous sine-wave power into 4Ω, from 20Hz-20KHz with no more than 0.3% THD (FTC).
- **Peak output voltage:** 40V @ rated line voltage
- **Frequency response:** (-3dB) 4Hz, 140KHz
- **Input impedance:** 50KΩ shunted by 1.5nF
- **Voltage gain:** 26.9dB
- **Power consumption:** Typically 500W @ rated output @ 8Ω, 50Hz to 400Hz and at idle
- **Overall dimensions:** See "Dimensions"
- **Shipping weight:** 90 lbs. (40.9kg)
- **Connector complement:**
 - 2 RCA-type connectors
 - 1 three-pin XLR-type connector
 - 2 Fischer output connectors
 - 1 binding post
 - 1 IEC mains connector

For more information, see your Mark Levinson dealer or contact:

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Middletown, Connecticut 06457 U.S.A.

Telephone: (203) 346-0896
FAX: (203) 346-1540

If purchased in North America, this Mark Levinson product's warranty is owner-transferable. Warranty conditions are valid only in the country where the product was originally purchased.

For warranty information and conditions on products purchased outside of North America, contact your local dealer or regional distributor.

Dimensions

Figure 11A: Dimensions, N°20.6, top view

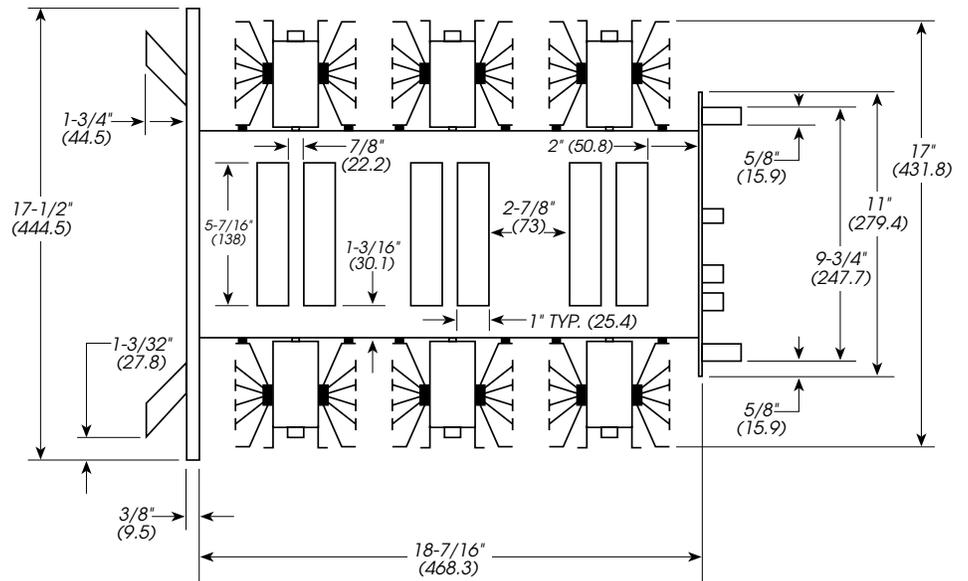
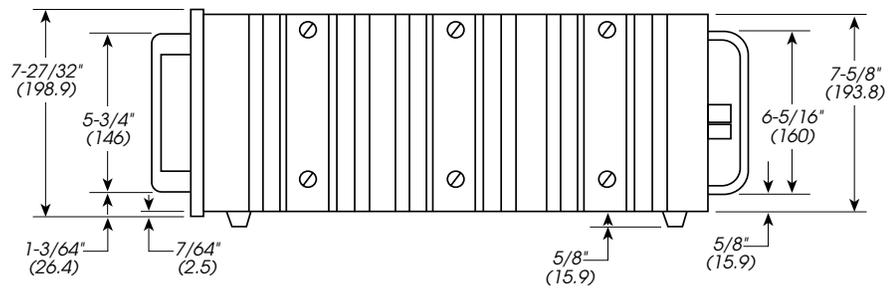


Figure 11B: Dimensions, N°20.6, side view



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