

REFERENCE MEASUREMENT AMPLIFIERS

Stereo and Mono Models



USER MANUAL

Operation • Connections • Safety • Technical Data

REVISION 1.1 | JULY 2026

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Read This First

Safety, intended use and product overview



COMPACT LABORATORY POWER

Designed for controlled electroacoustic measurement and development work.

Balanced XLR and unbalanced RCA input

4 mm laboratory output terminals

Front-panel mute for setup changes



DANGER – ELECTRIC SHOCK The amplifier contains hazardous mains voltages. Never open the enclosure while connected to the mains. Internal service must be carried out only by qualified personnel.

The PHYSICAL LAB Reference Measurement Amplifiers are compact laboratory power amplifiers for electroacoustic development, controlled loudspeaker testing and measurement applications. The product family comprises a two-channel stereo model and a high-power mono model.

Essential safety rules

- Use the amplifier indoors in a dry, stable and well-ventilated location.
- Engage Mute or switch the amplifier off before connecting or disconnecting a device under test (DUT).
- Use only the mains supply stated for the individual unit.
- Do not cover the enclosure or obstruct airflow around the aluminium housing.
- Do not operate the stereo model below 2.5 Ω per channel or the mono model below 3.0 Ω .
- The mono output is bridged and floating. Neither output terminal is ground.
- Do not use the mono amplifier with the PHYSICAL LAB IMP-Box or another ground-referenced interface.
- Use cables, connectors and loads rated for the expected voltage, current and power.

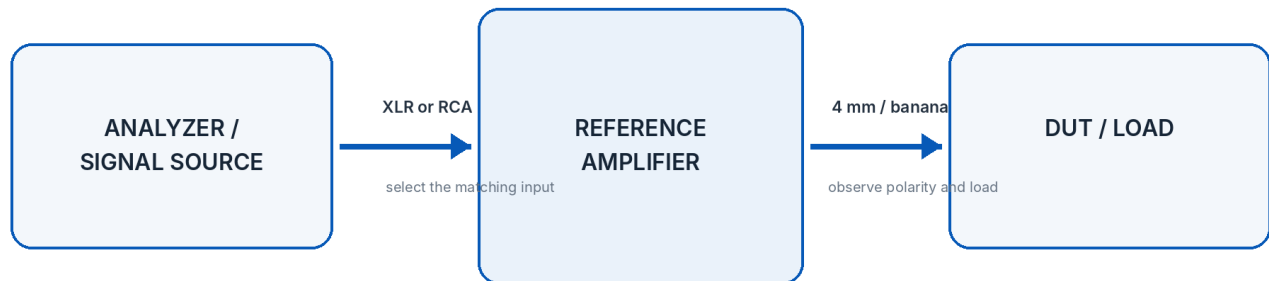
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Manual structure

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!	Documentation scope This edition intentionally excludes internal input-sensitivity adjustment and mains-voltage / fuse service instructions. Internal work must be performed by qualified personnel.	

Quick Start

Basic connection and power-up sequence



Connection sequence

- 1. Place and inspect** Place the amplifier on a stable, ventilated surface. Check the enclosure, mains lead and connectors for damage.
- 2. Engage Mute** Set the front-panel Mute switch to Mute On before changing any connection.
- 3. Connect the source** Connect the analyzer or signal source to the XLR or RCA input and select the matching input on the rear panel.
- 4. Connect the DUT** Connect the loudspeaker or load to the 4 mm output terminals. Observe polarity and the minimum load impedance.
- 5. Connect mains power** Use a suitable IEC C7 mains lead with the rear IEC C8 inlet and the supply stated for the unit.
- 6. Power on** Press the illuminated front-panel power button and confirm normal operation before removing mute.
- 7. Begin at low level** Start with a low generator level. Remove mute and increase the level gradually while monitoring the DUT and amplifier.
- 8. Power down safely** Reduce the signal, engage mute, switch off the amplifier and only then disconnect the DUT or measurement equipment.



Measurement practice For sensitive drivers, prototypes and high-power tests, use an appropriate protection network and verify the complete setup at low level before increasing power.

Front Panel Controls

Stereo model at left, mono model at right



No.	Control	Function
1	Stereo power button	Switches the stereo amplifier on or off. The illuminated ring indicates that the unit is powered.
2	Stereo mute switch	Mute On suppresses both stereo outputs while connections or test conditions are changed.
3	Mono power button	Switches the mono amplifier on or off. The illuminated ring indicates that the unit is powered.
4	Mono mute switch	Mute On suppresses the bridged mono output before changing connections or the DUT.

Recommended use of Mute

Mute is intended for short setup changes and level transitions. It does not replace mains isolation. Switch the amplifier off and unplug the mains lead before service work or before any internal access.

Sensitive DUTs Always engage Mute before connecting tweeters, compression drivers or unprotected prototypes. Verify generator offsets and transients before enabling the output.

Rear Panel Connections

Connector identification



No.	Connection	Function
1	Stereo outputs	Left and right 4 mm laboratory terminals. Red is positive; black is negative.
2	Stereo balanced inputs	Left and right XLR inputs.
3	Stereo mains inlet	IEC C8 inlet for a suitable IEC C7 mains lead.
4	Fuse	Fuse holder
5	Mono bridged output	Floating 4 mm output terminals. Neither terminal is ground.
6	Mono balanced input	Single XLR input.
7	Mono outputs + mains input	Left and right 4 mm laboratory terminals. Red is positive; black is negative
8	Fuse	Fuse holder

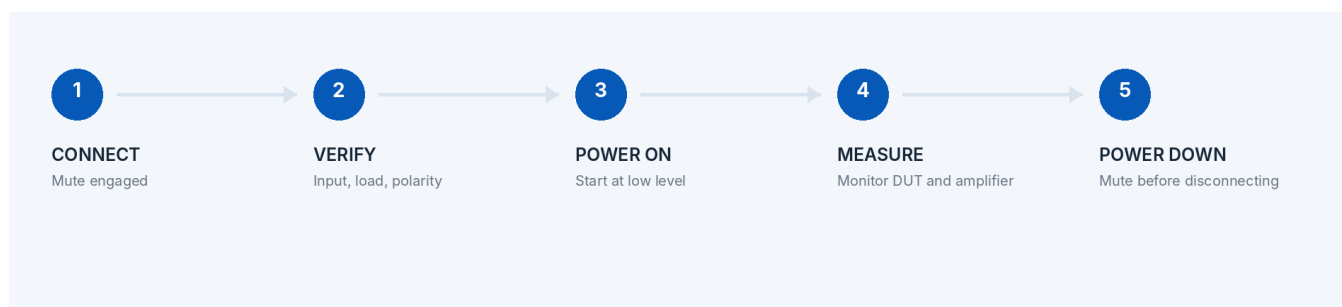


Input selector The rear XLR/RCA selector must match the connector in use. Do not feed both input types simultaneously.

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Operation and Measurement Setup

Using the amplifier in laboratory applications



Input connections

Both models accept balanced XLR and unbalanced RCA signals. The factory input sensitivity is 2 V RMS. Use the rear input selector to choose the active connector. Balanced XLR operation is preferred where long cables or difficult grounding conditions are present.

Stereo operation

Connect left and/or right input channels using XLR or RCA. Connect each load to its corresponding red and black output pair. Unused channels may remain disconnected.

Mono operation

The mono amplifier provides one high-power bridged output. Connect the load only between the red (+) and black (–) output terminals. Treat both output terminals as active conductors.

Level setting procedure

- Set the generator to minimum level and engage Mute.
- Select XLR or RCA and confirm the correct channel routing.
- Switch on the amplifier and verify the power indicator.
- Remove Mute and raise the generator level slowly.
- Monitor output, current, DUT temperature and distortion as appropriate.
- After the test, reduce the level, engage Mute and switch off before rewiring.



DC and low-frequency content Before connecting a sensitive loudspeaker, verify the source for DC offset, turn-on transients and unintended low-frequency signals.

Operating Limits and Mono Output Warning

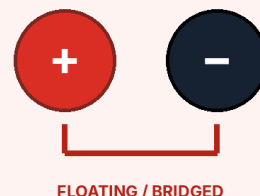
Load, grounding and thermal considerations

MONO OUTPUT IS BRIDGED AND FLOATING

Neither output terminal is connected to signal ground.

Do not connect the black terminal to chassis, analyzer ground, or any ground-referenced measurement interface.

Do not use the mono amplifier with the PHYSICAL LAB IMP-Box.



Minimum load impedance

Stereo model

Use loads above 2.5Ω per channel. Avoid highly reactive loads that drive the effective impedance below this limit.

Mono model

Use loads above 3.0Ω . The bridged topology applies voltage to both load terminals and can deliver high current.

Thermal operation

Allow free airflow around the aluminium enclosure.

Do not place the amplifier on soft material or directly against heat-producing equipment.

High continuous output, low-impedance loads and low-frequency sine tests can produce substantial heat.

Stop the test if there is abnormal odour, intermittent output or excessive enclosure temperature.

Measurement interfaces

Ground-referenced current-sense boxes and single-ended analyzers can short one half of a bridged amplifier. Confirm the input topology of every connected analyzer, oscilloscope, probe and interface before use. Differential probes or galvanically isolated equipment may be required.

Troubleshooting and Maintenance

Common symptoms and corrective actions

Symptom	Possible cause	Action
No power indicator	Mains lead disconnected, wrong supply or internal fault	Disconnect power and check the mains lead and local supply. If the unit remains inactive, arrange qualified service.
Power on, no output	Mute engaged, wrong XLR/RCA selection, source level too low or wiring fault	Confirm Mute Off, selector position, source routing and output connections.
One stereo channel missing	Channel wiring, source routing or channel fault	Swap source channels at low level to isolate the fault. Check both input and output connections.
Unexpected distortion	Input overload, incorrect grounding, unsuitable load or damaged DUT	Reduce level, verify signal routing and measurement grounding, then test with a known suitable load.
Amplifier becomes very hot	Load impedance too low, continuous high-power operation or inadequate ventilation	Stop the test, switch off, allow the unit to cool and verify load impedance and airflow.
Protection or fuse fault	Internal or external fault	Do not bypass protection or install a different fuse. Disconnect the amplifier and arrange qualified service.

Cleaning and storage

Switch off and unplug the amplifier before cleaning.

Use a soft, dry cloth. Do not use solvents, sprays or abrasive cleaners.

Keep liquids and conductive debris away from connectors and enclosure gaps.

Use the original packaging for transport and store the unit in a dry environment.

Before long-term storage, remove all external cables and protect the connectors from impact.

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Technical Specifications

Electrical performance data from the supplied design documentation

Parameter	Mono amplifier	Stereo amplifier
Output power, 1% THD at 1 kHz	200 W	2 × 60 W
Voltage gain	20.5 dB ± 0.2 dB	14.5 dB ± 0.2 dB
SNR, 20 kHz bandwidth	111 dB	106 dB
SNR, 80 kHz bandwidth	89 dB	83 dB
Dynamic range, AES17, 20 kHz BW	109 dB	106 dB
Frequency-response deviation, 20 Hz–20 kHz	±0.10 dB	±0.08 dB
Frequency-response deviation, 10 Hz–50 kHz	±0.35 dB	±0.10 dB
Output noise, 20 kHz bandwidth	74 µV RMS	63 µV RMS
Output impedance, typical	14 mΩ	14 mΩ
Input impedance, typical	47 kΩ	47 kΩ
THD+N ratio, 20 kHz bandwidth	≥ 88 dB	≥ 90 dB
Crosstalk, up to 10 kHz	—	≥ 80 dB
Factory input sensitivity	2.0 V RMS	2.0 V RMS
Minimum recommended load	> 3.0 Ω	> 2.5 Ω per channel
Output topology	Bridged / floating	Two-channel
!	Specification note Output power depends on load impedance, supply conditions and test duration. Use the verified production test conditions for formal product declarations.	

Mechanical Data, Disposal and Contact

Product data and service information

Mechanical / connection data	Mono amplifier	Stereo amplifier
Dimensions, L × W × H	182 × 104 × 56 mm	182 × 104 × 56 mm
Weight	680 g	700 g
Mains inlet	IEC C8	IEC C8
Input connectors	1 × XLR, 1 × RCA	2 × XLR, 2 × RCA
Output connectors	1 pair, 4 mm terminals	2 pairs, 4 mm terminals

End-of-life and recycling

Do not dispose of electrical or electronic equipment with unsorted household waste. Use the applicable collection and recycling system in the country of use. Remove the amplifier from service if the enclosure, mains inlet or internal safety insulation is damaged.

Service information

When requesting service, provide the model, serial number, mains version, a description of the test setup and the observed fault. Do not ship connected cables or a DUT unless requested.

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Revision history

Revision	Date	Description
1.1	July 2026	Unified redesign; current website logo; all document graphics rebuilt; internal adjustment and service chapters removed.