

DESCRIPTION

INTRODUCTION: To complement its extensive line of FET-condenser and prepolarized FET-condenser microphones, AKG offers a wide range of quality phantom-power sources. Covering the entire spectrum of phantom-powering applications, these power sources are available in two distinctly different forms to suit individual user preferences or requirements:

Where ease of connecting, disconnecting and moving the power source are prime considerations (or where it is impractical or inconvenient to derive phantom power from existing studio electronics), an *in-line* phantom-power supply is the logical choice. This type of unit simply plugs in anywhere *along* each microphone's cable run. In this category, AKG offers the following products:

- B-1E one-microphone battery-operated power supply.
- N-62E/N-62ET two-microphone ac-operated power supply.
- N-66E six-microphone ac-operated power supply.

Used singly or in multiples (as required), one or another of these in-line supplies will satisfy the phantom-power requirements for any conceivable number of microphones — whether in the field or in the studio.

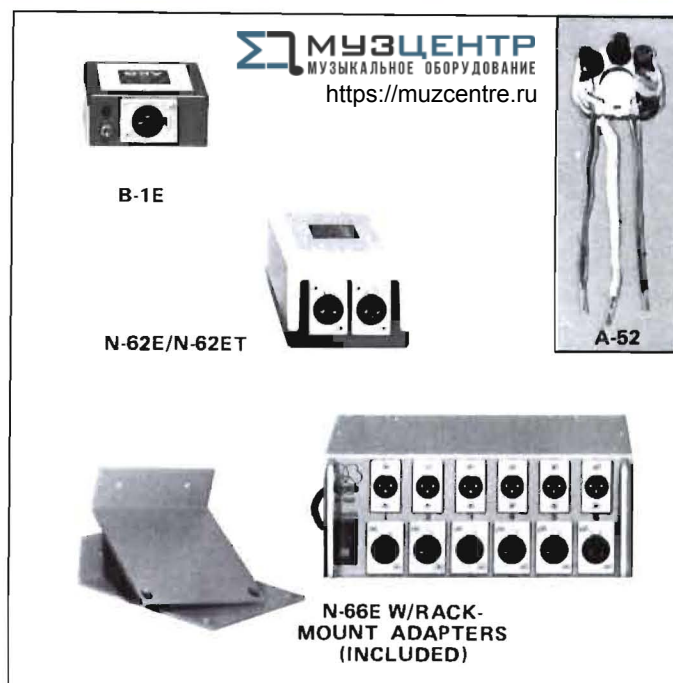
Where economy is the overriding factor (especially in large-scale installations employing many microphone channels), phantom power derived from an existing console, mixer or recorder is preferred. Here, power is applied via the input connector at the very *end* of each microphone's cable run. In such cases, AKG's A-52 electronic *adapter* module (used in multiples as required) provides phantom power on a lower cost-per-input basis than separate in-line power supplies on the one hand, but with far more accuracy, convenience and flexibility than user-installed passive-divider networks on the other hand.

In many cases, these AKG phantom-power sources can also be used with *other* manufacturers' FET-condenser microphones as well — provided that the specific microphone is *phantom* powered (*not* "A-B" or "modulation-lead" powered), and that its voltage and current requirements are within the capabilities of these power sources. See details below and in the Technical Data section.

B-1E: The B-1E is a portable, one-microphone, battery-operated in-line power supply. It will feed ripple-free dc to any phantom-powered microphone capable of operating from a +9-volt dc source. A compact and lightweight unit, the B-1E may be clipped to the user's belt for field applications requiring unencumbered mobility.

Most AKG phantom-powered microphones *are* capable of 9-volt operation, and can therefore be used with the B-1E. (The only exceptions are 48-volt units such as the C-414EB/P48 polydirectional microphone and those C-450 System modular microphone combinations using the C-452E or C-452EB pre-amplifier modules.) Note, however, that a stereophonic microphone requires two B-1Es, while a quadraphonic microphone requires four B-1Es.

CAUTION: The B-1E does *not* use an audio transformer to



isolate the dc phantom power from its audio output. To prevent short-circuiting of this phantom power, use the B-1E only with associated audio equipment having *balanced and floating* (ungrounded) inputs, or with unbalanced (grounded) inputs that you have first *isolated* with accessory audio transformers.

A three-position toggle switch, located on the top of the B-1E, controls the unit's on/off/battery-test functions:

- The center position turns off the B-1E completely (as does disconnecting the microphone).
- The locking position (*away* from the adjacent LED) turns on the B-1E, supplying power to the associated microphone.
- The momentary-contact position (*towards* the adjacent LED) places the battery under simulated-load test. A fresh or good battery (≥ 7.5 volts) will light the LED; a weak or exhausted battery (< 7.5 volts) will fail to light the LED. In this position, power is not applied to the microphone.

CAUTION: To protect the B-1E from damage caused by electrolyte leakage, always remove the battery immediately after it has tested weak or exhausted (and before long periods of disuse or storage). Simply loosen the large captive screw showing through the belt clip, pull the cover off the main housing and unsnap the battery from its connector. After replacing the battery, position the cover with its foam pad over the *battery* and slide the cover *part-way* down onto the main housing (as far as it will go without forcing). Then tighten the large screw until the cover fits flush around all four sides of the main housing.

A rugged and reliable unit, the B-1E is housed in an impact resistant two-tone gray Polystyrol case. To facilitate in-line connection, the B-1E is fitted with a standard 3-conductor female XLR-type input connector (to mate with the cable from the microphone) and a standard 3-pin male XLR-type output connector (to mate with the cable to the microphone input of the associated console, mixer or recorder).

N-62E/N-62ET: The standard N-62E (and its special audio-transformer-isolated version, the N-62ET) is a portable, two-microphone, 120-volt-ac-operated in-line power supply. Specially designed for *adjustment-free* compatibility with both the 12-volt and 48-volt DIN systems of phantom powering (and, in many cases, with intermediate-voltage systems as well), the N-62E/N-62ET will feed regulated, low-ripple dc to the following:

- Up to two 12-volt microphones, each drawing no more than 4 milliamps of current.
- Up to two 48-volt microphones, each drawing no more than 0.5 milliamp of current.
- In many cases, up to two 18-volt or 24-volt microphones, each drawing some suitably *intermediate* value of current. (Because the dc current-consumption ratings of these types of microphones often vary widely by make and/or model, each such microphone to be used should first be *tested* for compatibility with the N-62E/N-62ET.)
- Any *intermixed* combination of two microphones having any of the voltage/current ratings listed above.

As long as the individual conditions and limitations specified above are observed, the N-62E/N-62ET will *automatically* adjust the voltage at *each* of its outputs to the correct value for the particular microphone connected.

AKG phantom-powered microphones are *within* the N-62E's/N-62ET's specified maximum-current limitations, and can therefore be operated *without* modifications to the power supply. Note, however, that a stereophonic microphone requires both outputs of an N-62E/N-62ET, while a quadraphonic microphone requires two N-62Es/N-62ETs.

On the other hand, using another manufacturer's microphone *exceeding* the N-62E's/N-62ET's specified current limitations may cause *low* operating voltage at the power-supply output(s) feeding that microphone. In such cases, it may be necessary to "jump" or "short-out" the internal 6.8k-ohm series resistor at the *affected* output(s) as required (R2 and/or R3 in the Schematics section).

CAUTION: The standard N-62E does *not* use audio transformers to isolate the dc phantom power from its audio outputs. To prevent short-circuiting of this phantom power, use the N-62E only with associated audio equipment having *balanced and floating* (ungrounded) inputs, or with unbalanced (grounded) inputs that you have first *isolated* with accessory audio transformers. The special N-62ET *does* use audio transformers to isolate phantom power from its outputs, and may therefore be used safely with balanced *or* unbalanced inputs. A standard N-62E may be converted at any time to a special N-62ET by installing the required transformer/pc-board assembly; please contact AKG Acoustics, Inc. for further details.

A rugged and reliable unit, the N-62E/N-62ET is housed in an impact-resistant two-tone gray Polystyrol case. To facilitate in-line connection, the N-62E/N-62ET is fitted with two standard 3-conductor female XLR-type input connectors (to mate with the cables from each microphone) and two standard 3-pin male XLR-type output connectors (to mate with the cables to each microphone input of the associated console, mixer or recorder).

N-66E: The N-66E is a portable/rack-mountable, six-microphone, 120/220-volt-ac-operated in-line power supply. Specially designed for *adjustment-free* compatibility with both the 12-volt and 48-volt DIN systems of phantom powering (and,

in many cases, with intermediate-voltage systems as well), the N-66E will feed regulated, low-ripple dc to the following:

- Up to six 12-volt microphones, each drawing no more than 4 milliamps of current.
- Up to six 48-volt microphones, each drawing no more than 0.5 milliamp of current.
- In many cases, up to six 18-volt or 24-volt microphones, each drawing some suitably *intermediate* value of current. (Because the dc current-consumption ratings of these types of microphones often vary widely by make and/or model, each such microphone to be used should first be *tested* for compatibility with the N-66E.)
- Any *intermixed* combination of up to six microphones having any of the voltage/current ratings listed above.

As long as the individual conditions and limitations specified above are observed, the N-66E will *automatically* adjust the voltage at *each* of its outputs to the correct value for the particular microphone connected.

AKG phantom-powered microphones are *within* the N-66E's specified maximum-current limitations, and can therefore be operated *without* modifications to the power supply. Note, however, that a stereophonic microphone requires two of the outputs of an N-66E, while a quadraphonic microphone requires four of the outputs of an N-66E.

On the other hand, using another manufacturer's microphone *exceeding* the N-66E's specified current limitations may cause *low* operating voltage at the power-supply output(s) feeding that microphone. In such cases, it may be necessary to "jump" or "short-out" the internal 6.8k-ohm series resistor at the *affected* output(s) as required (R7, R10, R13, R16, R19, R22 in the Schematics section).

CAUTION: The N-66E does *not* use audio transformers to isolate the dc phantom power from its audio outputs. To prevent short-circuiting of this phantom power, use the N-66E only with associated audio equipment having *balanced and floating* (ungrounded) inputs, or with unbalanced (grounded) inputs that you have first *isolated* with accessory audio transformers.

A two-position self-lighted rocker switch, conveniently located on the front panel of the N-66E, both controls and indicates the unit's ac on/off status. For added safety, the N-66E also includes a replaceable, internally located fuse plus a three-conductor, grounded ac-power cable.

A rugged and reliable unit, the N-66E is housed in a durable aluminum case finished in gray-crackle baked enamel. To facilitate in-line connection, the N-66E is fitted with six standard 3-conductor female XLR-type input connectors (to mate with the cables from each microphone) and six standard 3-pin male XLR-type output connectors (to mate with the cables to each microphone input of the associated console, mixer or recorder).

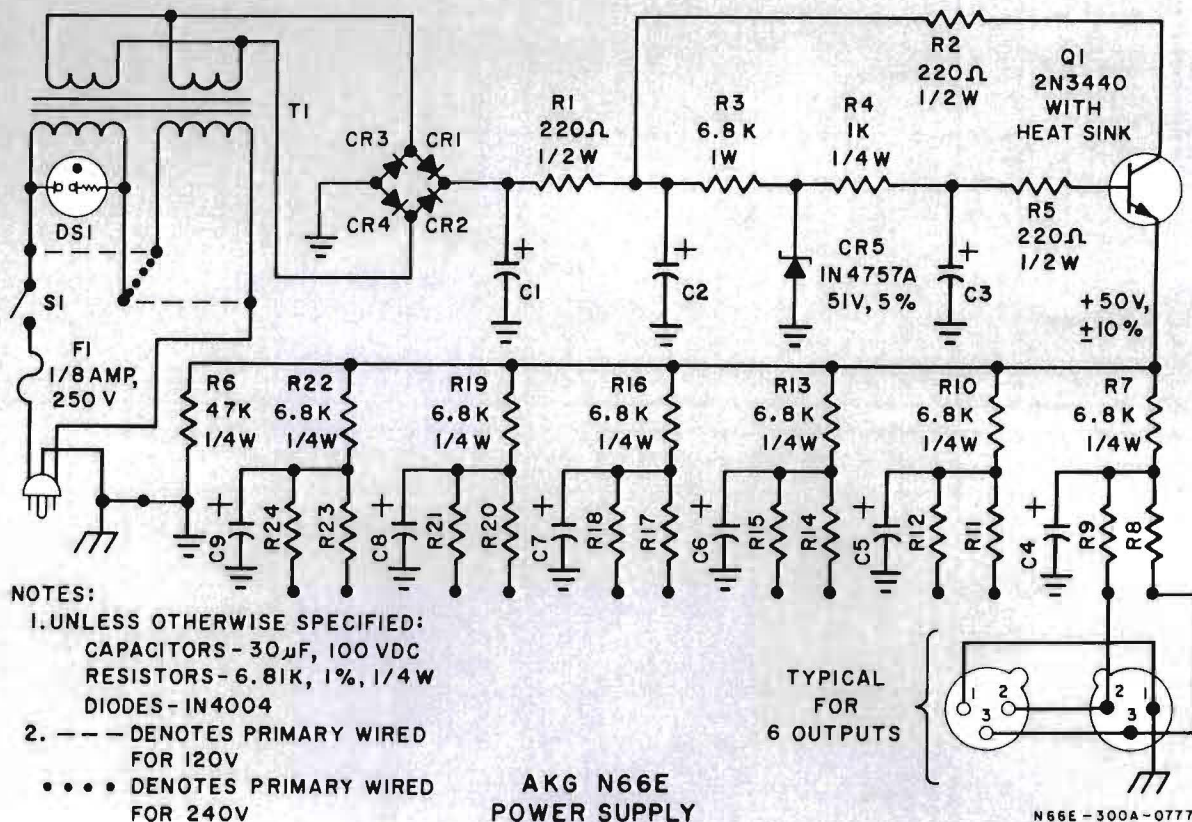
For applications requiring installation in a standard 19-inch equipment rack, the N-66E is supplied complete with two matching-finish rack-mount adapters and all necessary screws. Simply fasten the adapter panels to each end of the power-supply housing; then mount the completed assembly in the equipment rack in the usual way.

A-52: The A-52 is a miniature printed-circuit adapter module that offers a simple, cost-effective way to develop *built-in* phantom power at the microphone inputs of a console,

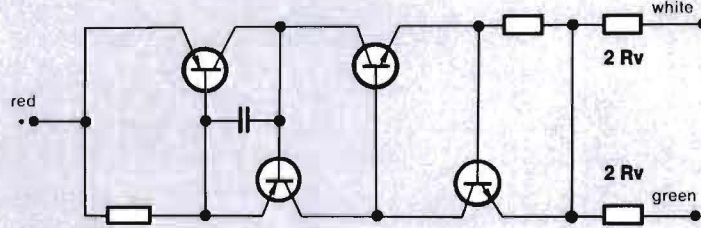
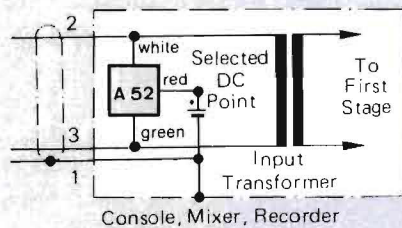
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SCHEMATICS (Continued)

N-66E



A-52



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DESCRIPTION (Continued)

mixer or recorder. An A-52, wired into *each* input to be so adapted, *electronically* derives high-quality phantom power from the unit's own internal dc supply. More economical than separate in-line power supplies, yet free of the tedious design calculations of user-installed passive-divider networks, the A-52 represents exceptional value. In addition, the A-52 provides the following outstanding features:

- Safely and effectively accommodates dc-supply inputs ranging from +7.5 volts minimum to +60 volts maximum.
- *Automatically* adjusts itself to power a 12-volt microphone *only* with any dc input from +7.5 to just below +50 volts.
- *Automatically* adjusts itself to power a 12-volt *or* 48-volt microphone with any dc input from +50 to +60 volts.
- Acts as a *regulator* with any dc input above +13 volts; the dc source itself need not be inherently well regulated.
- Provides additional filtering; the dc source may have somewhat higher ripple than a passive-divider network permits.
- Works with microphone-input transformers having untapped *and* center-tapped (but floating) primaries.
- Contains all parts (four transistors, four resistors, one

capacitor) in a compact, easy-to-install three-lead package. As shown in the Schematics section, the circuit comprises an active regulator/filter feeding a precisely balanced artificial center tap.

To install the A-52, first select a moderately well-filtered +7.5-volt to +60-volt dc point within the console, mixer or recorder itself. (If selected dc is *less* than +15 volts, permissible hum and noise content is <200 microvolts; if selected dc is +15 volts or greater, permissible hum and noise content is \approx 1 millivolt.) At each microphone input to be adapted to phantom powering, connect one A-52 module as shown in the Schematics section (module's red lead to selected dc point; module's white and green twisted leads to pins 2 and 3 of XLR-type input connector).

CAUTION: To prevent short-circuiting of phantom power, use each A-52 only with a *balanced and floating* (ungrounded) input, or with an unbalanced (grounded) input that you have first *isolated* with an accessory audio transformer. If the transformer's *primary* is center-tapped, *never* ground that tap.

TECHNICAL DATA

B-1E:

Number of Microphones Powered: One
Battery Required: One 9-volt rectangular transistor-radio type; see Table 1 facing for specific type numbers
Estimated Battery Life: See Table 1 facing
Nominal DC Output Voltage: \approx +9 volts, open circuit (no load)
Minimum Usable DC Output Voltage: +7.5 volts, loaded
Case Material: Two-tone gray Polystyrol
Overall Dimensions (with switch uppermost, and including switch, connectors, belt clip): 87 mm (\approx 3-7/16 in.) H x 74.5 mm (\approx 2-15/16 in.) W x 45 mm (\approx 1-3/4 in.) D
Net Weight (less battery): 200 g (\approx 7 oz)

N-62E/N-62ET:

Number of Microphones Powered: Up to two
Acceptable AC Input Power: 105-125 volts, 50-60 Hz
DC Output Voltage (individually load-dependent per output):
 \approx +50 volts, open circuit (no load)
 \approx +48 volts, 0.5-milliamp load current
 \approx +12 volts, 4-milliamp load current
Maximum DC Short-Circuit Current Per Output: \approx 5 milliamps
AC Output Ripple Under Full Load: <200 microvolts
Case Material: Two-tone gray Polystyrol
Overall Dimensions (with trimplate uppermost, and including feet and connectors): 58 mm (\approx 2-5/16 in.) H x 159 mm (\approx 6-1/4 in.) W x 80 mm (\approx 3-1/8 in.) D
Net Weight (including ac power cable):
Standard N-62E: 495 g (\approx 17-1/2 oz)
Special N-62ET: 550 g (\approx 19-1/2 oz)

N-66E:

Number of Microphones Powered: Up to six
Acceptable AC Input Power: 105-125/210-240 volts, 50-60 Hz
DC Output Voltage (individually load-dependent per output):
 \approx +50 volts, open circuit (no load)
 \approx +48 volts, 0.5-milliamp load current
 \approx +12 volts, 4-milliamp load current
Maximum DC Short-Circuit Current Per Output: \approx 5 milliamps
AC Output Ripple Under Full Load: <200 microvolts
Case Material: Aluminum; gray-crackle enamel finish
Overall Dimensions (with switch and connectors facing forward, and including handles and feet): 88 mm (\approx 3-7/16 in.) H x 216 mm (\approx 8-1/2 in.) W x 133 mm (\approx 5-1/4 in.) D
Net Weight (including ac power cable): 1.32 Kg (\approx 3 lb)
Included Accessories:
Two gray-crackle-finish rack-mount adapters w/hardware

A-52:

Number of Microphones Powered: One
Acceptable DC Input-Voltage Range: +7.5 to +60 volts
DC Input Voltages for Outputs Suitable to 12/48-Volt Mics:
For 12-volt microphone *only*: +7.5 to just below +50 volts
For 12-volt *or* 48-volt microphone: +50 to +60 volts
Minimum DC Input Voltage for Regulated Output: +13 volts
Permissible AC Input Ripple:
With dc input *less* than +15 volts: <200 microvolts
With dc input of +15 volts or more: \approx 1 millivolt
Overall Dimensions (with maximum diameter oriented horizontally, and not including leads): 17 mm (\approx 11/16 in.) H x 20 mm (\approx 13/16 in.) W x 10 mm (\approx 3/8 in.) D
Net Weight: Less than 15 g (\approx 1/2 oz)

TECHNICAL DATA (Continued)

Table 1. B-1E Power Supply, Estimated Battery Life*

	With C-451E, C-451EB (or other ≈4-milliamp microphones phantom- powerable with 9 volts)	With C-535EB, C-567E (or other ≈1-1.5-milliamp microphones phantom- powerable with 9 volts)	With C-500 System (or other ≈300-microamp microphones phantom- powerable with 9 volts)
Standard Carbon-Zinc (Eveready 216 or NEDA equivalent):	40 hours	150 hours	1000 hours
Heavy-Duty Carbon-Zinc (Eveready 1222 or NEDA equivalent):	60 hours	180 hours	1300 hours
Alkaline (Eveready 522, Mallory MN1604 or NEDA equivalent):	80 hours	200 hours	1500 hours
8.4-Volt Mercury (Ev- eready E146X, Mallory TR146X or NEDA equivalent):	100 hours	250 hours	850 hours

*Continuous discharge to 7.5 volts. Actual useful service life will vary with discharge duty-cycle schedule and storage/operating temperatures.

SCHEMATICS

N-62E/N-62ET

