

Azog-Audio

LW-42

Fully-Balanced Phono Preampfier

OWNER'S MANUAL

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Thank you for choosing the Azog-Audio LW-42 fully-balanced phono preamplifier. Please read this manual carefully before operating your preamplifier to ensure that you get the most out of it and avoid installation errors or loss of warranty.

Unpacking

Do not dispose of the factory packaging material as it is specifically designed to offer protection to your preamplifier should you need to re-ship it. Inside the shipping carton you will find the following items:

- The LW-42 preamplifier
- A mains power cable
- This manual

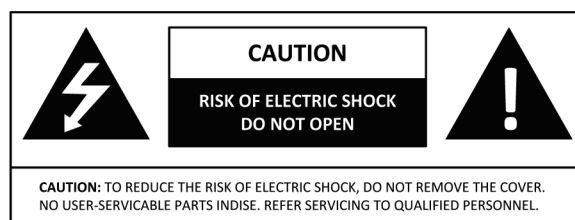
If any of these items is missing or damaged, contact your dealer to arrange for corrective actions. Retain the dated sales receipt for possible warranty claims.

CAUTION!

- Under no circumstances should the safety ground of the mains power connection to the LW-42 be defeated through “cheater” adapters or other “ground lift” devices. Doing so is against the law and creates a serious accident risk. This requirement also applies to all devices LW-42 is connected to.
- The unit is factory configured either for 100-120VAC, or 220-240VAC and is designated accordingly on the rear panel. This setting can be changed only by the dealer or the factory. Connecting the unit to the wrong mains voltage will create a fire and safety hazard and

possibly damage the unit. It will also void the warranty.

- There are no user-servicable parts inside the unit. If servicing is required it should be carried out only by the factory or factory-authorized service personnel.
- The fuse is internal to the unit and should be replaced only by authorized service personnel with the following type and rating fuse:
 - 100-120VAC mains voltage: 1A time-lag
 - 220-220VAC mains voltage: 500 mA time-lag
- To reduce the risk of fire or electric shock, damage to the unit and loss of warranty do not expose this appliance to rain, moisture, or operate it in excessively humid environments. Never splash liquids to it.
- Use only a soft, dry cloth to clean you preamplifier. Do not use chemical solvents.
- Unplug the unit from the mains supply during lightning storms and extended periods of non-use.



Placement

As with all phono preamplifiers, due to the very small input signal level, to get the best possible sound reproduction the installation location is important. Strong magnetic fields emanating from mains cables, motors and mains transformers found in other equipment can induce hum onto the audio signal. This is true of all phono preamplifiers, and although LW-42 has been engineered specifically to offer the highest levels of immunity to common-mode noise such as mains frequency artifacts, it can still be affected to some extent by poor placement.

Physical separation is the best way to reduce as much as possible or eliminate any hum problems that such undesired coupling can create. It is usually both the radial distance and the azimuth of the sensitive phono cartridge, cabling and preamplifier input circuits in relation to the aggressor device that affects the coupling level. Experiment with off-axis placement and distancing of the aggressor to your turntable and preamplifier.

Keep the unit away from sources of heat and allow natural air circulation around it to prolong its life. Azog-Audio does not recommended leaving the unit permanently powered on, as this will reduce its useful life and waste energy. Your preamplifier contains highly-biased circuits, which get warm under normal operation. We recommend placing the unit in standby mode between different listening sessions through the standby/on switch. About half an hour to an hour of warm-up in the On position will bring the unit close to its maximum sound quality potential.

CONNECTIONS

The LW-42 phono preamplifier is compatible only with “low output” moving coil phono cartridges. This type of cartridge produces no more than 1mV of output voltage at 1KHz, 5cm/sec, and requires a resistive termination ranging from tens of ohms up to ~800 Ohms, depending on make and model. The reason MM cartridges are not supported by LW-42 is that compromises would have to be made to support both cartridge types, which would result in sub-optimal performance.

MC cartridges are inherently balanced transducers, that is they produce an electrical signal of equal amplitude on a pair of terminals in antiphase. No ground reference exists, nor is it necessary when a balanced, low differential and high common-mode impedance connection from the cartridge coils to your LW-42 phono preamplifier is maintained. In fact, maintaining an electrically ‘clean’ ground connection between different units is often very difficult to achieve in practice, and ground loops and capacitive coupling can degrade the signal quality. Hence the best approach is to design interconnections and equipment such that signal transfer is as independent and least affected by the ever-present ground noise as possible, and have a single ground connection per unit serving only as a safety ground and a common-mode reference potential between units, albeit as much decoupled from the audio signal path as possible.

A balanced connection between the cartridge output and the preamplifier input maintains a high common-mode impedance across the whole audio frequency spectrum and far beyond that. This requires suitable connectors, cabling and suitably designed preamplifier circuitry. RCA connectors, frequently found on turntables, are unbalanced by design and hence are not optimal electrical interfaces compared to XLR or DIN connectors. Any point along the critical cartridge-to-preamplifier input that is not physically and electrically balanced can easily induce hum and other types of noise to the sensitive cartridge signal.

If the cartridge or the turntable cabling shorts the negative phase of the cartridge signal to ground, the electrical interface is forced to become unbalanced. This approach, found on some turntables, makes balanced interconnection impossible and must thus be avoided. To detect if such a wiring scheme has been employed by your turntable manufacturer, on a turntable equipped with RCA connectors use a multimeter and check for continuity both between the L and R channel RCA connector outer rings, and between each of these and the separate turntable ground wire. If there is connectivity between any of these, unless the turntable is modified accordingly, a balanced signal connection between the turntable and the preamplifier is not possible.

i Never connect the multimeter between the inner pin of the RCA connectors and any other point on the turntable or cable, as this can magnetize or damage the cartridge.

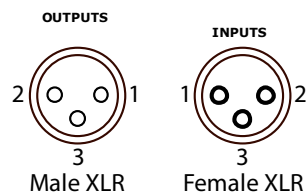
XLR Pinout

All Azog-Audio products adhere to the AES standard regarding the XLR pinout:

Pin1: Ground

Pin2: Positive

Pin3: Negative



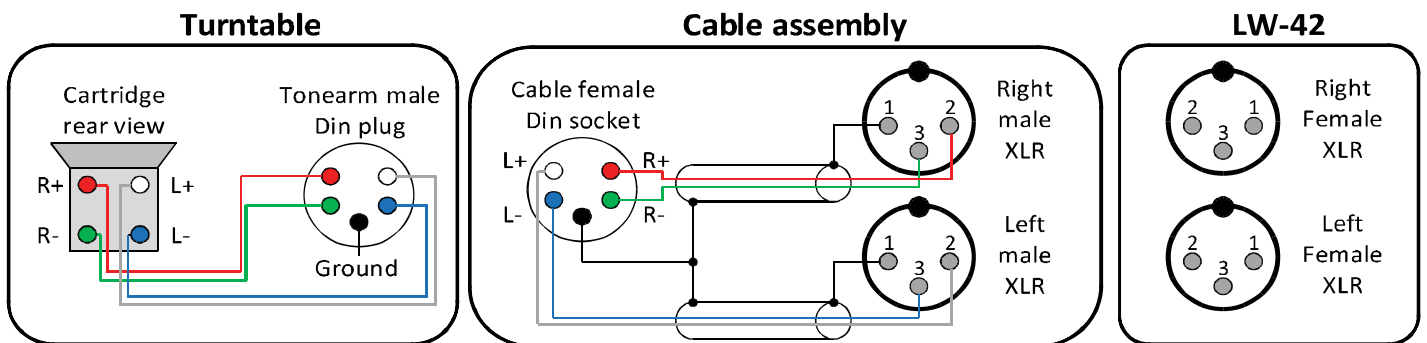
i Do not use commercially sourced XLR-to-RCA adaptors either at the input or the output of LW-42, as they are incompatible with the fully-balanced design of the unit and can result in damage to the preamplifier circuits. Doing so will invalidate warranty.

i Prior to making any connections between components in your system, always turn off all devices. This minimizes the possibility of equipment damage from transient voltage surges.

Connections to the LW-42 Input

You can begin connecting your new preamplifier to the rest of your system with the turntable to preamplifier connection. Five turntable to LW-42 interconnection wiring options are shown in the following diagrams, in order of preference. Of these, the first three are the preferred interconnection methods. The fourth option may be used as a temporary measure, but being sub-optimal it will likely give rise to hum and should be replaced by one of the first three methods. The fifth option is only included for completeness but it is not compatible with LW-42 and should not be used.

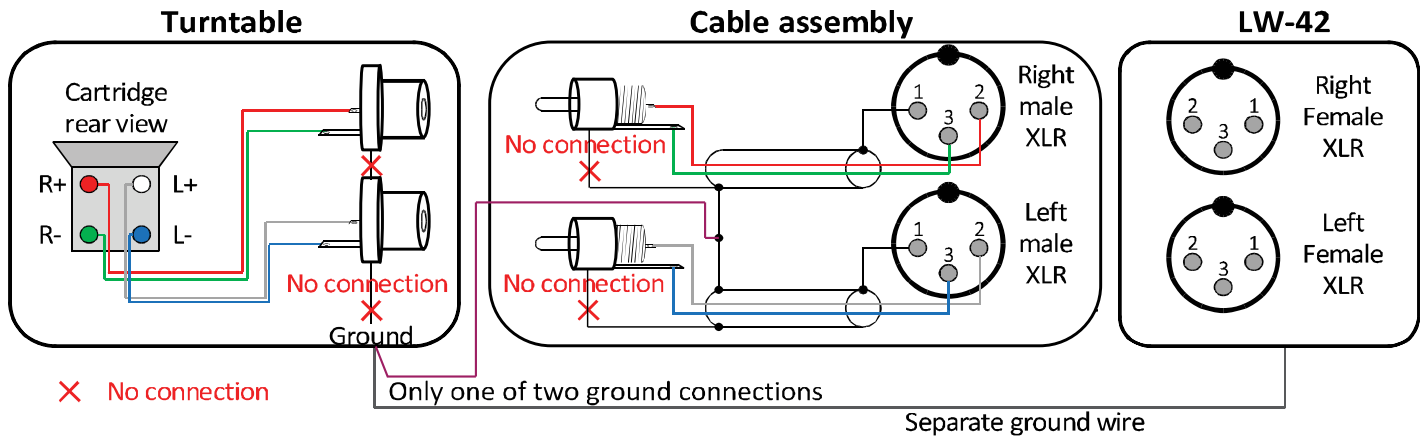
Best option: DIN-to-XLR balanced connection:



This is the preferred interconnection option. There is no need for a separate ground wire to connect the turntable ground to the LW-42 chassis ground, as this is accomplished through the cable assembly. This option provides the lowest differential and highest common-mode impedance, so it will yield the best sonic results.

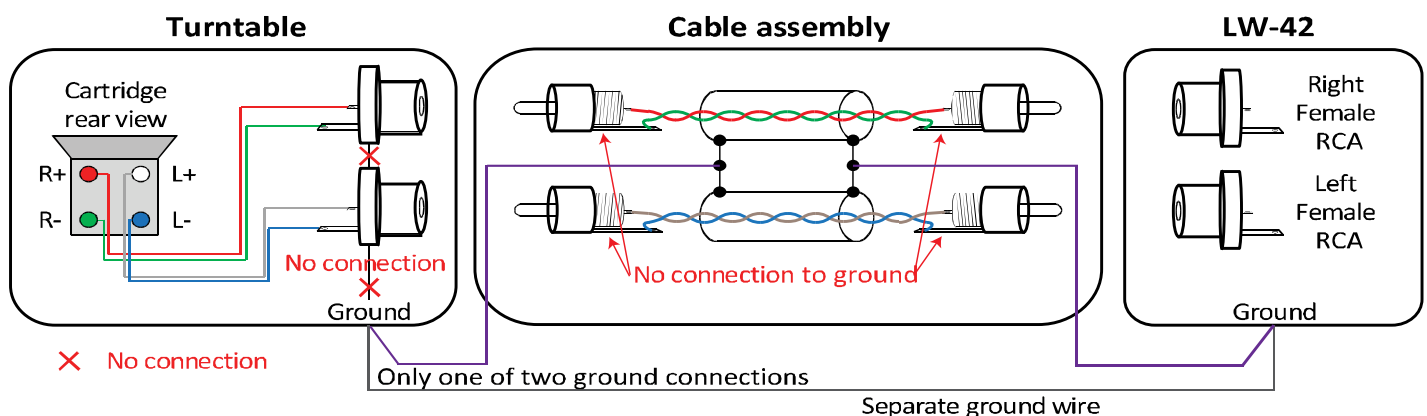
A DIN-to-RCA cable assembly is another option. In this case connect the free ground wire on the RCA connector side to the LW-42 ground post.

2nd best option: RCA-to-XLR balanced connection:



For turntables equipped with RCA connectors, this interconnection can produce good results. With reference to the above diagram, with the cable assembly and ground wire connected to the turntable there should be no electrical continuity between the outer ring of the RCA connectors and the turntable ground.

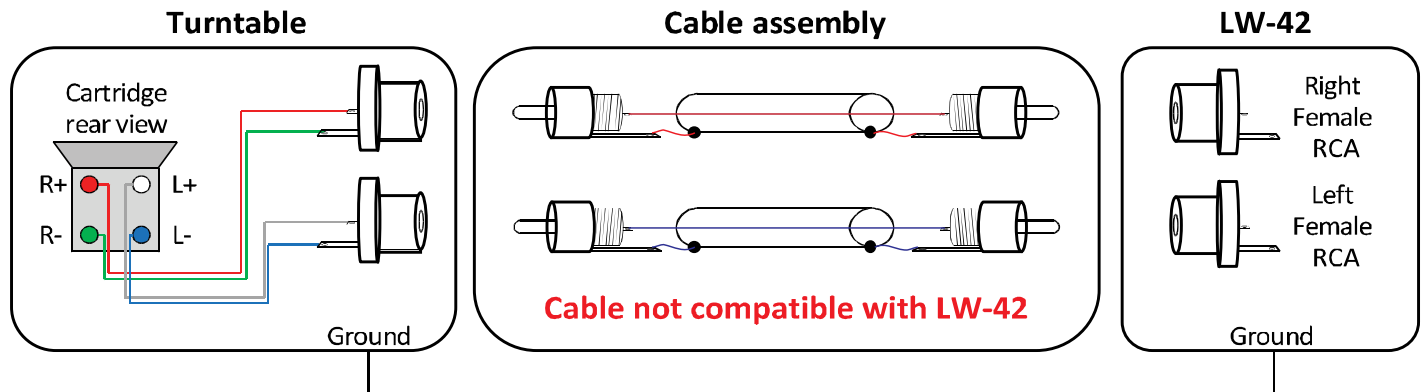
3rd option: In this option a phono-specific RCA-terminated shielded twisted pair cable is used, in which the outer rings of the RCA connectors are not electrically connected to the cable shield.



i If there is continuity between the outer rings of the RCA connectors and ground, humming will likely be present as one of the cartridge signal phases will be shorted to ground, unbalancing

the electrical interface and exposing the audio signal to interference and noise.

4th option: RCA-terminated single inner conductor coaxial cables – not compatible with LW-42:




In this case the cable shield carries one phase of the signal and differential impedance is high. The whole interface becomes unbalanced, leaving it directly exposed to noise, hum, RFI etc. This interconnection method will lead to poor results and is not compatible with LW-42.

5th option: unbalanced turntable interface with RCA connectors connected to commercially sourced RCA-to-XLR adapters having XLR pins 1 and 3 shorted. This option is not compatible with LW-42, and should not be employed. If such an interconnection is made, the electrical interface is no longer balanced and the preamplifier's input impedance will be halved.

Connections to the LW-42 output

Having connected the turntable to LW-42, proceed to connect the phono preamplifier to your line level preamplifier or integrated amplifier. Best results will be obtained when the balanced LW-42 output is used, feeding a balanced preamplifier input. If a balanced downstream input is not available, use the LW-42 single-ended RCA connector output. The latter will yield 6dB reduced

gain compared to a fully balanced interconnection and no common-mode noise rejection between LW-42 and the rest of the system. However, the benefits of a balanced turntable to LW-42 interconnection, as described in the previous section, are still important to maintain.

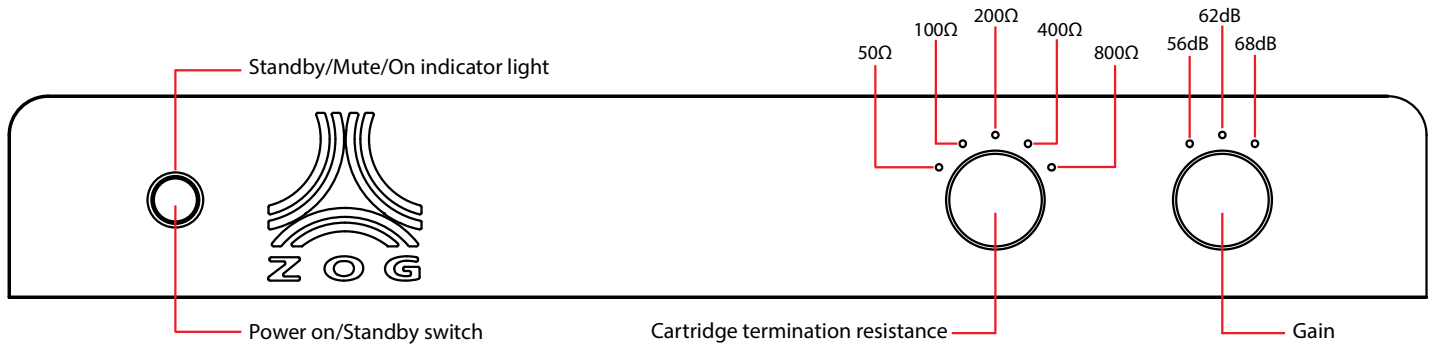
 In general, commercially available XLR-to-RCA adapters short the inverted phase signal, pin3 of the XLR connector, to pin1, the ground pin. Under no circumstances should such an XLR-to-RCA adapter be connected to the output of LW-42, as it will short the output circuitry of LW-42 and may result in equipment damage.

AC Power Connection

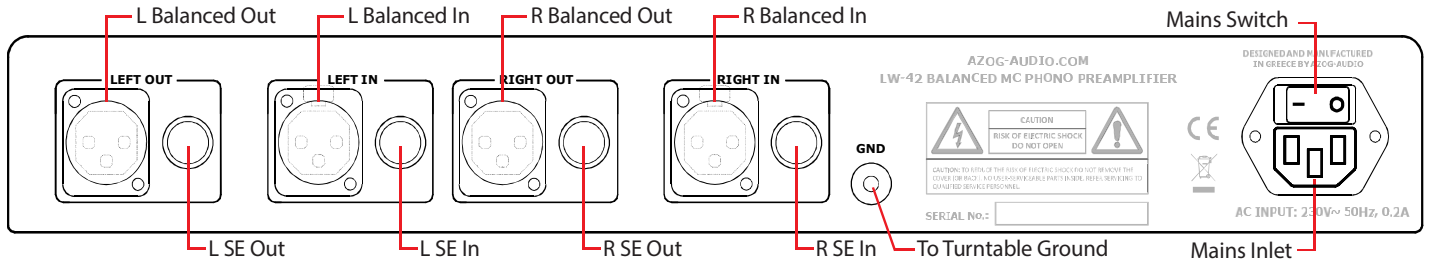
Once all audio path and ground connections to and from the preamplifier have been made, with the mains switch located at the LW-42 IEC inlet turned off, connect the mains cable to the LW-42 and then to the AC mains. The mains switch can then be turned on.

Adjustments and Operation

Front-Panel



Rear-Panel



Standby/Power On

With the LW-42 connected to the appropriate mains supply voltage and the mains power switch in the On position, the preamplifier can be switched from standby to on and vice-versa through the Standby/Power-On switch. When the unit is in standby mode, the Standby/On indicator on the front plate lights yellow.


When the unit is switched on, the output signal is initially muted and the Warming Up/Ready

indicator lights red. Due to the very extended power supply filtering and the low time-constants employed in LW-42 to maintain low frequency phase integrity, unmuting from standby takes about ninety seconds. When the power-on sequence is completed the status indicator light turns white.

Gain & Cartridge Loading Adjustment

There are two rotary controls on the front side of the unit. The left one has five positions and selects the cartridge termination resistance between 50, 100, 200, 400 and 800 Ohms, respectively, in a clockwise direction. Consult your cartridge manufacturer for recommendations on the optimum cartridge loading value. You can also tailor the sound to your liking to some extent through this setting. The setting may be changed during unit operation, however, it is recommended to turn down the volume of the accompanying preamplifying/amplifying unit during cartridge loading changes.

The rotary control to the right of the unit has three positions and sets the gain between 56dB, 62dB and 68dB respectively. These gains refer to fully balanced connections at the input and output of LW-42. On the single-ended RCA output the gain is correspondingly 6dB less. In general, a lower output level phono cartridge requires a higher gain setting, but this is also dependent on the entire system gain. Muting is automatically effected also when the gain is changed. Again, due to the very low time-constants employed in LW-42 to maintain low frequency integrity, unmuting from a gain change takes about thirty seconds. However, there should be no need to adjust the gain frequently after the optimal system and cartridge-dependent setting has been found. When the preamplifier is ready for operation in the new gain setting, it will automatically unmute.

 When changing the LW-42 gain, always mute or lower the line preamplifier or integrated amplifier volume, as when LW-42 unmutes a transient noise may be present.

i We recommend that you start critical listening evaluation with the gain set to its minimum value, and increase it if you find that the overall system gain is not enough. This helps maintain maximum overload margin. As the different gains have slightly different sound signatures, you may also want to experiment with different gain settings to tailor the sound to your preferences.

Breaking In

Even though each Azog-Audio preamplifier has undergone extensive functional testing and a 48 hour burn-in procedure at the factory, the unit still needs to be broken-in once installed in your system. The first 72 hours of music playback can be considered as running in, but expect sound quality of a new unit to keep improving roughly over the first month of operation.

Design highlights

- Fully-balanced circuitry from input to output
- Extremely low noise discrete transistor input stage
- No series connected switches or relays in the signal path
- Mundorf RIAA filter capacitors
- No clocked digital devices, only combinational logic used in the control section
- Multiple discrete pre-regulators
- Individual, discrete, exceptionally quiet voltage regulators per amplification stage
- RF input filtering
- Shortest signal path
- Fully dual-mono circuitry, all the way from the mains transformer
- Non-magnetic resistors used extensively

Warranty Terms

Azog-Audio offers a limited, non-transferable two year warranty from the date of purchase on the LW-42 preamplifier. This warranty covers all parts and labor charges incurred at the factory towards repair of the units should they develop a fault during the warranty period. The warranty is not valid if a stamped and dated dealer receipt is not presented in claims.

The warranty excludes damage caused through accident, misuse, neglect, acts of nature or through incorrect mains voltage operation, installation or connection errors. Disassembly, modification of the products in any way, servicing or repairing by anyone other than the manufacturer or the dealer voids the warranty.

The warranty is offered only to the original owner bearing the purchase receipt and is valid only in the country where the product was purchased. Claims under this warranty must be made through the dealer from whom the equipment was purchased, or if that is not possible through another authorized dealer or the factory. No unit shall be sent to the factory without prior communication and approval of the dealer or factory. Transportation costs to the dealer or factory and any equipment damages owing to such transportation are the responsibility of the owner. Return carriage and freight insurance is covered by the dealer or factory. If upon inspection at the factory the unit is found to meet the published specification, Azog-Audio will charge the customer the associated labor costs.

This warranty shall be in lieu of any other warranty, expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose. There is no warranty which extends beyond the warranty described in this document. If the product does not perform as warranted herein, the owner's sole remedy shall be repair. In no event will Azog-Audio, the retailer or the distributor be liable for any incidental, subsequent or consequential damages, loss of property or injury to persons whatsoever arising from the purchase, use, inability to use

this product, or product failure.

Specifications

Input impedance	50/100/200/400/800 Ohms, user-selectable. Custom values available on request
Gain	56dB/62dB/68dB balanced output, 6dB less single-ended output, 1KHz, user-selectable
Output impedance	50 Ohms single-ended, 100 Ohms balanced
RIAA de-emphasis accuracy	+/-0.5 dB, 20Hz - 20KHz
Total Harmonic Distortion	<0.05%, 1KHz tone, 20KHz BW, 1Vrms
Maximum voltage output	20Vrms balanced, 10Vrms unbalanced @ 1KHz, 10K load
Power consumption	30W in operation, <0.5W stand-by
Dimensions (WxDxH)	437x350x75mm
Net weight (approximate)	8Kg
Mains voltage	Europe: 220-240 V AC USA/Canada: 110-120 V AC
Internal Mains fuse	500mA Time-Lag, 230V~ units 1A Time-Lag, 115V~ units

All functions, specifications and policies are subject to change without notification.