

# A.C. LINE VOLTAGE REGULATOR, 120V, 30 AMP

MODEL AR-1230, AR-1230J



## FEATURES

- Delivers a stable 120  $\pm$ 5 VAC whenever the input AC line voltage is between 97V and 141V
- Output capacity 30 amps
- One regulated, conditioned 30A twistlock outlet and six Edison outlets on the rear, plus two Edison outlets on the front
- Eight-tap toroidal autoformer
- 10-LED bargraph Input Voltage meter
- 10-LED bargraph Output Current meter
- Extreme overvoltage/undervoltage causes instant shutdown, protecting connected equipment
- Extreme Voltage Shutdown indicator LED
- Output In Regulation indicator
- Low stray magnetic field
- Quiet, variable speed rear panel fan provides cooling for heavy duty, continuous operation

## DESCRIPTION

The 30 amp **AR-1230 AC Line Voltage Regulator** is intended to protect audio, video, computer and other electronic equipment from problems caused by AC line voltage irregularities—sags, brownouts, or overvoltages that can cause sensitive analog and digital equipment to malfunction, or, in extreme cases, to sustain damage.

The AR-1230 is designed to provide a steady, stable 120 VAC output. It accepts input voltages from 97V to 141V and transforms them to a constant 120V,  $\pm$ 5V. Voltages beyond that range may

also be converted to usable levels, depending on how far out of range they are. The AR-1230 can handle loads totaling up to 30 amps as long as the input voltage is above 124 volts. For voltages below that level, its capacity must be derated at approximately .15 ampere per volt.

The AR-1230 has been designed specifically with the unique needs of audio and video in mind. Its technology differs from that of computer-oriented voltage regulators in many important ways.

For example: The AR-1230 does not use a ferro-resonant transformer, which would be heavy and bulky, radiate a large magnetic field, and be too frequency-sensitive to be usable with generators. Instead, it uses a design based on an eight-tap toroidal autoformer. The toroidal design assures minimal leakage of magnetic fields.

The AR-1230 circuitry monitors the incoming line voltage with each cycle, comparing it to an extremely precise voltage reference, accurate to  $\pm$ 0.15%. If a voltage fluctuation requires that a different tap be selected, the new tap is electronically switched exactly at the zero-crossing, to avoid distorting the AC waveform. (Some commercial voltage regulators using multiple-tapped transformers switch taps at uncontrolled times, thereby creating voltage spikes, and often creating disturbances in attached equipment.) The design is not sensitive to small errors in line frequency, making the AR-1230 ideal for use with generators.

The AR-1230 also features a precise, high-inrush magnetic circuit breaker, and comprehensive power conditioning which includes MOV's and high voltage inductors and capacitors. This unique combination safely diverts large spikes as well as filters EMI/RFI noise.

# AR-1230 Rear View



Unit is supplied with a mating female input connector. Unit shown with optional Model RRM-2 rear rack ears.

An additional feature, Extreme Voltage Shutdown, senses dangerously high or low voltages and shuts down the output before any damage is done. The output remains off until the overvoltage or undervoltage is removed, with an LED indicating the shutdown condition. This invaluable feature provides positive protection to your equipment from accidental connection to incorrect line voltages (for example, 220V when 120V is expected—a not uncommon hazard in the entertainment industries).

A bargraph meter comprised of 10 LED's indicates input voltage, while another LED indicates IN REGULATION status (i.e., that the output voltage is within  $\pm 5V$  of 120V.) Also provided is a 10-LED bargraph meter to indicate output true RMS current.

The AR-1230 has one 30A, NEMA L14-30P twistlock inlet, one 30A NEMA L14-30R twistlock outlet, and six Edison outlets on the rear panel, plus two Edison outlets on the front panel. There are no controls except the circuit breaker/on-off switch. The unit is housed in a compact, two-space rackmount chassis, 3.5" high and 17" deep (8.9 x 43.2 cm) and weighs only 39 lbs. (17.7 kg).

## OPTION

- **RRM-2 Rear Rack Mount Ears:** Adjustable depth rear rack ears for the AR-1230. Adjustment depth is 17" to 18.25" from inside front panel.

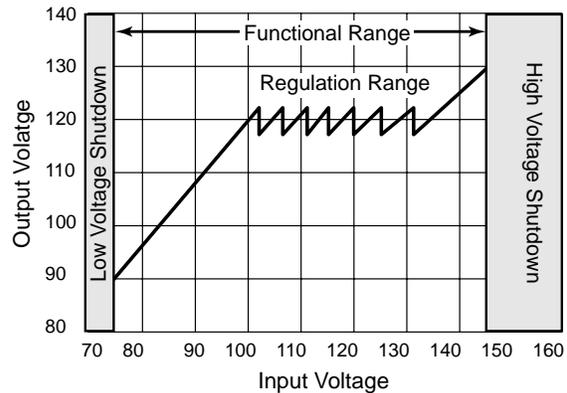
## RELATED MODEL

- **Model AR-1230J:** Has a rear-panel Output Voltage switch, allowing for either 100V or 120V operation. Only sold in Japan.

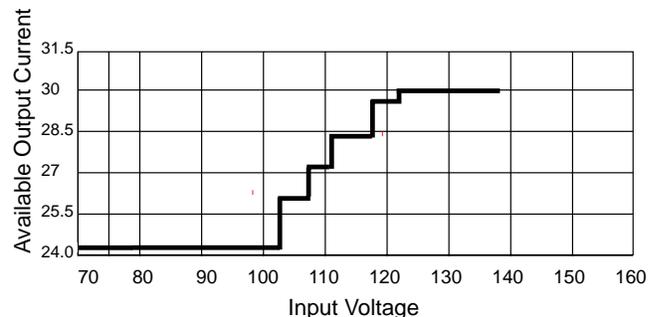
## Three Year Warranty

The Furman AR-1230 is protected by a three-year limited warranty covering defects in materials and workmanship.

### AR-1230 Output Voltage vs. Input Voltage



### AR-1230 Available Output Current vs. Input Voltage



## AR-1230, AR-1230J SPECIFICATIONS

Current Rating:	30 amperes for input voltages of 124 or higher (104 or higher for AR-1230J set for 100V operation); derate at 150 mA per volt to a minimum of 24.8 A
"In Regulation" Ranges:	Provides regulation $\pm 5V$ in 120V mode for inputs of 97 to 141V, 60 Hz; (AR-1230J provides regulation $\pm 4V$ in 100V mode for inputs of 80 to 122V, 50/60 Hz)
Shutdown Range:	120V mode: Below 75V or above 150V. (AR-1230J only: 100V mode: Below 65V or above 135V)
Inlet:	One 30A NEMA L14-30P twistlock connector (male)
Outlets:	One 30A NEMA L14-30R twistlock connector (female); Six Edison outlets on rear panel, two on front
Voltmeter Accuracy:	$\pm 5V$

Spike Protection Modes:	Line to neutral, neutral to ground, line to ground
Spike Clamping Voltage:	Initial turn-on at 200V; TVSS rating of 400 volts peak at 500 A, L-N, N-G, L-G
Response Time:	1 nanosecond
Maximum Surge Current:	6,500 amps (8 x 20 ms pulse)
Maximum Spike Energy:	80 joules per node; 240 joules total
Noise Attenuation:	Differential mode: Greater than 40 dB Transverse and common modes: Greater than 60 dB, 1-200 MHz
Dimensions:	3.5" H x 19" W x 17" D (8.9 x 48.3 x 43.2 cm)
Weight:	39 lbs. (17.7 kg)

The AR-1230 and AR-1230J are manufactured in the United States of America.