

---

---

# **1200 Series Dimmer Packs Models 1250, 1251, 1252, 1253, 1254, 1257, 1258 and 1259**

**Includes the Modified ETA 1251-04  
4000-Watt Dimmer Pack**

---

---

# **Owners Manual**

# ETA

1710 Enterprise Parkway • Twinsburg, OH 44087 • (216) 425-3388

Congratulations on your purchase of an ETA 1200 Series Dimmer Pack. Years of research and engineering have produced your new lighting control system, and we are proud that you chose to be among the many professionals who entertain using ETA's superior quality products. With proper operation and care, you and your audiences should enjoy years of spectacular, professional lighting effects.

## CAUTION

Please read and follow these instructions carefully to assure yourself the full and safe use of your new ETA 1200 Series Dimmer Pack. Our engineers have created a durable and safe system; but, as with sophisticated electronic equipment, this is a powerful and potentially a very dangerous electrical system. Around electricity a little knowledge is a very dangerous thing. The more electrical experts know about this power, the more they respect it. Therefore, if you install or use this ETA system, you bear the responsibility to take proper safety precautions. We have made every effort to offer you complete and accurate instructions for the safe usage of your ETA system, but we cannot accept the responsibility for injury due to negligence or faulty interpretation of our instructions. If you are uncertain about any electrical connections or usage, please seek qualified technical assistance or contact your ETA dealer.

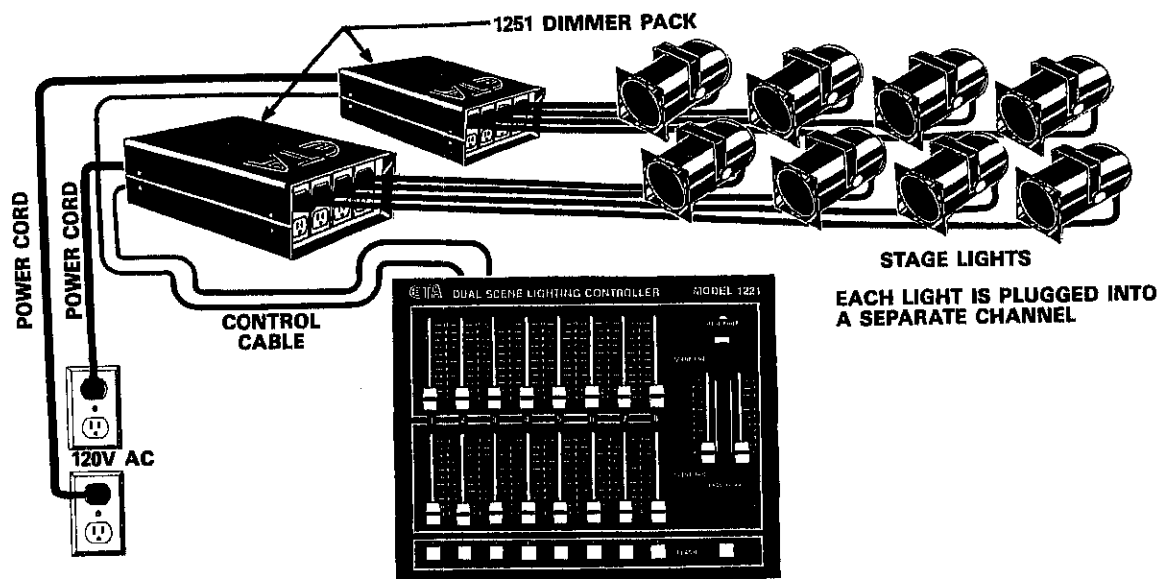


ILLUSTRATION #1

## THEORY OF OPERATION

In simplest terms, your new ETA 1200 Series Dimmer Pack is a very sophisticated multiple outlet extension cord. 120 Volts AC or 220 Volts AC feeds into an ETA 1200 Series Dimmer Pack from an electrical wall outlet or House lighting panel. The power is divided in the Dimmer Pack into four or six Channels (electrical outlets).

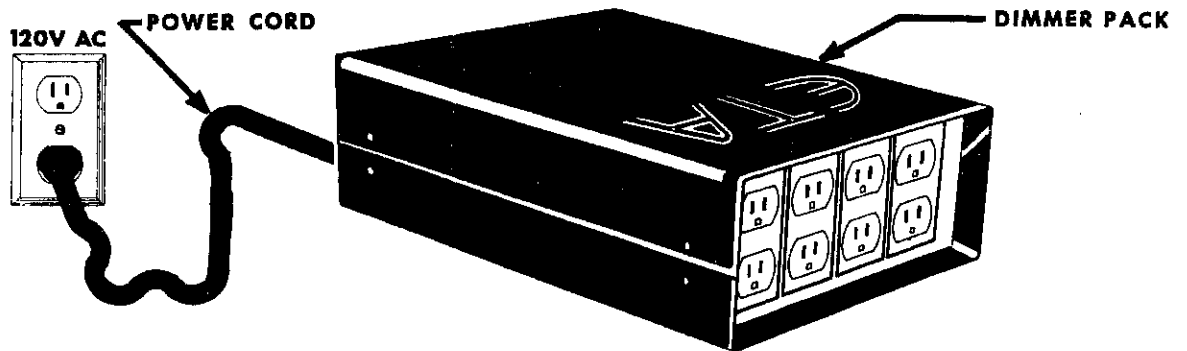


ILLUSTRATION #2

However, if you plugged your stage light cords into the electrical outlets in the Dimmer Pack, your stage lights would *not* illuminate. To operate your lights, the Dimmer Pack must receive a control signal from your ETA Lighting Controller (ask your ETA dealer about the many ETA controllers available). This control signal turns on, off, or dims your lights through each of the channels to provide the exact lighting you desire. The Dimmer Pack provides high-quality linear dimming so that you have smooth, gradual dimming with no unexpected jumps in illumination. You are always in control.

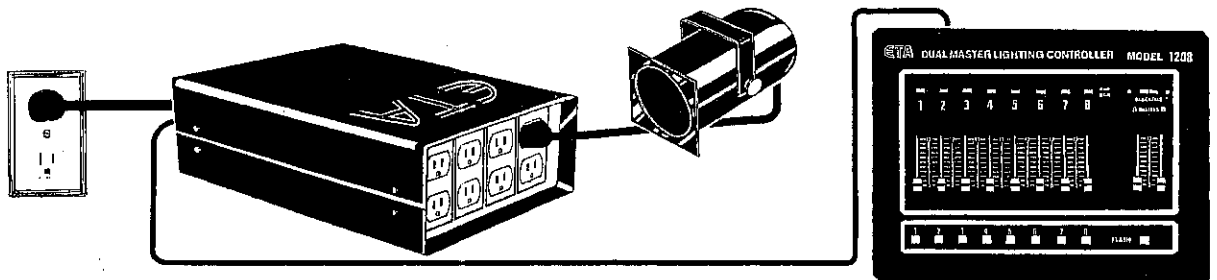


ILLUSTRATION #3

**Note:** The power for your stage lights does not originate in the Dimmer Pack; it comes from the wall outlet or House lighting panel. The power passes through the Dimmer Pack. Therefore, caution must always be used around Dimmer Packs. A DIMMER PACK CANNOT GENERATE ITS OWN POWER; remember, it's like an extension cord. The maximum wattage your stage lights can draw is determined by the power you feed into the Dimmer Pack and the Dimmer Pack capacity. Larger Dimmer Packs will not *generate* more lighting power; they will carry and control more power.

## QUICK REFERENCE DIMMER PACK CONNECTION PROCEDURES

1. **120 Volt AC** input power may be used on any ETA 1200 Series Dimmer Pack. ETA models 1252, 1253, and 1254 may also use 220 Volt AC single-phase input power. Models 1257, 1258 and 1259 may also use 220 Volt AC three-phase input power.
2. **Ground Test.** House service and light cords, etc., must be adequately grounded (see DIMMER PACK OPERATION section on grounding).
3. **Visual Cord Inspection.** Check for nicked cords and frayed wires on plugs. Replace any damaged cords or plugs.
4. Is your stage light cord adequate for your stage lamp wattage? (See *Illustration #5.*)
5. Is your AC power input cord the proper size? (See instructions for Input Power Connection for your specific ETA 1200 Series Dimmer Pack Model in this manual.)
6. **Test stage light cords.** Plug your stage light cords into a 120 Volt AC wall outlet BEFORE plugging them into your ETA 1200 Series Dimmer Pack. (See *Illustration #4.*)
7. Replace burned out lamps BEFORE plugging light cords into your ETA 1200 Series Dimmer Pack.
8. Total the wattage of the stage lamps to be plugged into each channel of your ETA 1200 Series Dimmer Pack. This wattage must not exceed 600 watts per channel for model 1250; 1000 watts per channel for models 1251, 1253; 1200 watts per channel for models 1257, 1259; 2000 watts per channel for models 1252, 1254; nor must it exceed 2400 watts per channel for model 1258.
9. Total the wattage of *all* lights to be connected to the Dimmer Pack: 2400 watts maximum for ETA models 1250, 1251; 4000 watts maximum for ETA models 1251-04, 1253; 8000 watts maximum for models 1252, 1254; 7200 watts maximum for model 1257; and 14,400 watts maximum for models 1258, 1259.

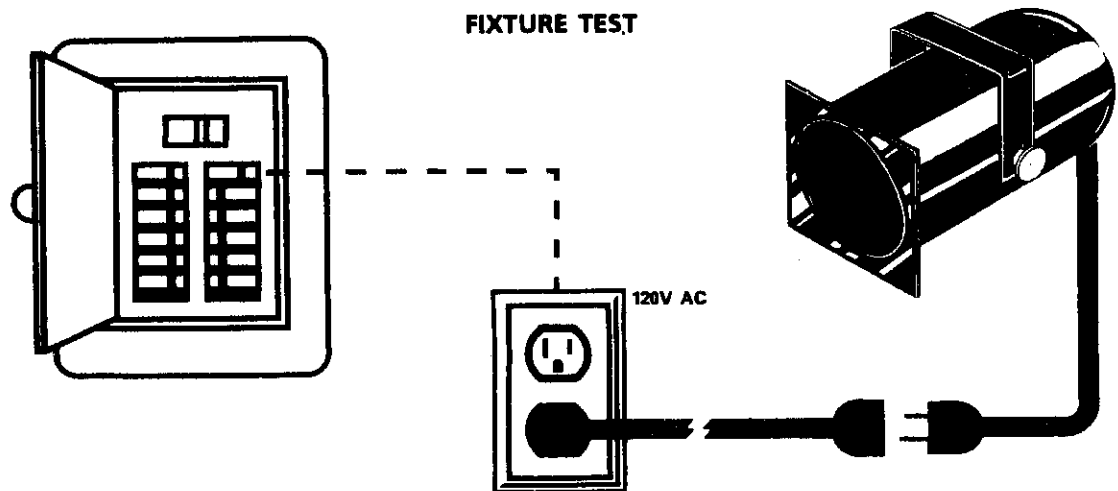


ILLUSTRATION #4

### CAUTION

When the Dimmer Pack is "plugged-in," the output (channel outlet) is always electrically hot. Even when the controller is "off," the Dimmer Pack Channel outlets are still charged at 120V AC.

# DIMMER PACK OPERATION

1. ETA Models 1250, 1251 are designed for 120 Volt AC input. ETA Models 1252, 1253, 1254 are designed for 120/220 Volt AC single-phase input. ETA Models 1257, 1258, 1259 are designed for 120 Volt AC single phase or 220 Volt AC three-phase input. Output is always 120 Volt AC.
2. **Your light system MUST be properly grounded.** As with all electrical equipment, proper grounding offers you and your audiences protection from electrical shock and its possible fatal consequences. Also, professional stage lighting does not hum or sing when it is properly grounded. If your lamps or Dimmer Packs "sing," the problem is *not* with your ETA system. Check your system grounding. One purpose of grounding is to eliminate the interference of other electrical noise generating sources.

For safe, quiet, and reliable operation of your lighting system, the neutral and ground must *NOT* be connected anywhere in your lighting system except at the service entrance in the House lighting panel. Again, for safe, noise-free lighting, the neutral and ground must be totally isolated from each other, except at the service entrance in the House lighting panel.

*Ground Test.* Before you connect your lighting system to the House lighting panel, connect an ohmmeter between neutral and ground on your system. If you read other than infinite resistance, a ground-neutral fault exists (the ground and neutral are connected) which must be corrected for your safety and the proper operation of your lighting system.

## CAUTION

If you do not thoroughly understand this procedure, you could ruin the ohmmeter, and worse, you could be seriously injured. If you have any doubts about this test, seek assistance from a qualified electrician or your ETA Dealer.

3. **Visual Cord Inspection.** This visual cord inspection can prevent shocks and save you money. A single strand of frayed wire could short and damage your Dimmer Pack, or worse, it could cause an electrical shock to you or your audience.
  - A. Visually inspect your connecting cords for nicks or bared wires. Replace faulty cords.
  - B. Check for stray wires that might have slipped from under the screws that connect electrical plugs to cords. Repair defective connections.
4. Test all stage lamp load circuits by plugging them into a known live "non-dim" circuit *BEFORE* connecting them to the Dimmer Pack. Replace burned out lamps *BEFORE* plugging this circuit into the Dimmer Pack. (See *Illustration #4.*)
5. Never plug a lamp load circuit into your Dimmer Pack if one or more of the lamps of that circuit is burned out. This may damage the Dimmer Pack.
6. Do not overload a channel: 600 watts/channel for ETA Model 1250; 1000 watts/channel for ETA Models 1251, 1253; 2000 watts/channel for ETA Models 1252, 1254; 2400 watts/channel for ETA Model 1258.
7. Use adequately sized electrical cords to manage the electrical load. (See *Illustration #5.*)

## Selecting the Proper Electrical Cord Size

3 Conductor Grounded Cable Wire Gauge Size Per Conductor	Maximum Capacity at 120V AC	
	In Watts	In Amps
18	1,200	10
16	1,800	15
14	2,400	20
12	3,600	30
10	4,200	35
8	4,800	40
6	6,600	55
4	8,400	70
2	11,400	95

ILLUSTRATION #5

## THE ETA 1200 SERIES DIMMER PACKS

The ETA 1250, 1251 and 1252 Dimmer Packs are designed to be suspended on a lighting truss or tripod near your stage lights so they can plug directly into the Dimmer Pack.

The ETA 1253, 1254, 1257, 1258, and 1259 Dimmer Packs are designed to be installed in the cabinet of a standard 19-inch rack to offer you centralized power control and a very professional look. NOTE: It may be advisable to install a circulation fan in your rack cabinet to provide additional heat protection for all of your rack mountable equipment.

All ETA 1200 Series Dimmer Packs have a **Control Input Receptacle**. Plug any ETA 1200 Series Controller Cable into this receptacle to control this Dimmer Pack. (See Illustration for each Dimmer Pack.)

All ETA 1200 Series Dimmer Packs also feature a **Control Output Receptacle**. The Control Output Receptacle allows you to daisy-chain any ETA 1200 Series Dimmer Pack to another 1200 Series Dimmer Pack. Just plug in a jumper cable from the Output Receptacle to the Input Receptacle of another Dimmer Pack. You can now control more power, but you must supply that additional power to the second Dimmer Pack. (Control jumper cables are available from your ETA dealer.)

All ETA Dimmer Packs have individual **Circuit Breaker** protection for the safety of you and your equipment as well as the convenience of quick resetting at the Dimmer Pack.

## THE ETA 1250 DIMMER PACK

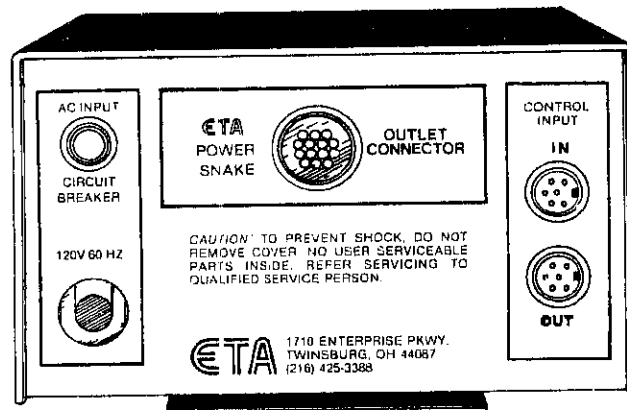


ILLUSTRATION #6

### ETA 1250 FEATURES:

- ✓ An **AC Input Power Cord** with a molded U-ground plug for 120V AC operation that provides the maximum 2400 watts or 20 amps for this Dimmer Pack.
- ✓ An **AC Input Circuit Breaker** protects the Dimmer Pack from electrical damage.
- ✓ **Four 600-Watt Channels.** Each channel has two U-grounded receptacles that allow you to connect one or two stage light cords per dimming channel.
- ✓ Built-in **AC Output Connector** for use with ETA four-channel Power Snakes.

### CAUTION

PLEASE OBSERVE THIS WARNING PRINTED ON THE ETA 1250 DIMMER PACK:

**“CAUTION!** To prevent electrical shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service person.”

### THE ETA 1251 DIMMER PACK

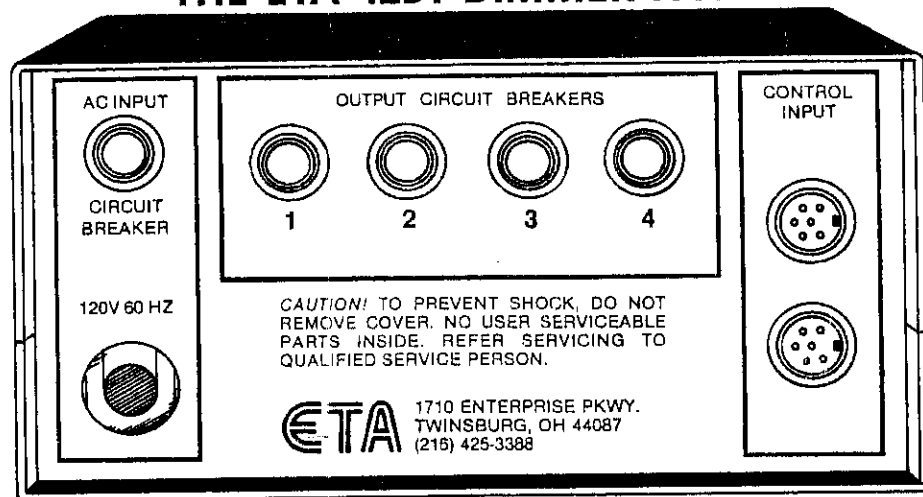


ILLUSTRATION #7

### ETA 1251 FEATURES:

- ✓ An **Input Power Cord** with a molded U-ground plug is standard on the ETA 1251 Dimmer Pack. It plugs into any standard 120V AC grounded wall outlet that provides the maximum 2400 watts or 20 amps for this Dimmer Pack.
- ✓ An **AC Input 20 Amp Circuit Breaker** protects all internal primary wiring.
- ✓ **Four 1000-Watt Channels.** Each channel has two U-grounded receptacles that allow you to connect one or two stage light cords per dimming channel.
- ✓ Built-in **AC Output Connector** for use with ETA four-channel Power Snakes.
- ✓ As supplied from the factory, your new ETA 1251 Dimmer Pack will handle 1000 watts per channel, with a total of 2400 watts per Dimmer Pack. **Remember that the 2400 watt limit is established by the standard 20-amp wall outlet.**

## THE ETA 1252 DIMMER PACK

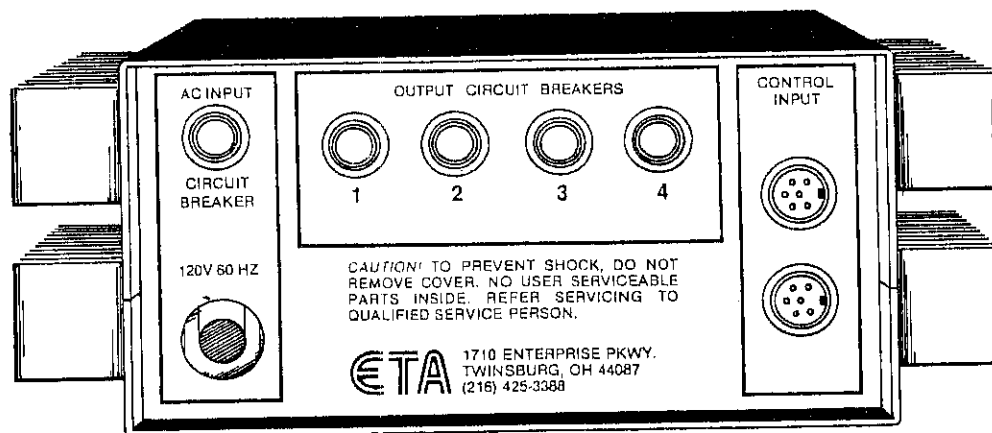


ILLUSTRATION #8

### ETA 1252 FEATURES:

- ✓ **Four 2000-Watt Channels.** Each channel has two U-grounded receptacles that allow you to connect one or two light cords per dimming channel.
- ✓ **Fan Cooled.** Because the ETA 1252 is designed to carry 8000 watts of power, it also generates about four times as much heat as the ETA 1251. Heat protection for the electronic components in the ETA 1252 is provided by an internal fan. Allow adequate free air space around the cooling vents of the Dimmer Pack. A minimum of five inches is suggested.

### CAUTION!

To prevent electrical shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service person.



## THE ETA 1253 DIMMER PACK

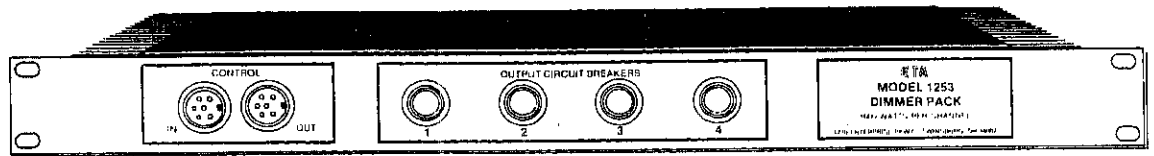


ILLUSTRATION #9

The rack mountable dimensions of the ETA 1253 Dimmer Pack are 19" x 1 3/4".

### ETA 1253 FEATURES:

- ✓ **Four 1000-Watt Channels.** Each channel has two U-grounded receptacles that allow you to connect one or two stage light cords per dimming channel.
- ✓ **The AC Input Cable Strain Relief** on the rear panel secures the incoming power cord—120/220V AC single phase. (See Illustration #14 for wiring instructions.)
- ✓ **Built-in AC Output Connector** for use with ETA four-channel Power Snakes.

## THE ETA 1254 DIMMER PACK

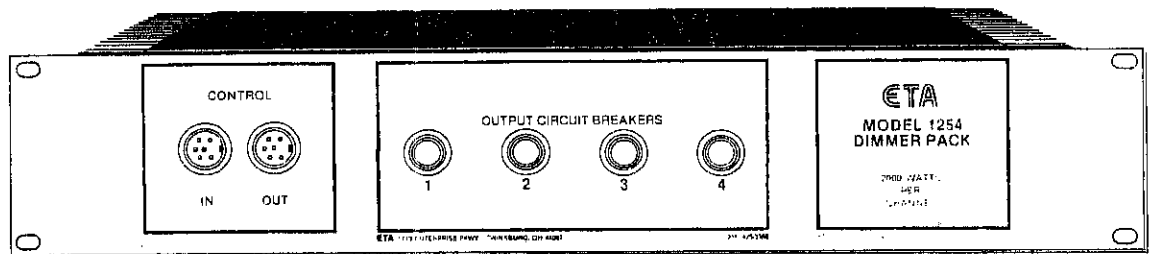


ILLUSTRATION #10

The rack mountable dimensions of the ETA 1254 Dimmer Pack are 19" x 3 1/2".

### ETA 1254 FEATURES:

- ✓ **Fan Cooled.** 8000 watts of power creates enough heat to damage the electronic circuits of the ETA 1254 Dimmer Pack. An internal fan protects the Dimmer Pack, but adequate air space must be provided around these cooling vents.

- ✓ **Four 2000-Watt Channels.** Each channel has two U-grounded receptacles that allow you to connect one or two stage light cords per dimming channel.
- ✓ **The AC Input Cable Strain Relief** on the rear panel secures the incoming power cord—120/220V AC single phase. (See *Illustration #14* for wiring instructions.)

## THE ETA 1257 DIMMER PACK

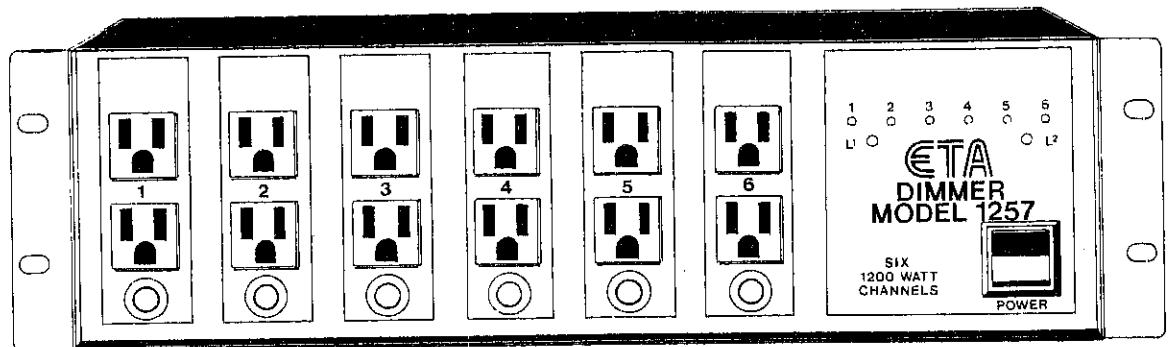


ILLUSTRATION #11

The rack mountable dimensions of the ETA 1257 Dimmer Pack are 19" x 5¼".

### ETA 1257 FEATURES:

- ✓ **Built-in AC Output Connector** for use with ETA six-channel Power Snakes.
- ✓ **Six 1200-Watt Channels.** Each channel has two U-grounded receptacles for one or two stage light cords.
- ✓ **The AC Input Cable Strain Relief** on the rear panel secures the incoming power cord—120V AC single phase or two legs of 220V AC three phase. (See *Illustration #15* for wiring instructions.)

## THE ETA 1258 DIMMER PACK

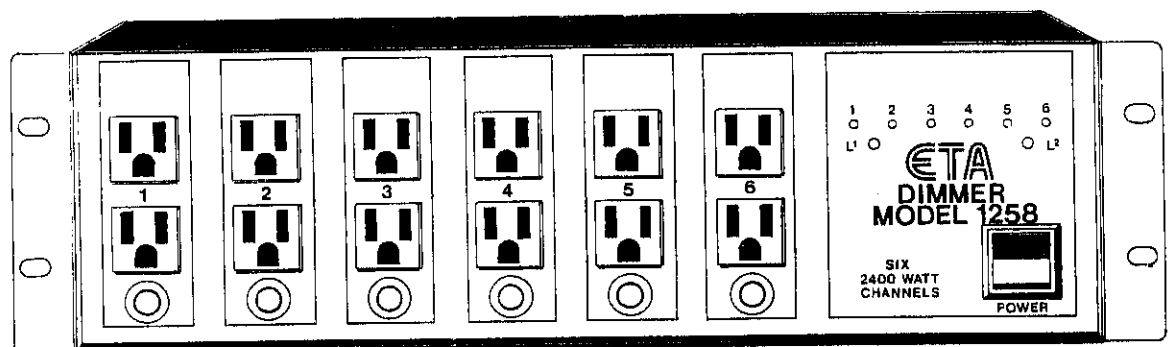


ILLUSTRATION #12

The rack mountable dimensions of the ETA 1258 Dimmer Pack are 19" x 5¼".

**ETA 1258 FEATURES:**

- ✓ **Six 2400-Watt Channels.** Each channel has two U-grounded receptacles for one or two stage light cords.
- ✓ **The AC Input Cable Strain Relief** on the rear panel secures the incoming power cord —120V AC single phase or two legs of 220V AC three phase. *(See Illustration #15 for wiring instructions.)*

## THE ETA 1259 DIMMER PACK

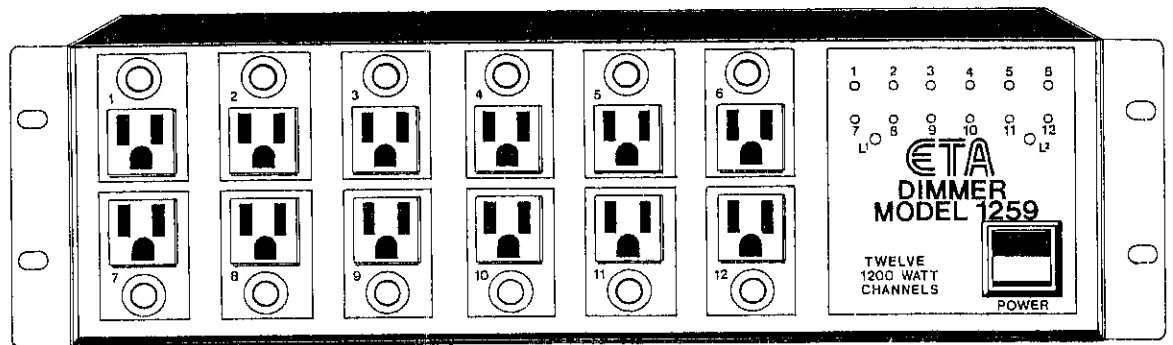


ILLUSTRATION #13

The rack mountable dimensions of the ETA 1259 Dimmer Pack are 19" x 5¼".

**ETA 1259 FEATURES:**

- ✓ **Twelve 1200-Watt Channels.** Each channel has only one U-grounded receptacle for your stage light cords.
- ✓ **Built-in AC Output Connectors** for use with ETA six-channel Power Snakes.
- ✓ **The AC Input Cable Strain Relief** on the rear panel secures the incoming power cord —120V AC single phase or two legs of 220V AC three phase. *(See Illustration #15 for wiring instructions.)*

## INPUT POWER CONNECTIONS

### for ETA 1253, 1254, 1257, 1258, and 1259 Dimmer Packs

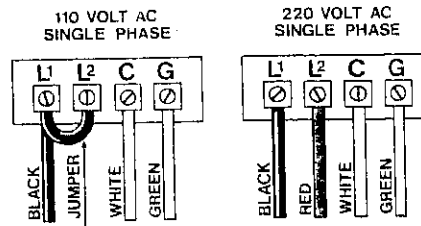
1. **ETA 1253 Dimmer Pack:**  
The maximum wattage for this Dimmer Pack is 4000 watts. The minimum input power cord size is 10-gauge grounded three conductor (10-3) if you use 120V AC power from the House lighting panel, or 14-gauge grounded four conductor (14-4) if you use 220V AC single phase power.

2. **ETA 1254 Dimmer Pack:**

The maximum wattage for this Dimmer Pack is 8000 watts. The minimum input power cord size is 4-gauge grounded three conductor (4-3) if you use 120V AC power from the House lighting panel, or 10-gauge grounded four conductor (10-4) if you use 220V AC single phase power.

**Input Power Connections for ETA 1253 and 1254 Dimmer Packs**  
**HOOK UP DIAGRAM**

**DANGER**  
DUE TO LIFE THREATENING SHOCK HAZARD.  
HOOK UP OF THIS DIMMER PACK MUST BE  
MADE BY QUALIFIED INDIVIDUALS ONLY.



JUMPER (SUPPLIED WITH UNIT) MUST BE  
REMOVED FOR 220 VOLT OPERATION

**DANGER - SHOCK HAZARD**  
POWER MUST BE DISCONNECTED  
BEFORE MAKING HOOKUP  
ILLUSTRATION #14

3. **ETA 1257 Dimmer Pack:**

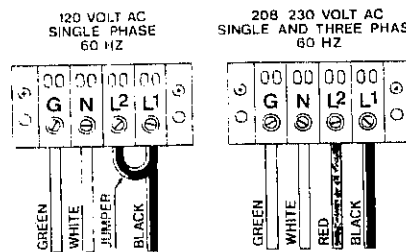
The maximum wattage for this Dimmer Pack is 7200 watts. The minimum input power cord size is 4-gauge grounded three conductor (4-3) if you use 120V AC power from the House lighting panel, or 12-gauge grounded four conductor (12-4) if you use two legs of 220V AC three-phase power.

4. **ETA 1258 and 1259 Dimmer Packs:**

The maximum wattage for these Dimmer Packs is 14,400 watts. If you have access to 120 amps of 120V AC power, then the minimum input power cord size is 4-gauge welding cable (single conductor). If you use two legs of 220V AC three-phase power, then the minimum input power cord size is 4-gauge grounded four conductor (4-4).

**Input Power Connections for ETA 1257, 1258, and 1259 Dimmer Packs**  
**HOOK UP DIAGRAM**

**DANGER**  
DUE TO LIFE THREATENING SHOCK HAZARD.  
HOOK UP OF THIS DIMMER PACK MUST BE  
MADE BY QUALIFIED INDIVIDUALS ONLY.  
THIS UNIT WILL OPERATE ON ANY TWO LEGS OF THREE PHASE POWER



JUMPER (SUPPLIED WITH UNIT) MUST BE  
REMOVED FOR 208 230 VOLT OPERATION

**DANGER - SHOCK HAZARD**  
POWER MUST BE DISCONNECTED  
BEFORE MAKING HOOKUP  
ILLUSTRATION #15

## CARE AND MAINTENANCE

1. As with all electrical equipment, keep your Dimmer Pack dry and dirt-free.
2. For rack mountable Dimmer Packs, we recommend rack shock mounting. Also, if your rack is equipped with an intake cooling fan, an air filter could prolong the life of all your electrical equipment.
3. Follow our connection procedures, especially the ground and safety checks. It is an unsafe assumption to start plugging in cords because everything worked well in the last show.
4. Carry several spare Triacs. Order them from your ETA dealer.
5. **CAUTION:** Your ETA 1200 Series Dimmer Pack is very durable, but if it should need repair, do not attempt to repair it yourself. This will VOID your limited warranty, but more importantly, you could be electrocuted.

### SERVICE

Your Limited Warranty is void if anyone other than ETA or one of its authorized service stations alters or repairs any ETA system. If it ever becomes necessary to ship your ETA unit for repair, we strongly recommend that the equipment be packaged properly and insured for its value. ETA is not responsible for loss or damage to equipment in shipping.

# HOW TO CONVERT WATTS INTO AMPS OR AMPS INTO WATTS

The equation is  $I = P/E$  where:

I = Current rated in amperes (amps).

P = Power rated in wattage (watts).

E = Voltage (ETA equipment uses 120V AC).

**Step 1: To compute wattage when amps are given:**

$$I = P/E$$

$$\text{Amps} = \frac{\text{watts}}{\text{volts}}$$

For the purpose of this example amps = 20 and voltage = 120.

$$20 = \frac{\text{watts}}{120 \text{ volts}} \quad \text{or} \quad \text{watts} = 20 \times 120 = 2400$$

In other words, multiplying amps by voltage gives wattage.

**Step 2: To compute amps when wattage is given:**

$$I = P/E$$

$$\text{Amps} = \frac{\text{watts}}{\text{volts}}$$

For the purpose of this example watts = 4000 and voltage = 120.

$$\text{Amps} = \frac{4000}{120} = 33.33$$

In other words watts divided by volts gives amps.

Use of these two formulas will enable you to figure out cable sizes required (see *Illustration #5*), how many amps you need to power your system and how many lights you can use with a given power source.

## Theory of Wire Carrying Capacity

The amount of electrical power a wire can carry can be compared to the amount of water a water pipe can carry. A large diameter water pipe obviously can carry more water than a smaller diameter pipe. Similarly, the larger diameter electrical wire can carry more wattage than smaller diameter wire. The size or gauge of electrical wire is numbered so that the *larger* the gauge number, the *smaller* the wire diameter. For example, 18-gauge wire is much smaller than two-gauge wire. The *smaller* the gauge number, the *more* wattage that wire is capable of safely carrying. Two-gauge wire can carry many more watts of power than an 18-gauge wire.