Grounding or earthing in input (AC) power supply is the practice of connecting the metal casing of an electrical device to the ground. This is done to protect people from electric shock in the event of a fault.

When an electrical device is properly grounded, any current that leaks from the device will flow through the ground wire and into the ground. This prevents the current from passing through a person, which could potentially cause a fatal electric shock.

Grounding is also important for protecting electrical devices from damage. When a fault occurs, the current can arc through the air and create a spark. This spark can ignite flammable materials, causing a fire. By grounding the device, the current is safely diverted to the ground, preventing the spark from forming.

In the US, the ground wire is typically the third prong on a power plug. This prong is connected to a metal rod that is driven into the ground near the electrical outlet.

It is important to note that not all electrical devices need to be grounded. For example, devices that are double insulated do not need to be grounded because they have two layers of insulation to protect people from electric shock.

However, most electrical devices should be grounded, including:

- Appliances with metal cases, such as refrigerators, stoves, and washing machines.
- Power tools.
- Computers and other electronic devices.
- Electrical fixtures, such as light switches and outlets.

If you are unsure whether or not an electrical device should be grounded, it is best to consult with an electrician.

Here are some of the benefits of grounding an AC power supply:

- Protects people from electric shock.
- Protects electrical devices from damage.
- Meets electrical code requirements.
- Reduces the risk of fires.

If you are installing a new AC power supply, it is important to ground it properly. This will help to keep you and your family safe and protect your property from damage.