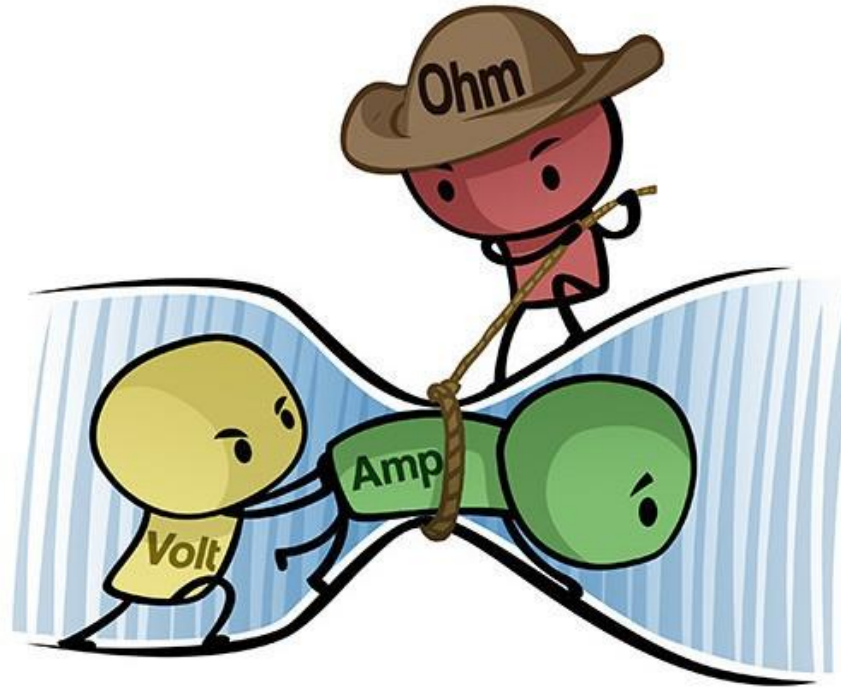


Electricidad Sistemas de Sonido

Ing. Rocío Giménez
Bioingeniera

Principios de Electricidad, Electrónica y Magnetismo



Tensión

Volt

Corriente

Ampere

Resistencia

Ohm

Tensión



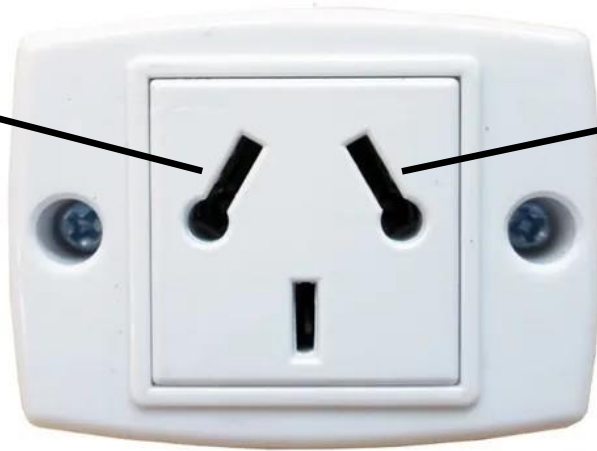
Diferencia de potencial eléctrico entre dos puntos

“Vivo”

“Neutro”

220V

0V



1.5V

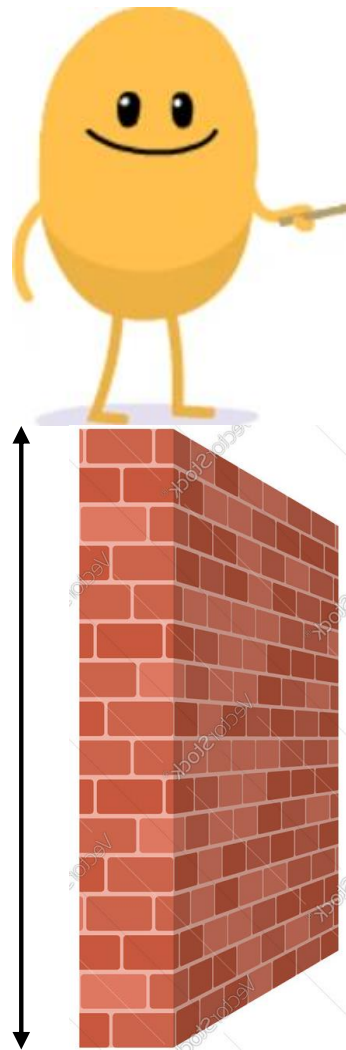


0V

Diferencia de potencial o diferencia de tensión =

220V

Diferencia de potencial



220V



380V

3,80m

2,20m

Corriente

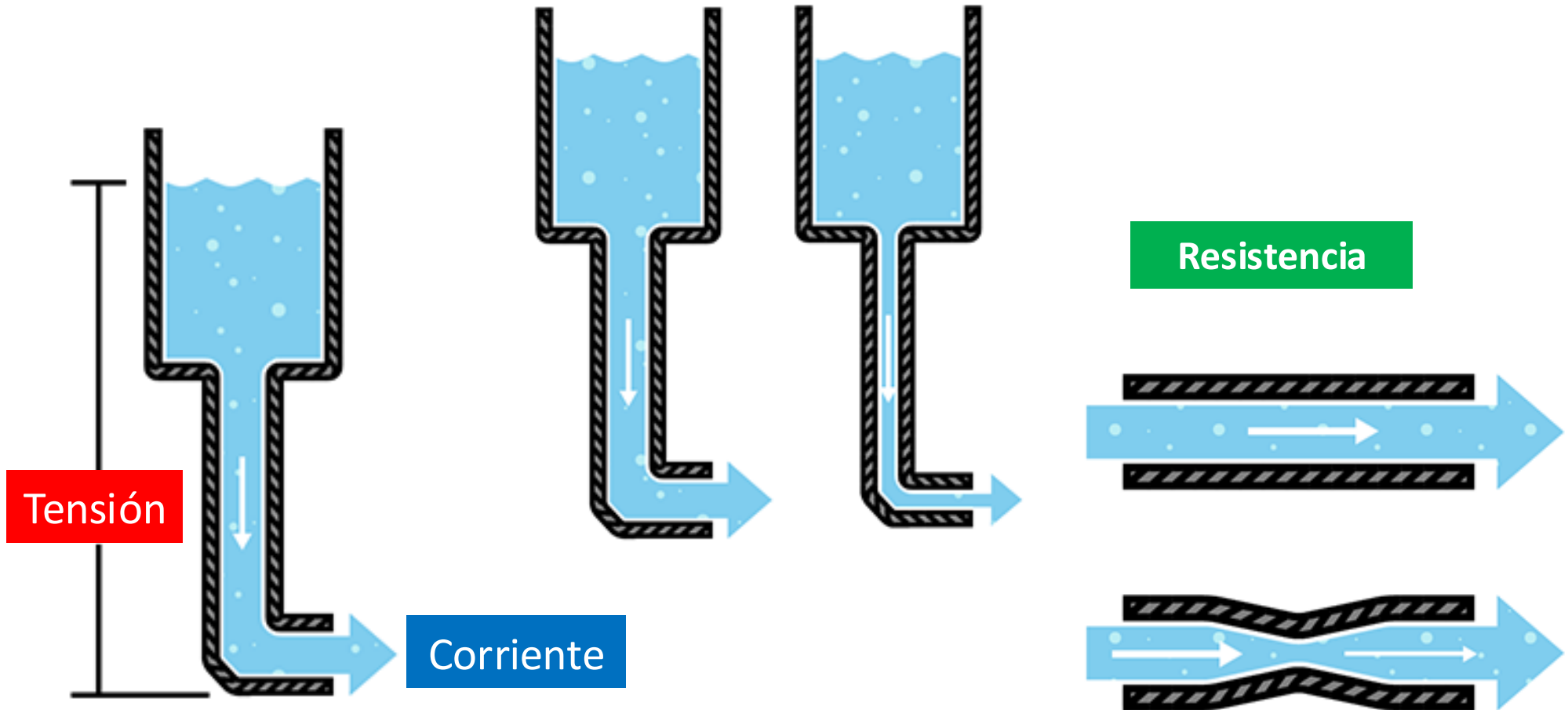


Flujo de electrones por un conductor por unidad de tiempo

Oposición al flujo de corriente eléctrica a través de un conductor

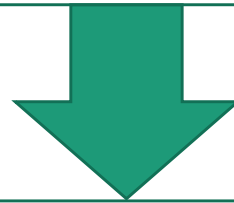


Resistencia

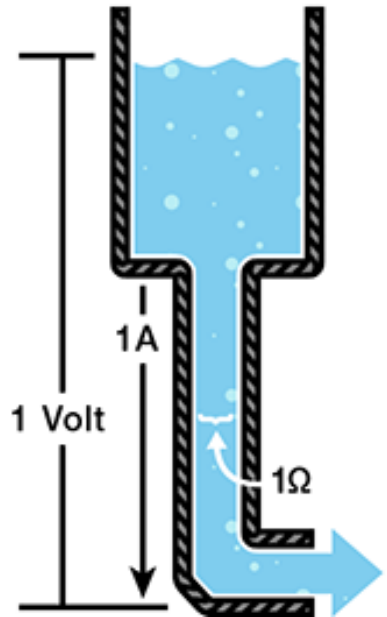


Ley de Ohm

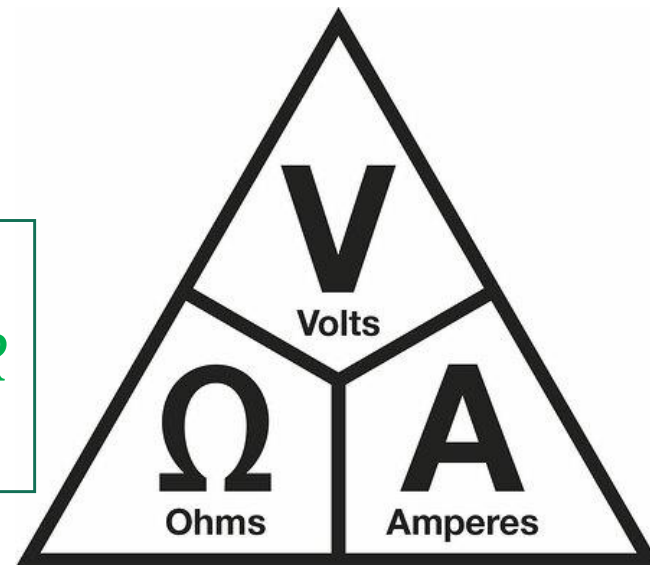
$$\text{Caudal de Agua} = \frac{\text{Altura del Agua}}{\text{Rugosidad de la Tubería}}$$



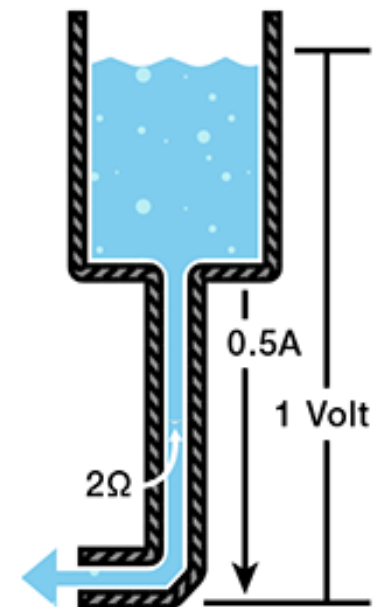
$$\text{Corriente} = \frac{\text{Diferencia de Tensión}}{\text{Resistencia}}$$



$$V = I \cdot R$$



$$R = \frac{V}{I}$$



Ley de Ohm

$$V = I \cdot R$$

$$I = \frac{V}{R}$$

$$R = \frac{V}{I}$$

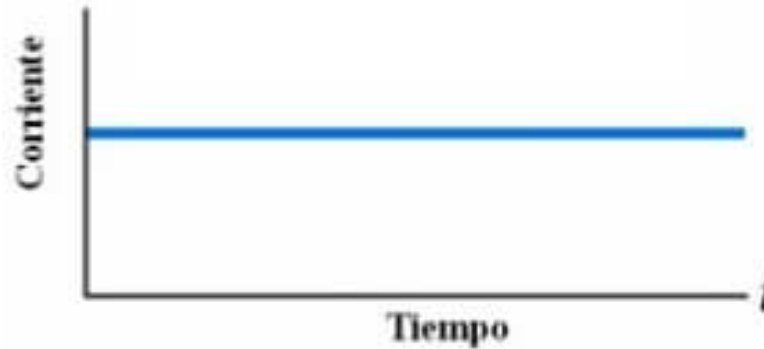
$$P = I \cdot V$$

Tensión continua y Tensión Alterna

Corriente Continua y Corriente Alterna

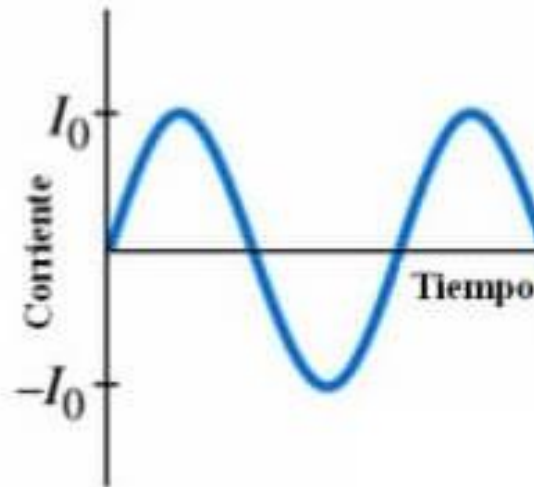
Corriente Continua (CC)

No varía con el tiempo.

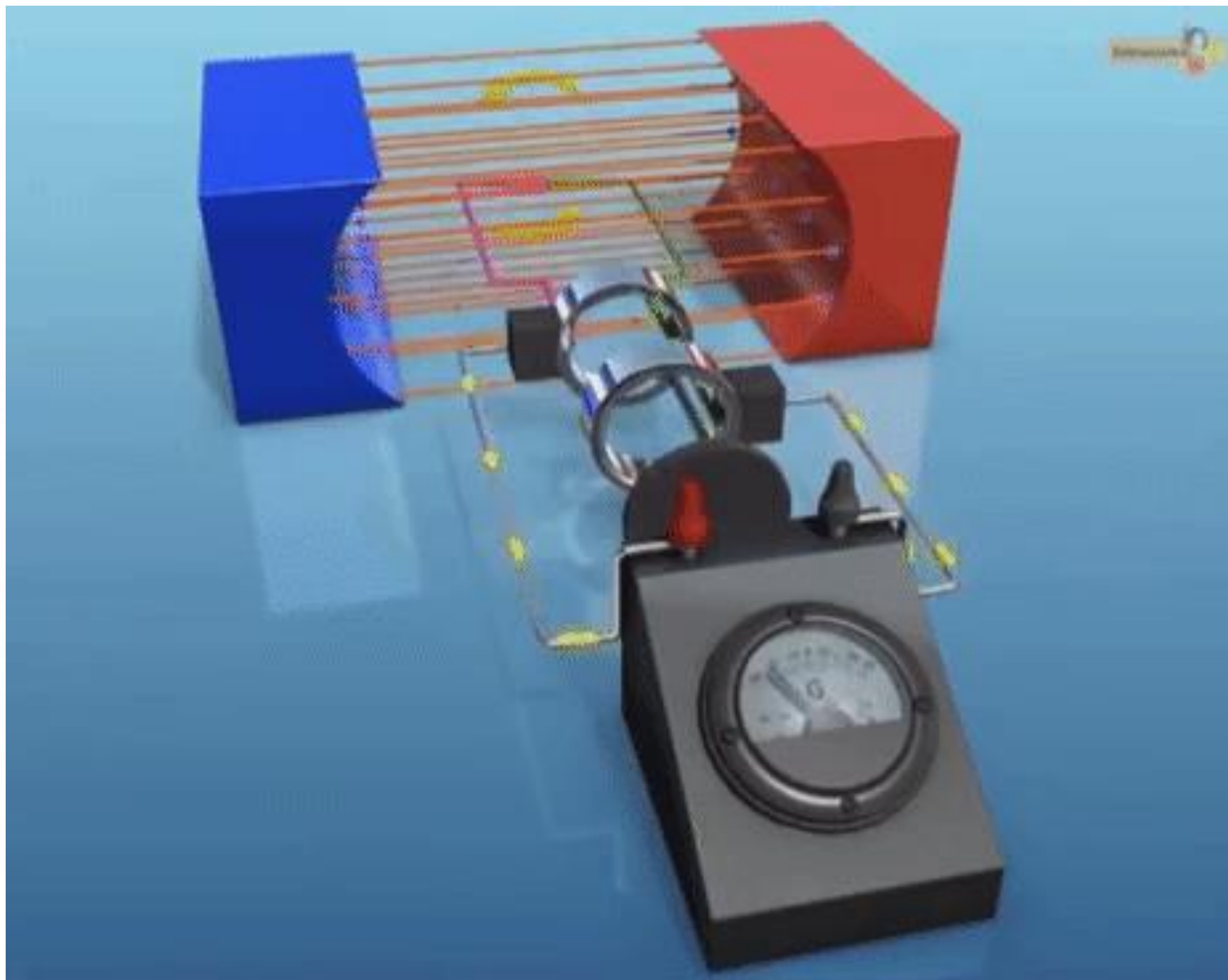


Corriente Alterna (CA)

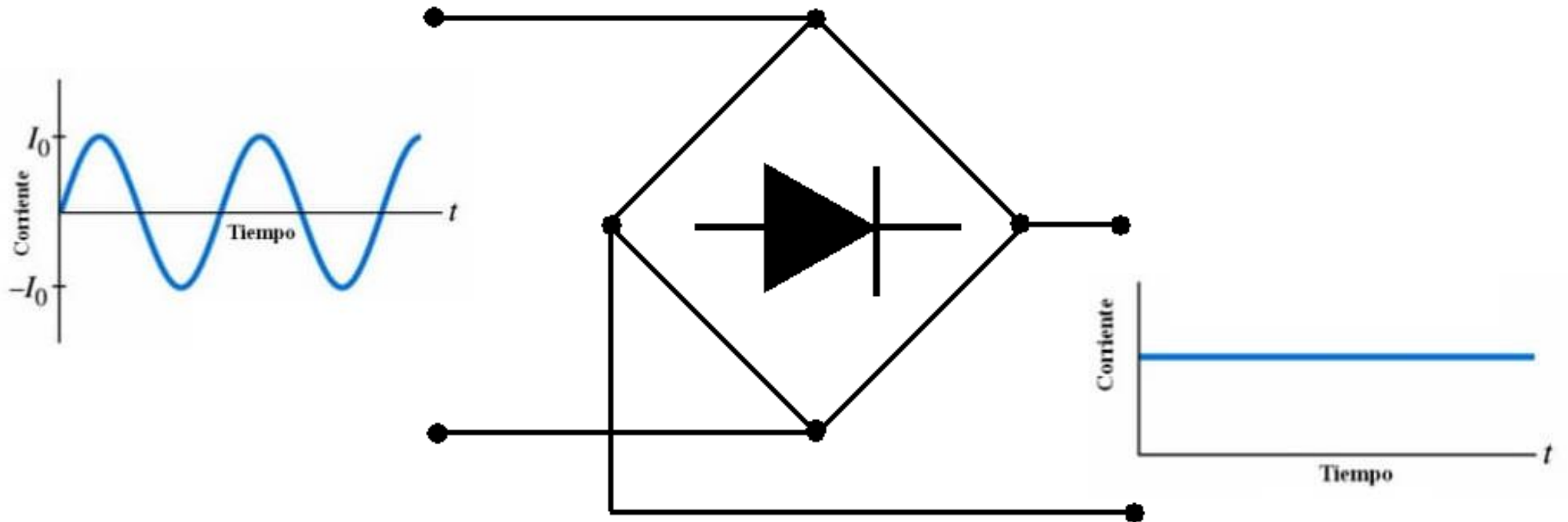
Varía con el tiempo en forma sinusoidal tanto el voltaje como la corriente.



Tensión Alterna



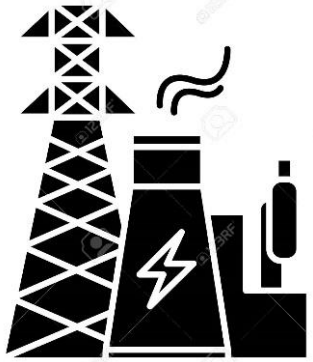
Tensión continua (no química)



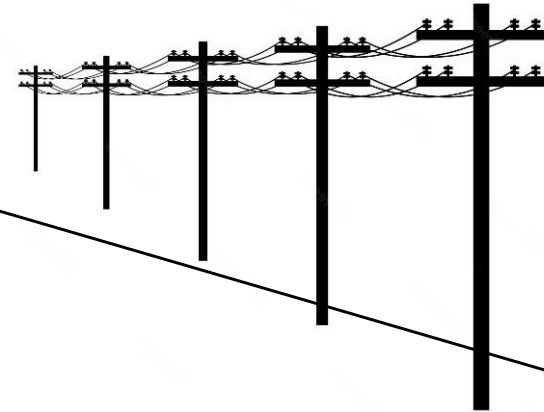
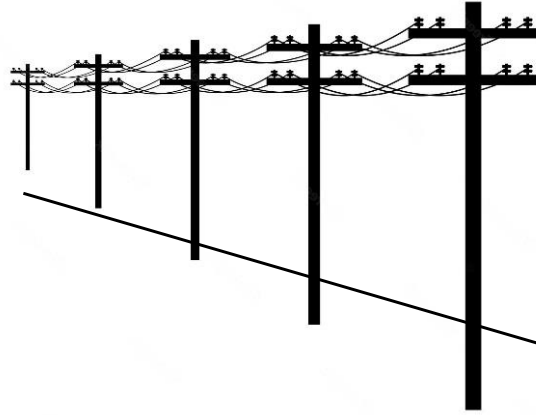
Rectificador

Si la mayoría de los dispositivos
funcionan con Corriente
Continua, ¿por qué las empresas
de energía nos entregan
Corriente Alterna (CA)?

Tensión continua



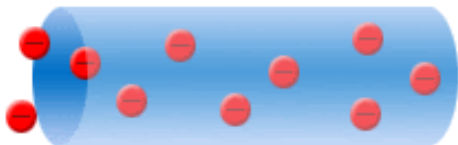
110v



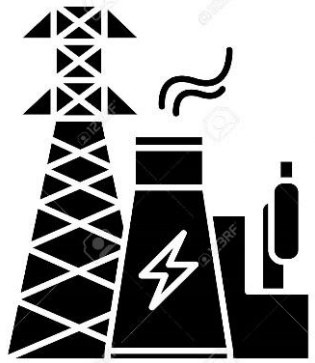
105v



80v



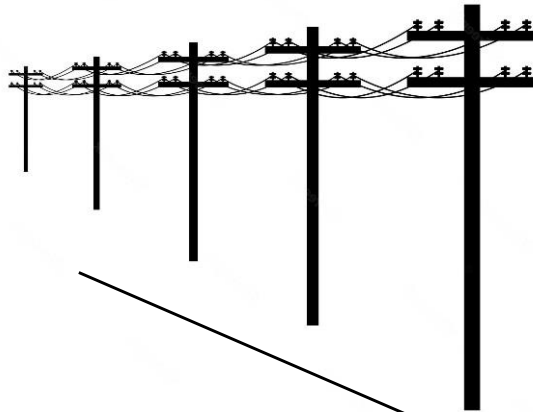
Tensión Alterna



110v



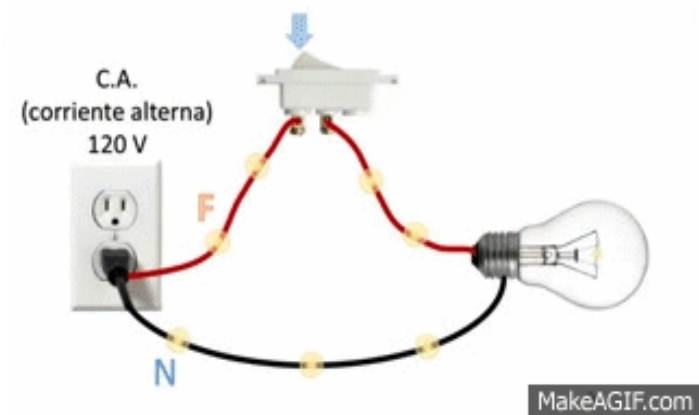
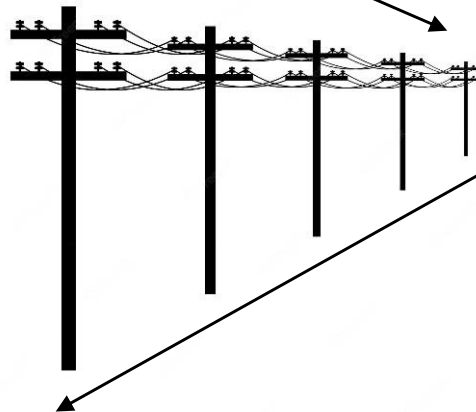
23,000v



110v



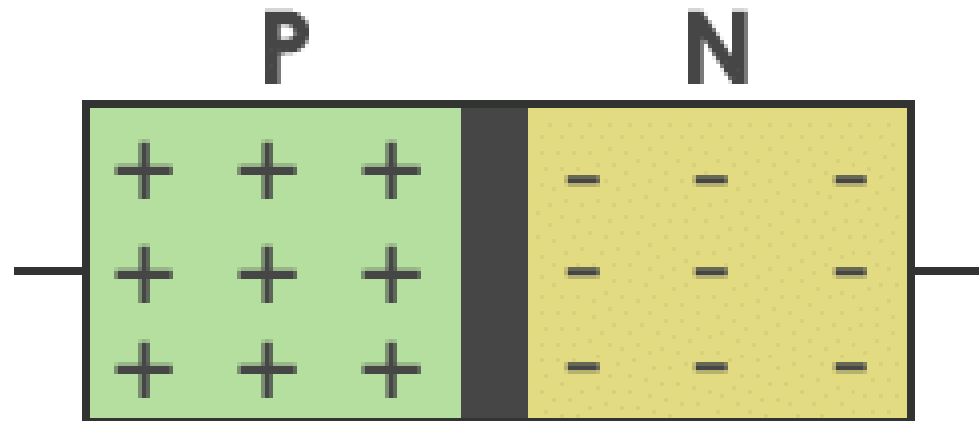
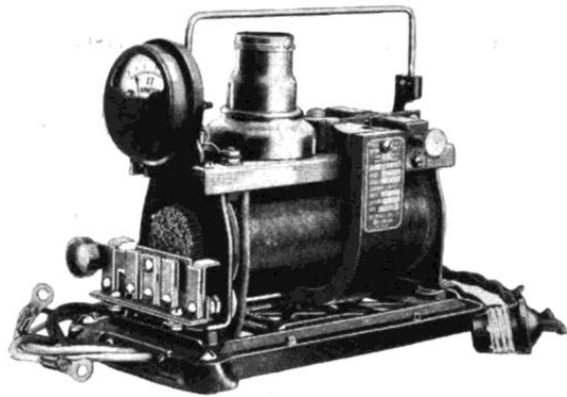
110v



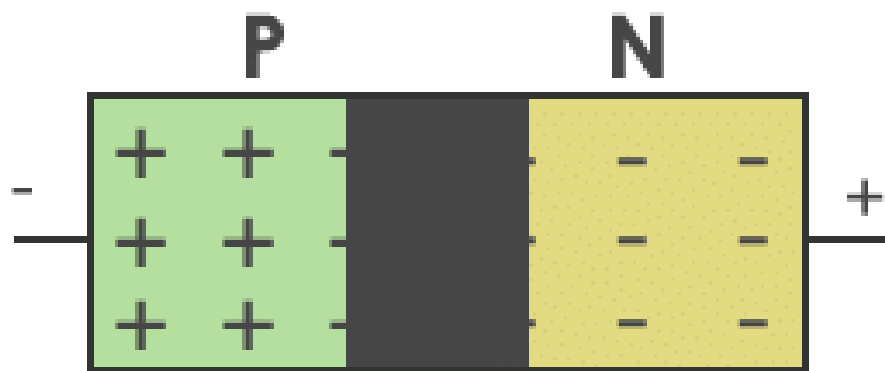
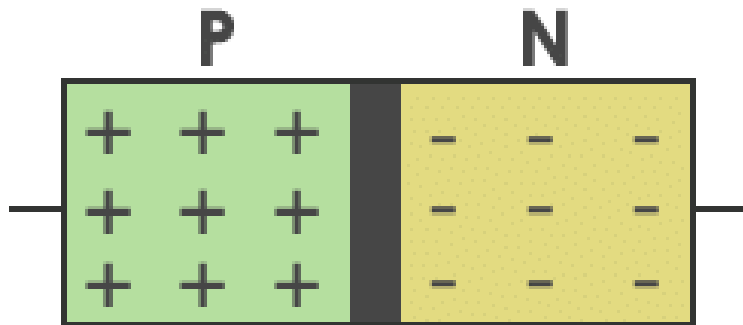
Rectificación



DIODO



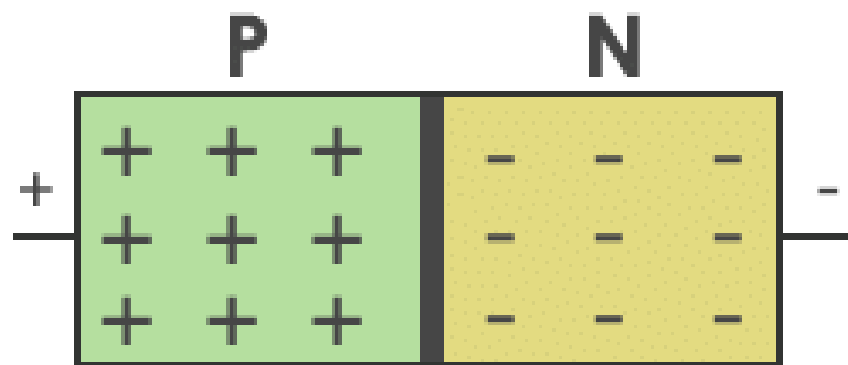
Rectificación



Holes →
← Electrons

Polarización Inversa

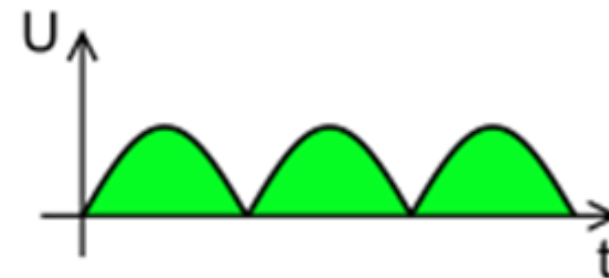
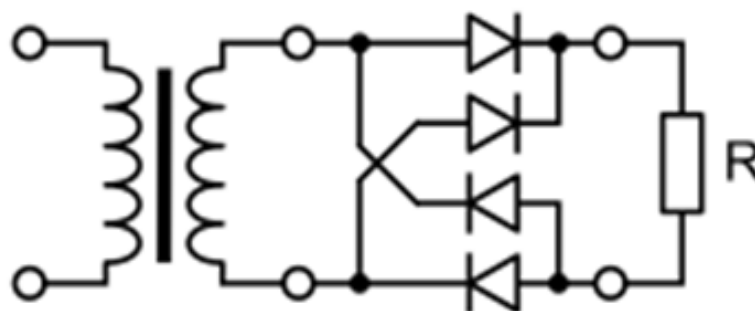
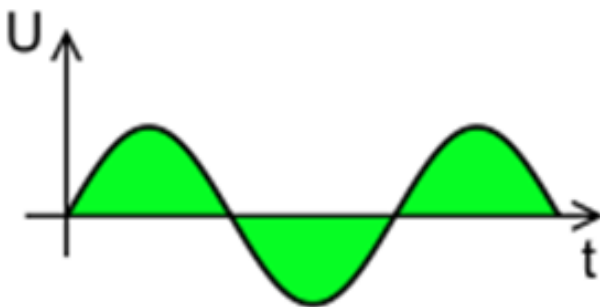
No conduce



Holes →
← Electrons

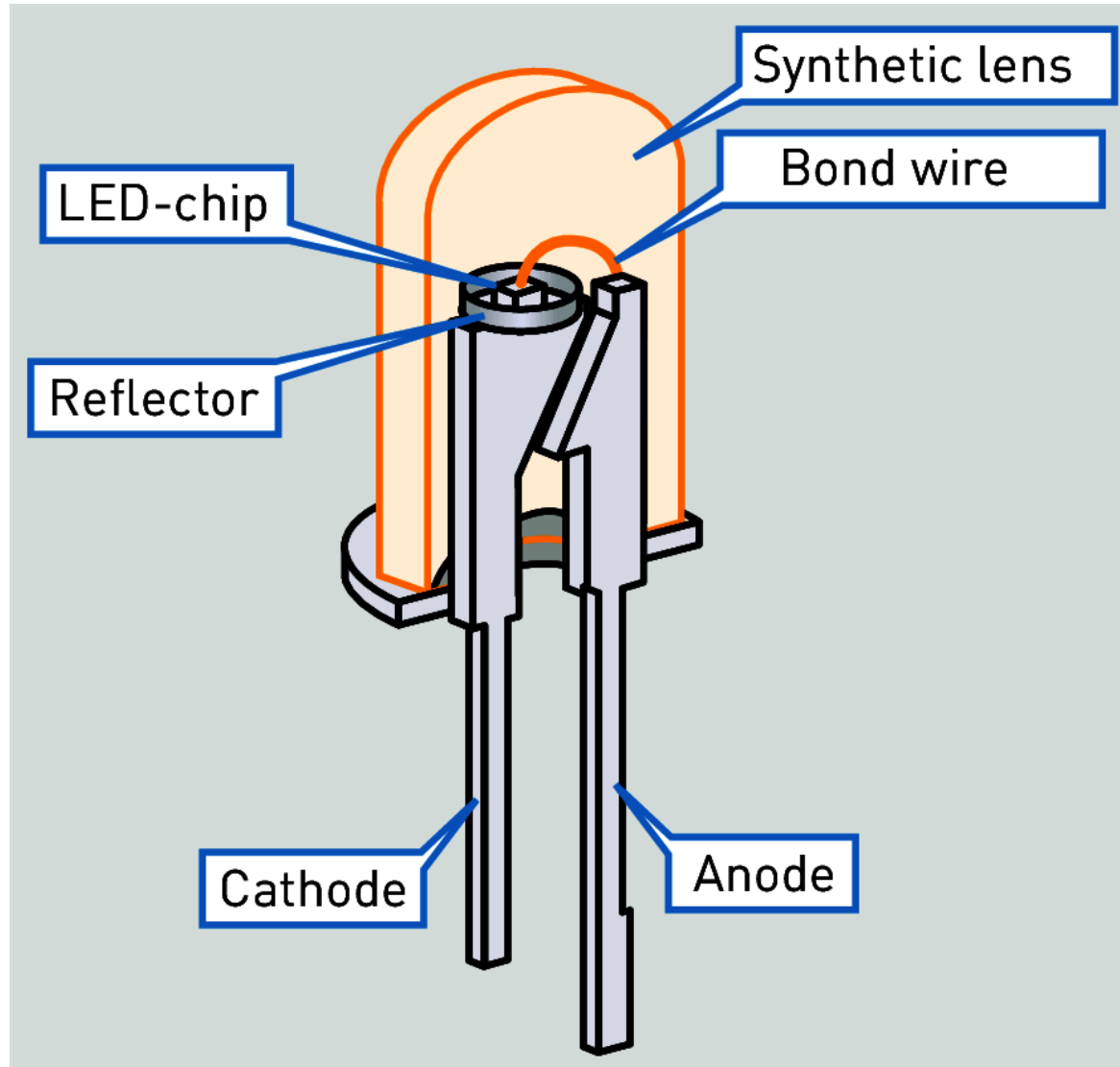
Polarización Directa

Conduce

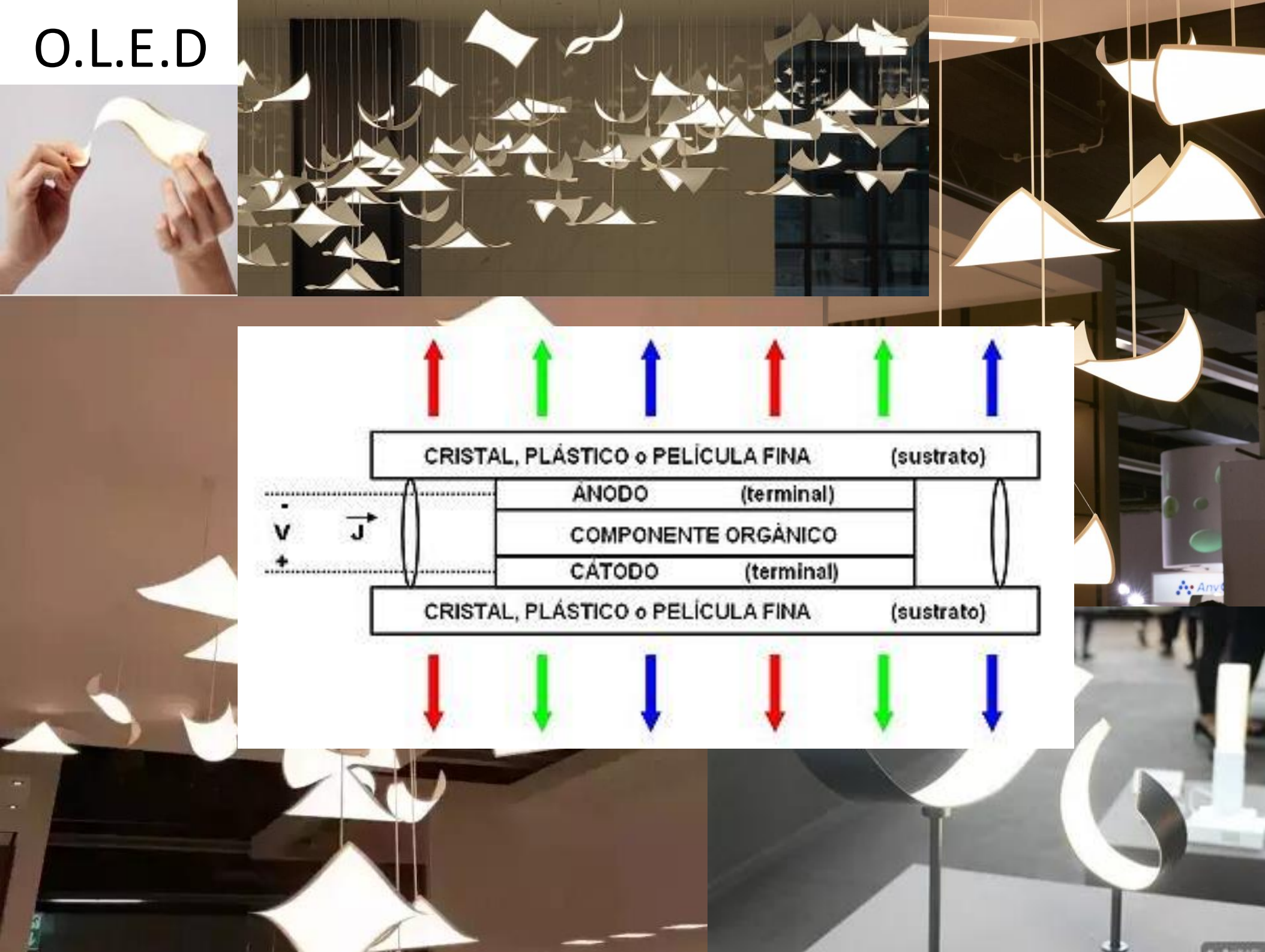


L.E.D

Light-Emitting Diode



O.L.E.D



Ley de Ohm

$$V = I \cdot R$$

$$I = \frac{V}{R}$$

$$R = \frac{V}{I}$$

$$P = I \cdot V$$

$$P = \frac{V^2}{R}$$

$$P = I^2 \cdot R$$

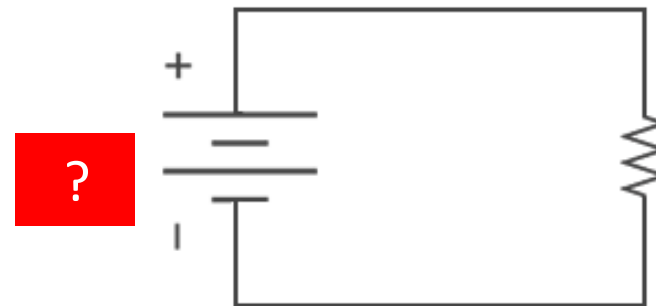
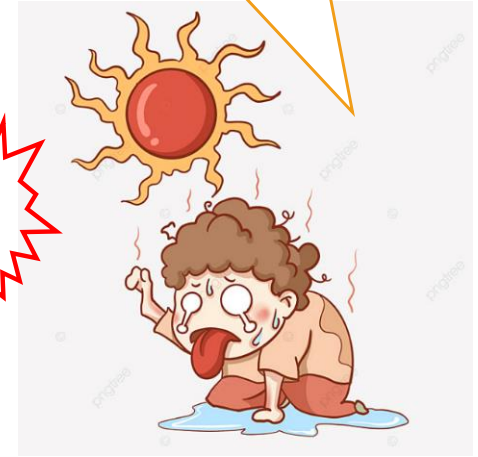
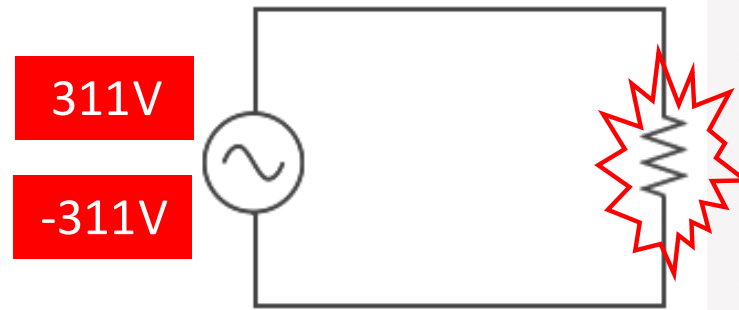
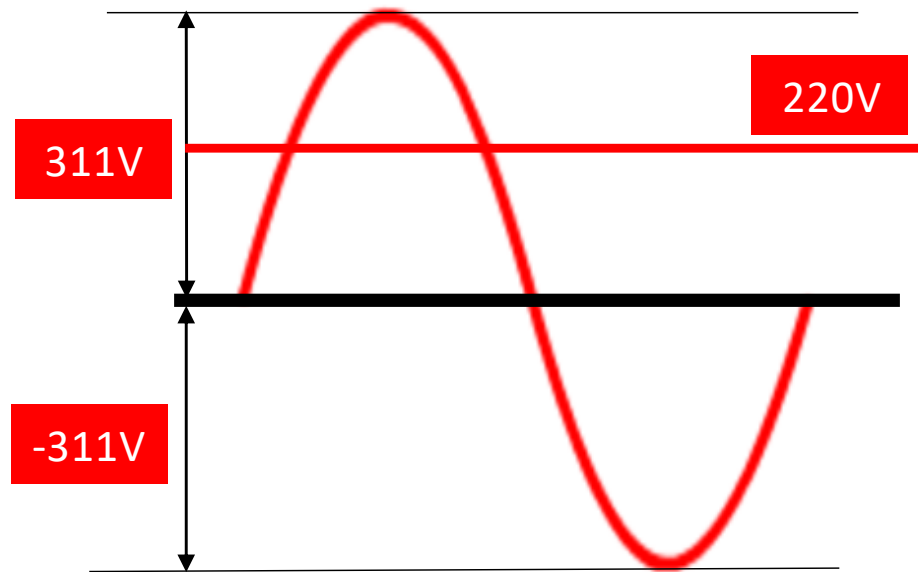
Tensión Alterna o Diferencia de potencial alterno



¿Qué son los 220v entonces?

Tensión R.M.S o “Tensión Eficaz”

#TeamInvierno



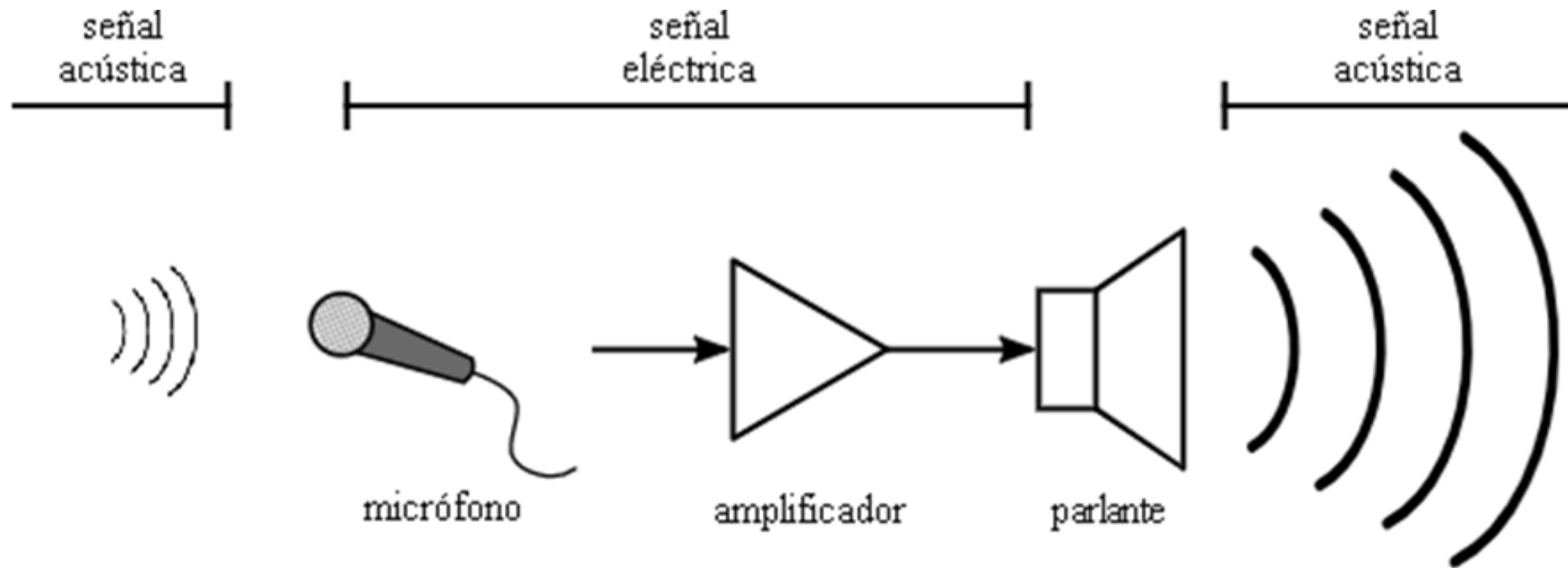
$$V_{equivalente} = \frac{V_{pico}}{\sqrt{2}} = V_{RMS}$$

R.M.S = *Root Mean Square*

$$\frac{V_{pico}}{\sqrt{2}} = \frac{311V}{\sqrt{2}} = 220V$$



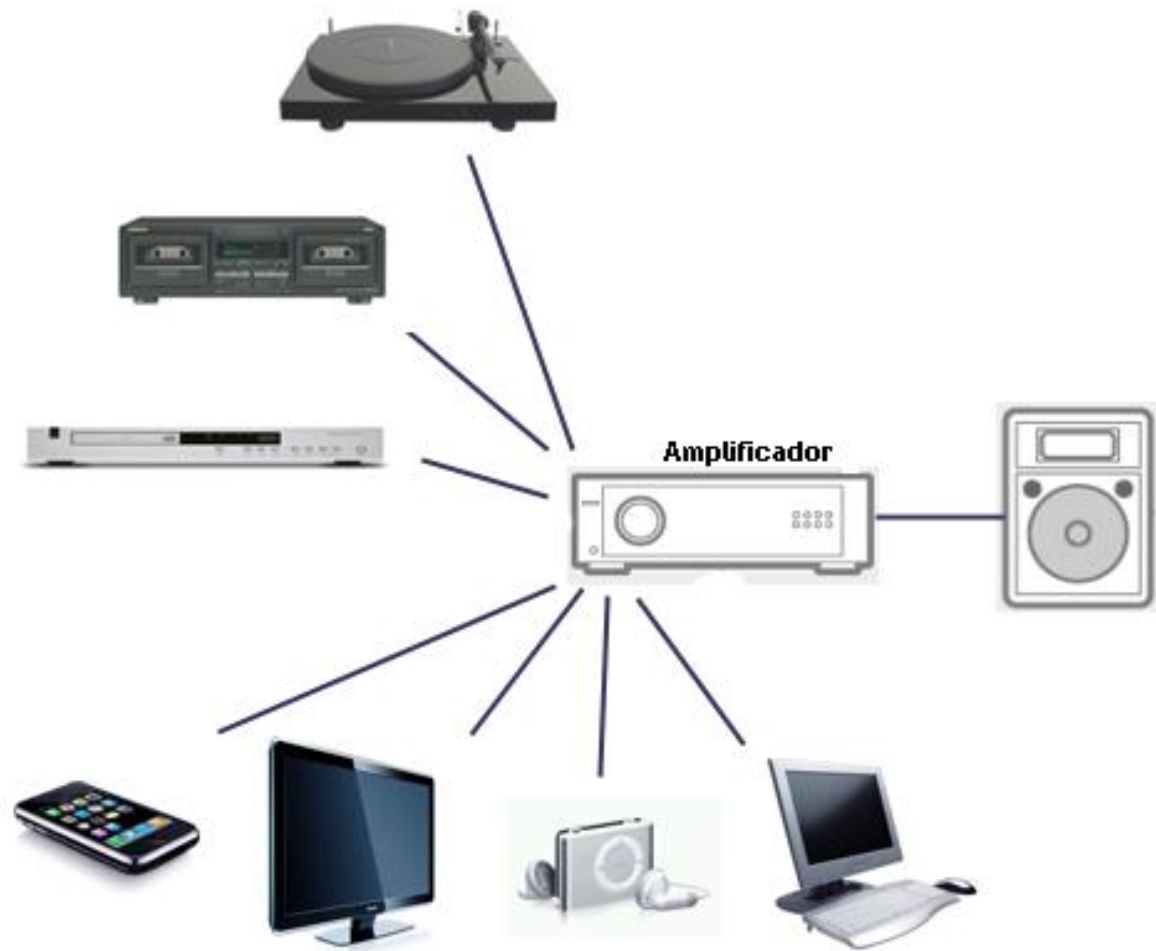
Cadena Electroacústica



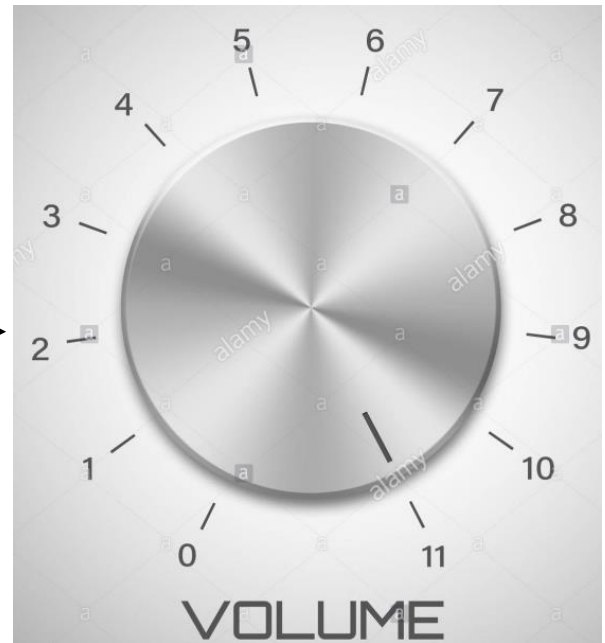
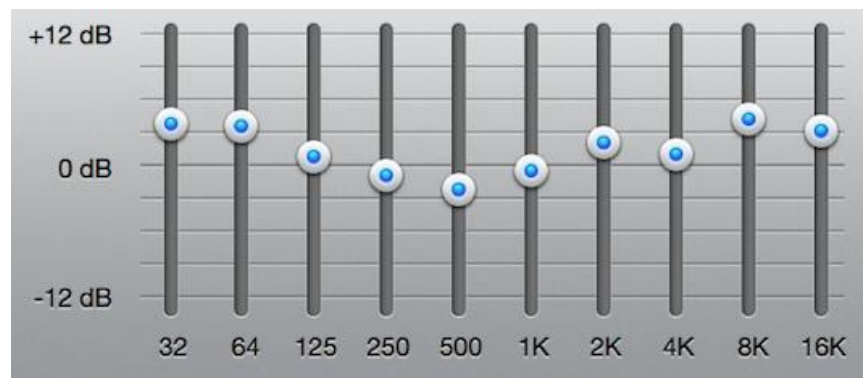
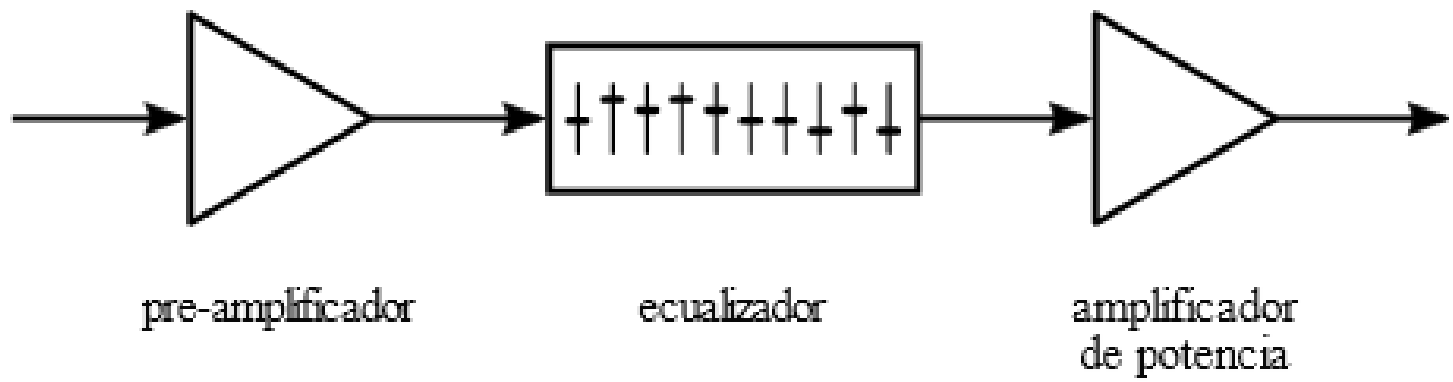
Cadena Electroacústica

Señales de Entrada

Señales
sonoras
muy
pequeñas



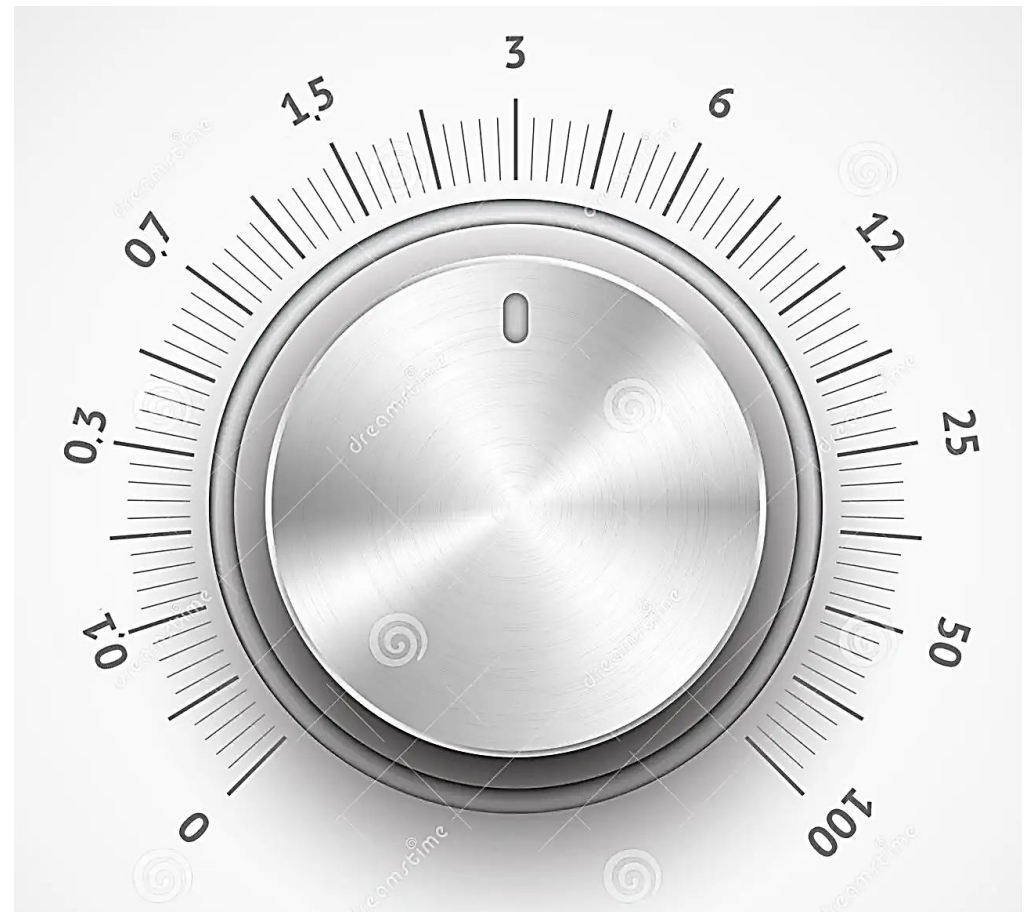
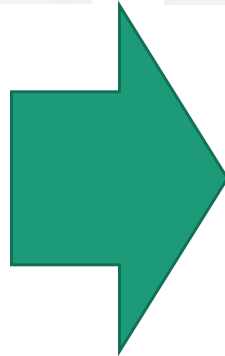
Amplificador de potencia



Amplificador de potencia

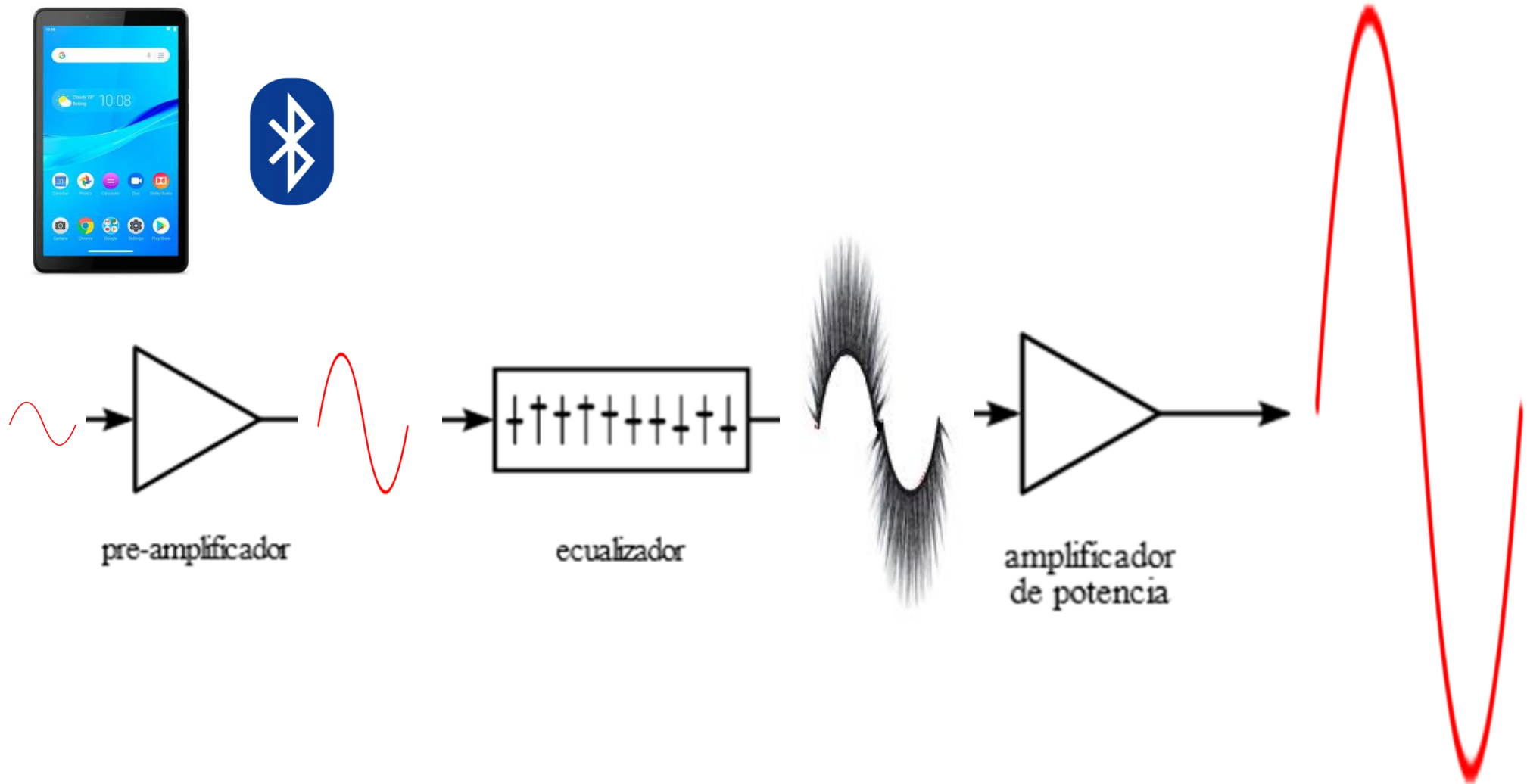


Volumen de un amplificador de 100W

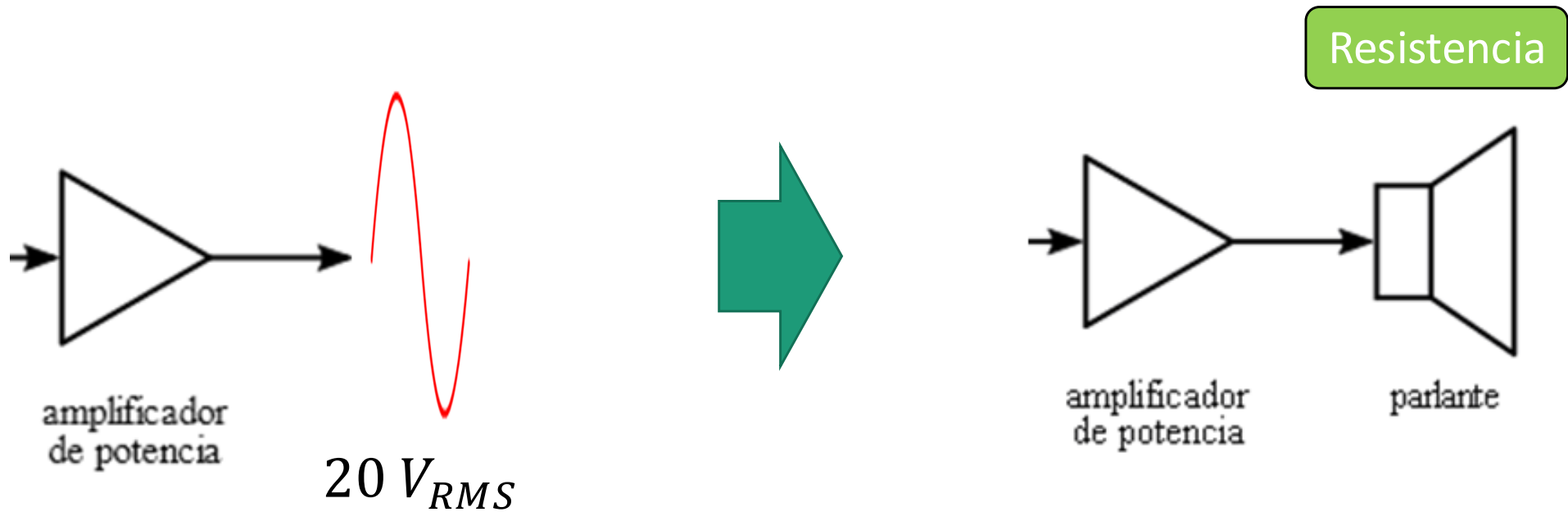


Potencia equivalente en **Watts** de un amplificador de 100W

Repaso de lo visto hasta ahora



Potencia de un Amplificador



$$Potencia = \frac{(V_{RMS})^2}{R} [W]$$

$$V_{RMS} \rightarrow \boxed{W_{RMS}}$$