

Instalaciones III



UNCUYO
UNIVERSIDAD
NACIONAL DE CUYO

“Electricidad y Sistemas de Sonido”

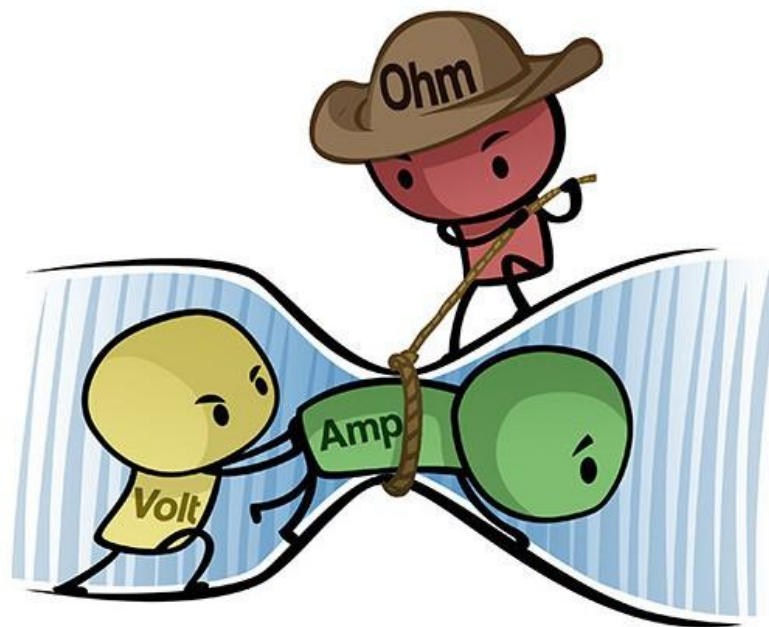
Ing. Juan Bertrán

*Ingeniero en Electrónica
Especialista en Audio y Sonido*

Mg. Ing. Adriano Sabez

*Ingeniero en Acústica
Mg. en Acústica Arquitectónica y Medioambiental*

Principios de Electricidad, Electrónica y Magnetismo



Tensión

Volt

Corriente

Ampere

Resistencia

Ohm

Tensión



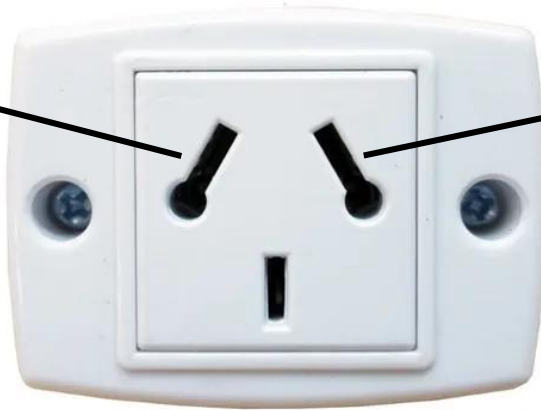
Diferencia de potencial eléctrico entre dos puntos

“Vivo”

“Neutro”

220V

0V



1.5V



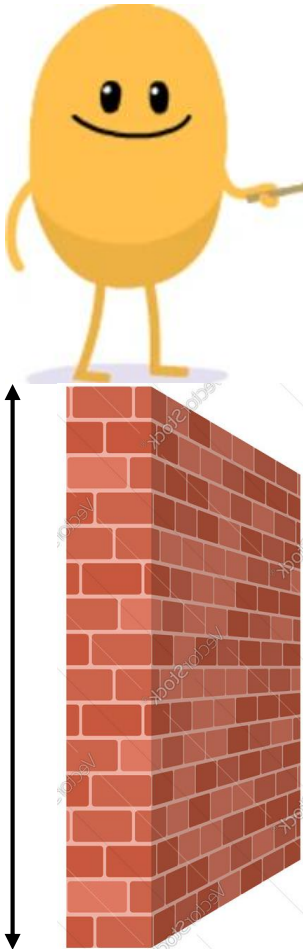
0V

Diferencia de potencial o diferencia de tensión =

220V

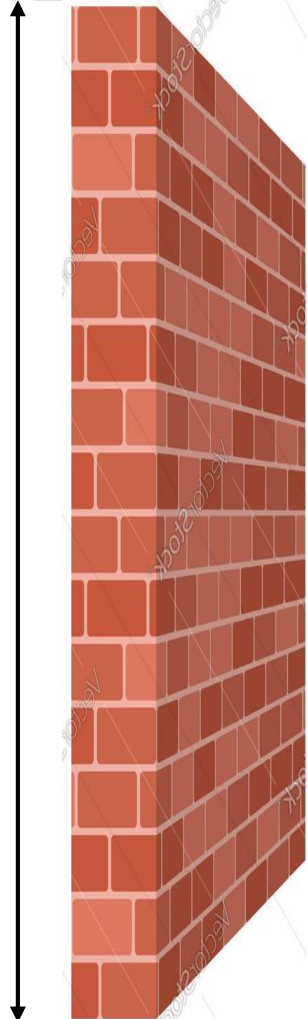
Diferencia de potencial

2,20m



220V

3,80m



380V

Corriente

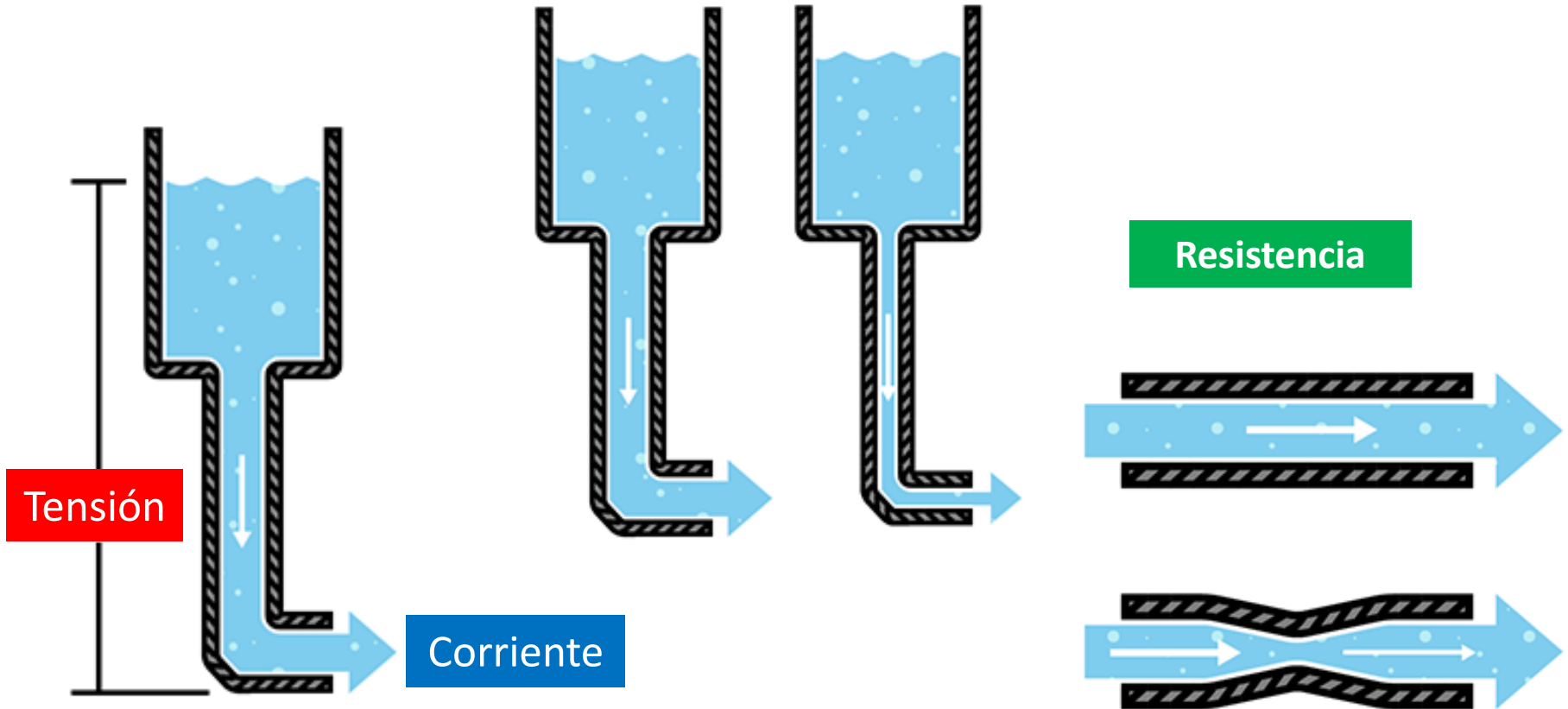


Flujo de electrones por un conductor por unidad de tiempo

Oposición al flujo de corriente eléctrica a través de un conductor



Resistencia

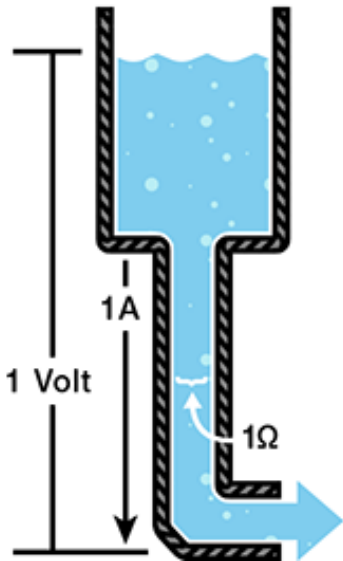


Ley de Ohm

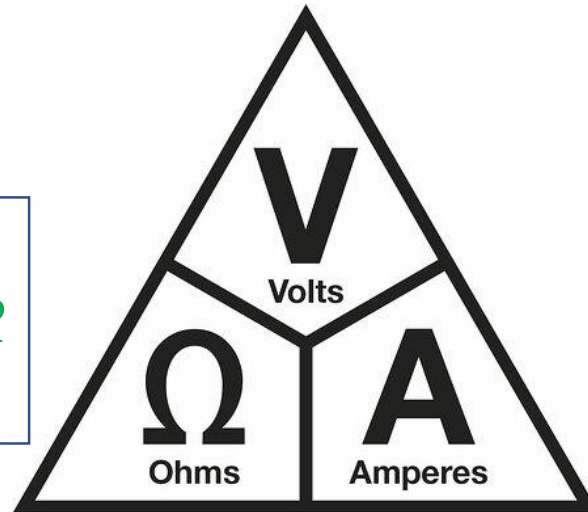
$$\text{Caudal de Agua} = \frac{\text{Altura del Agua}}{\text{Rugosidad de la Tubería}}$$



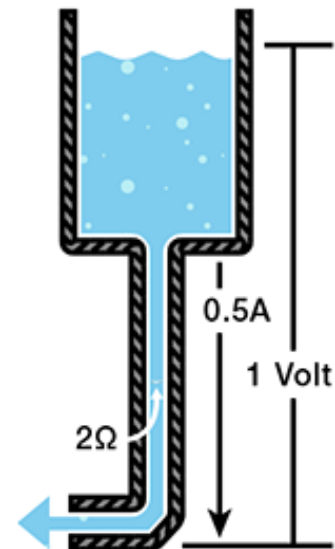
$$\text{Corriente} = \frac{\text{Diferencia de Tensión}}{\text{Resistencia}}$$



$$V = I \cdot R$$



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



Ley de Ohm

$$V = I \cdot R$$

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

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

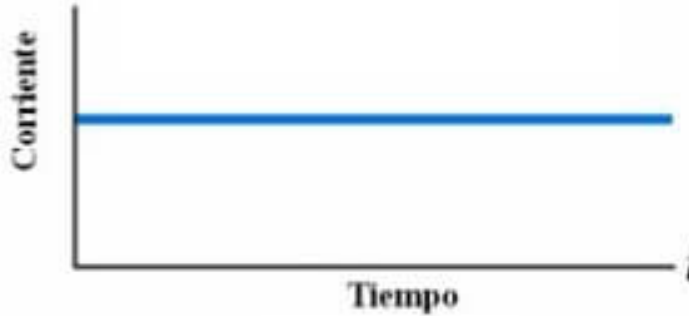
$$P = I \cdot V$$

Tensión continua y Tensión Alterna

Corriente Continua y Corriente Alterna

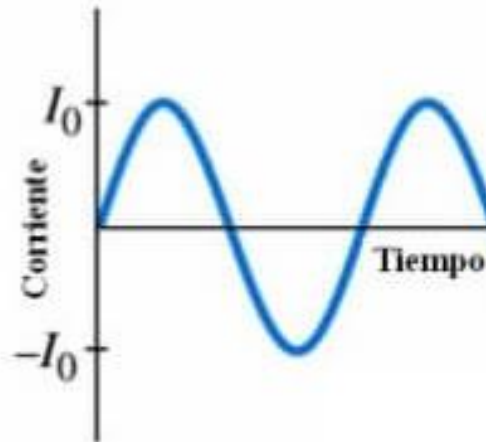
Corriente Continua (CC)

No varía con el tiempo.

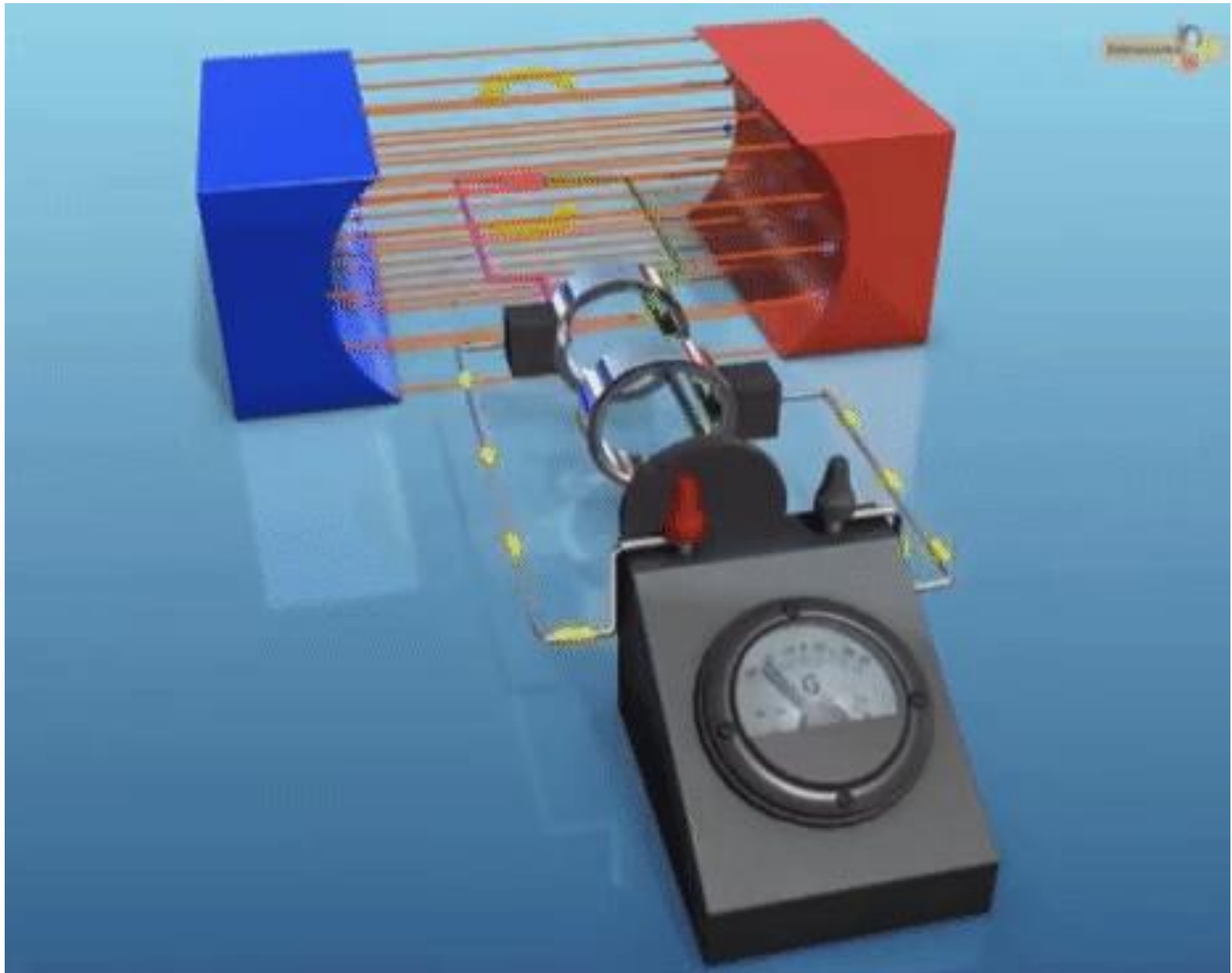


Corriente Alterna (CA)

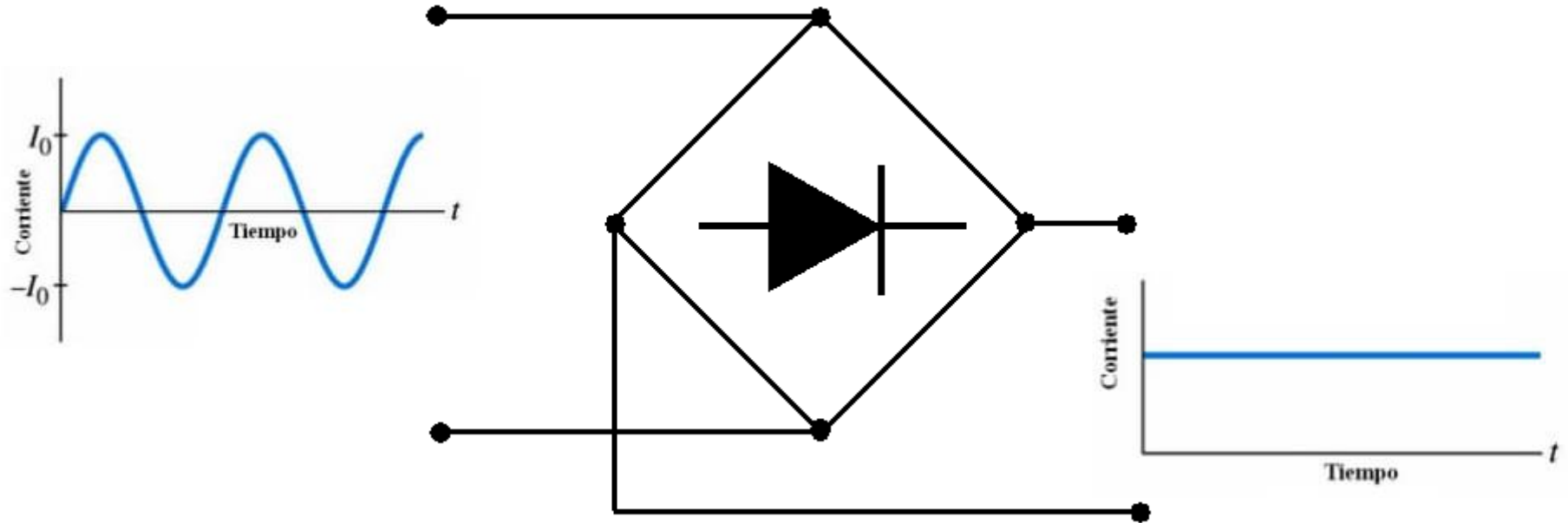
Varía con el tiempo en forma sinusoidal tanto el voltaje como la corriente.



Tensión Alterna



Tensión continua (no química)

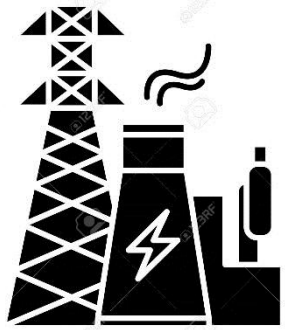


Rectificador

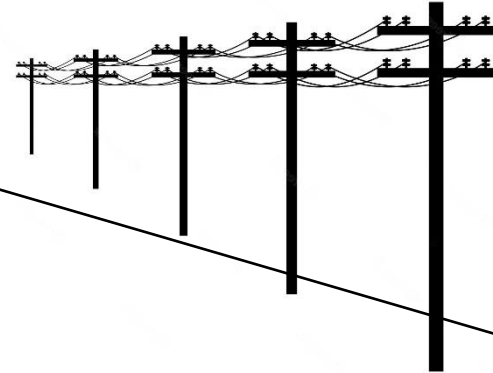
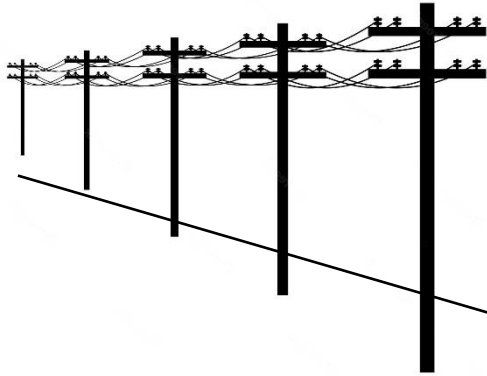
Tensión continua y Tensión Alterna



Tensión continua



110v

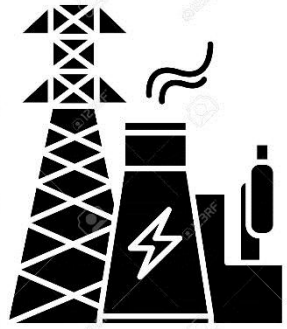


105v



80v

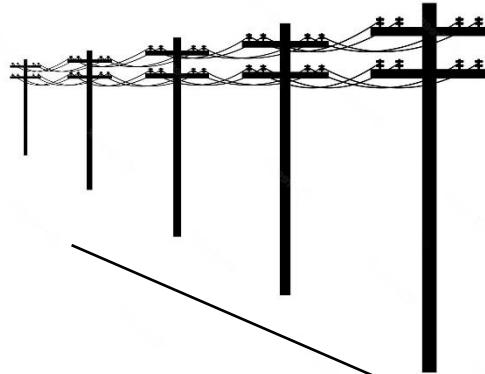
Tensión Alterna



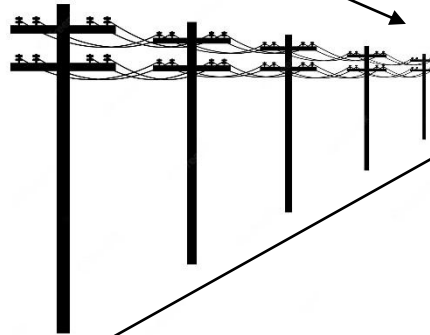
110v



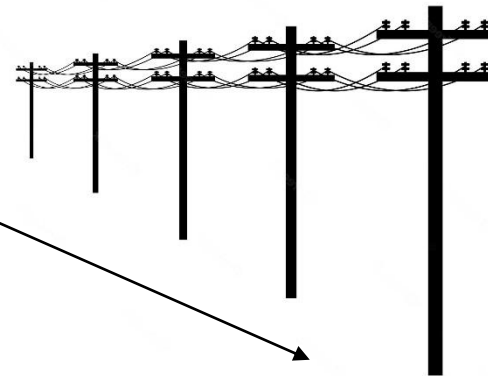
23,000v



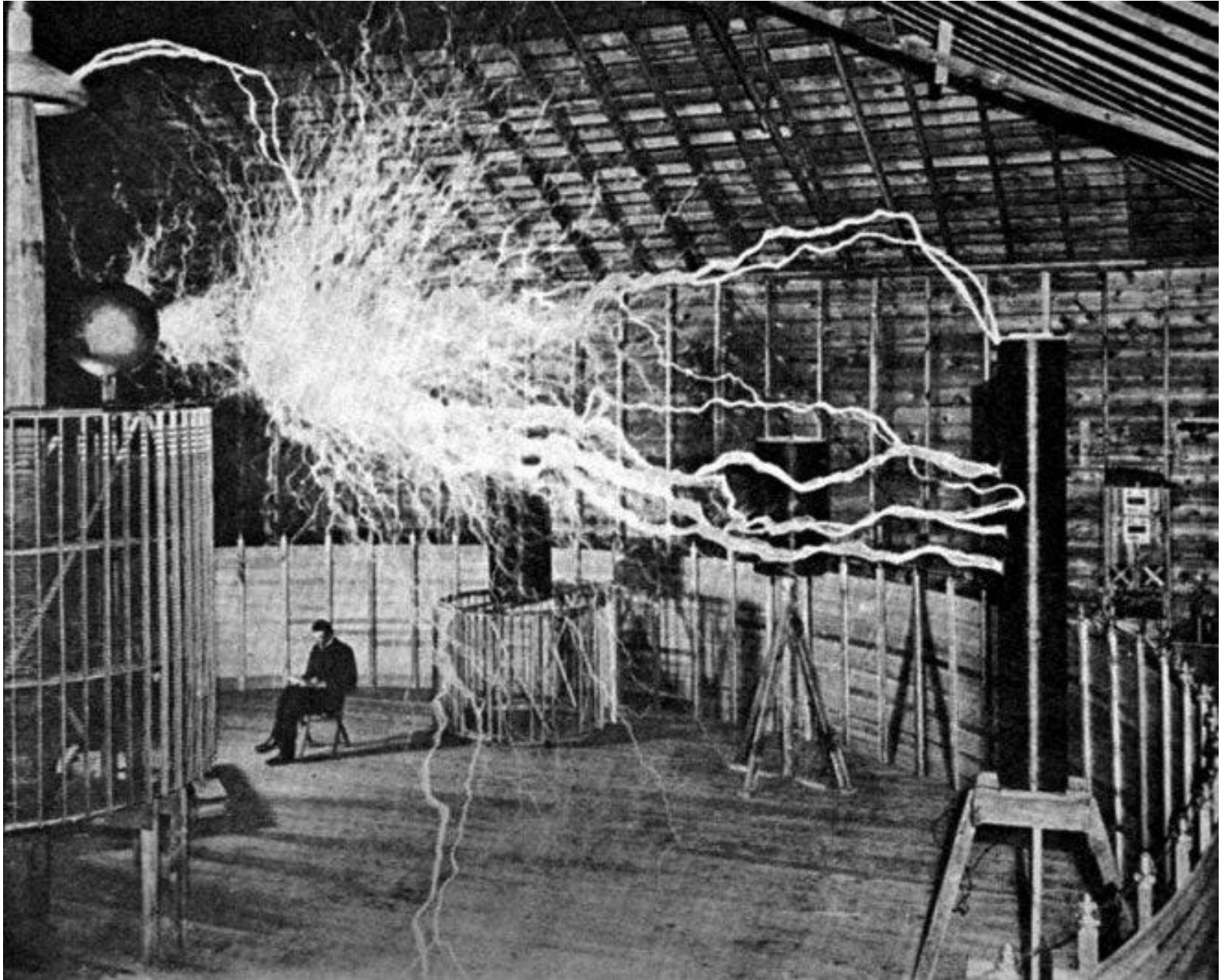
110v



110v



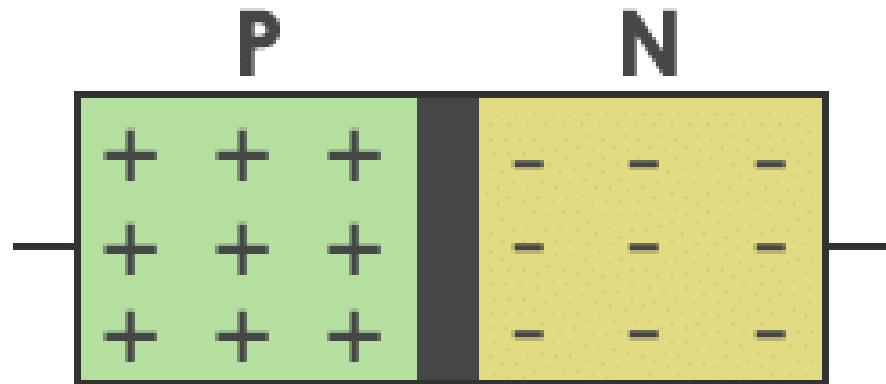
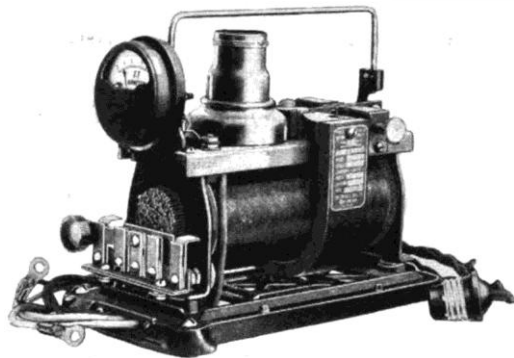
Tensión Alternada



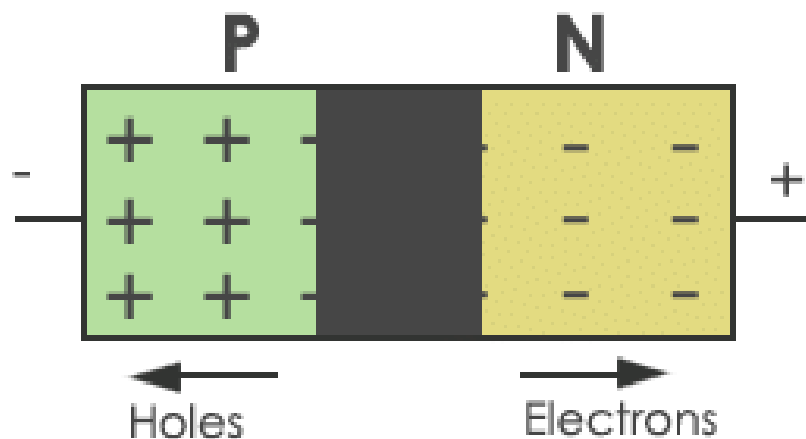
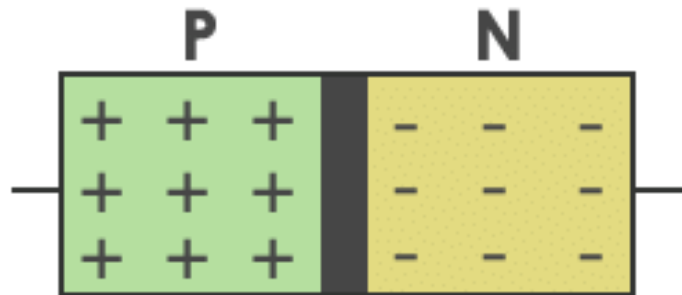
Rectificación



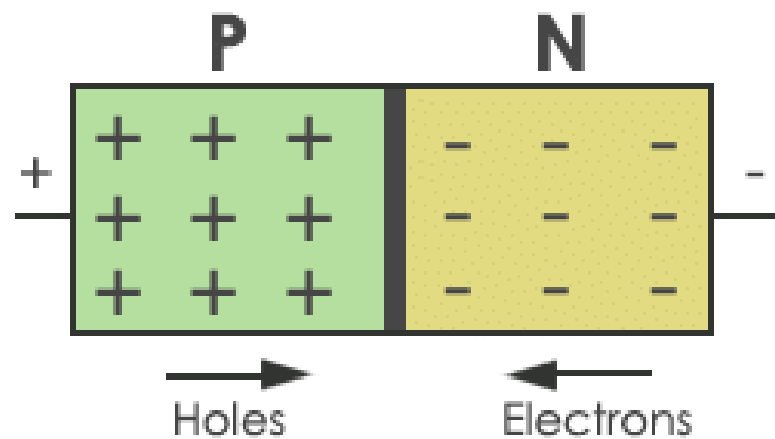
DÍODO



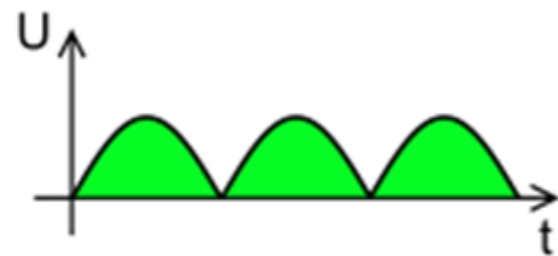
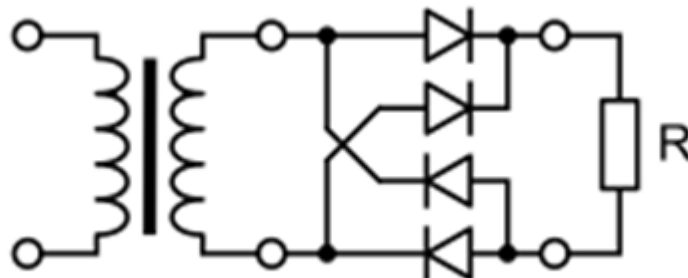
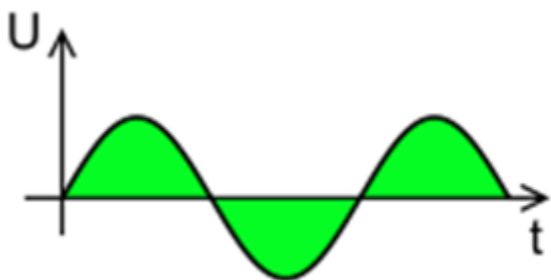
Rectificación



Polarización Inversa
No conduce

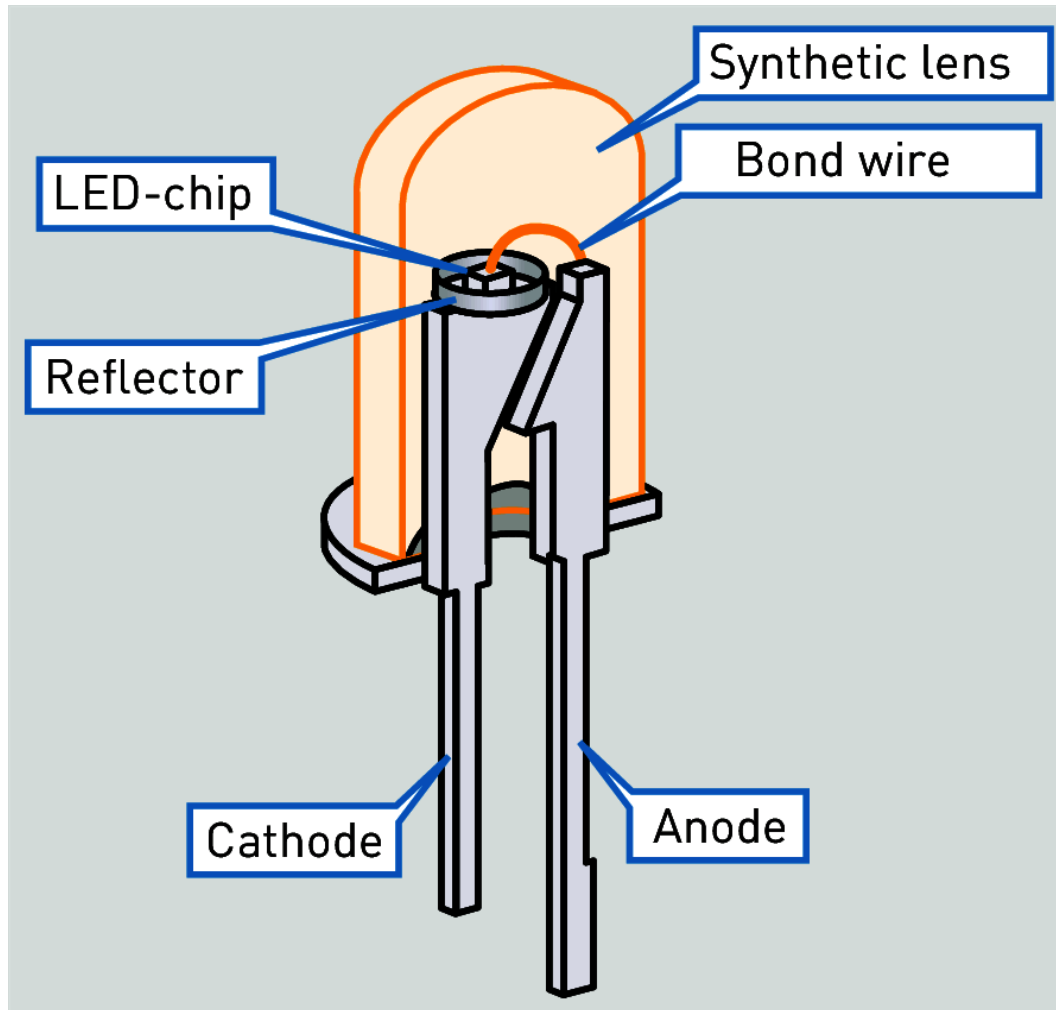


Polarización Directa
Conduce



L.E.D

Light-Emitting Diode



O.L.E.D



¿Quién se encarga del sonido?

Probabilidad 1	Especialista	3-5%
Probabilidad 2	Yo conozco a...	60-80%
Probabilidad 3	Se puede hacer cargo usted?	20-40%

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 Alternada o Diferencia de potencial alterno

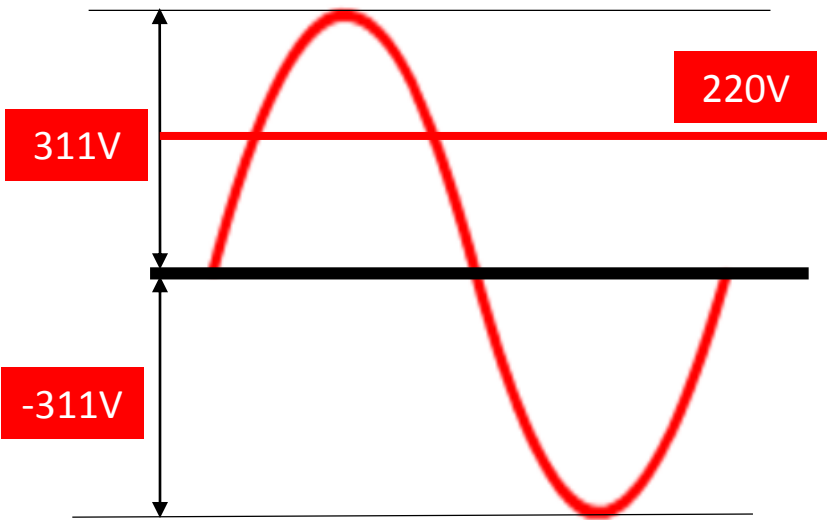


¿Qué son los 220v entonces?

Tensión R.M.S o “Tensión Eficaz”



311V
-311V



?



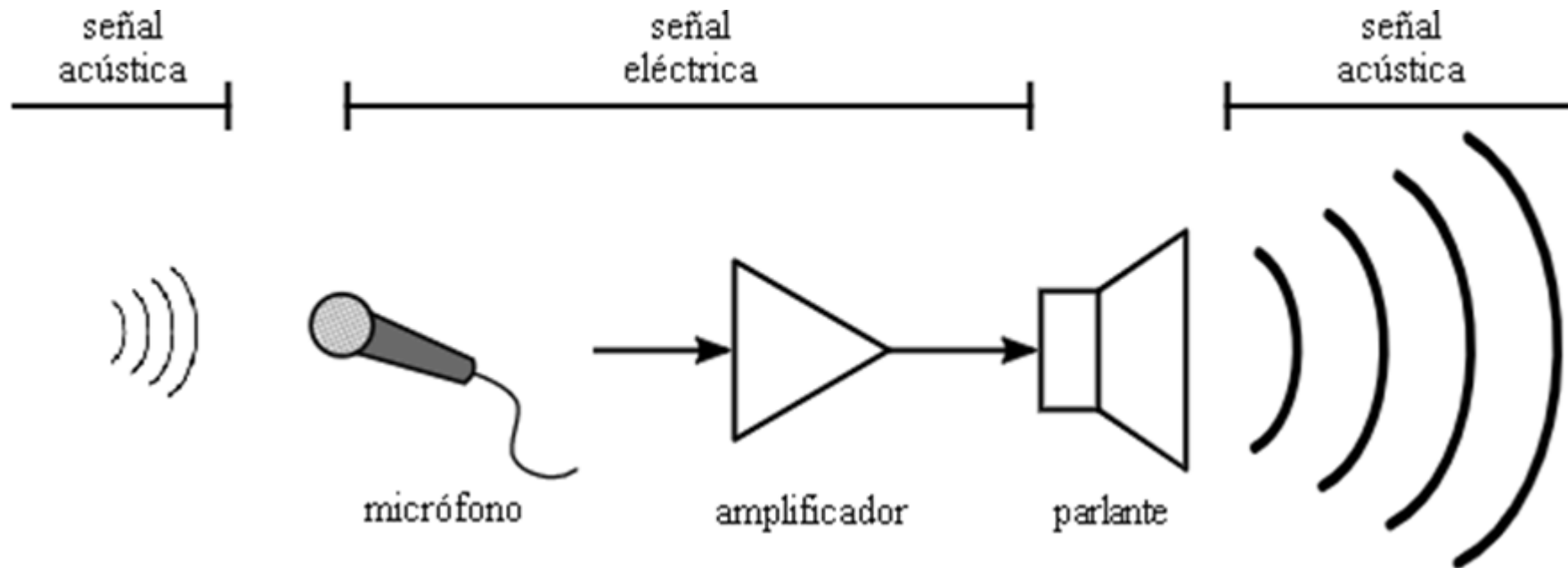
$$V_{equivalente} = \frac{V_{pico}}{\sqrt{2}} = V_{RMS}$$

R.M.S = *Root Mean Square*



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

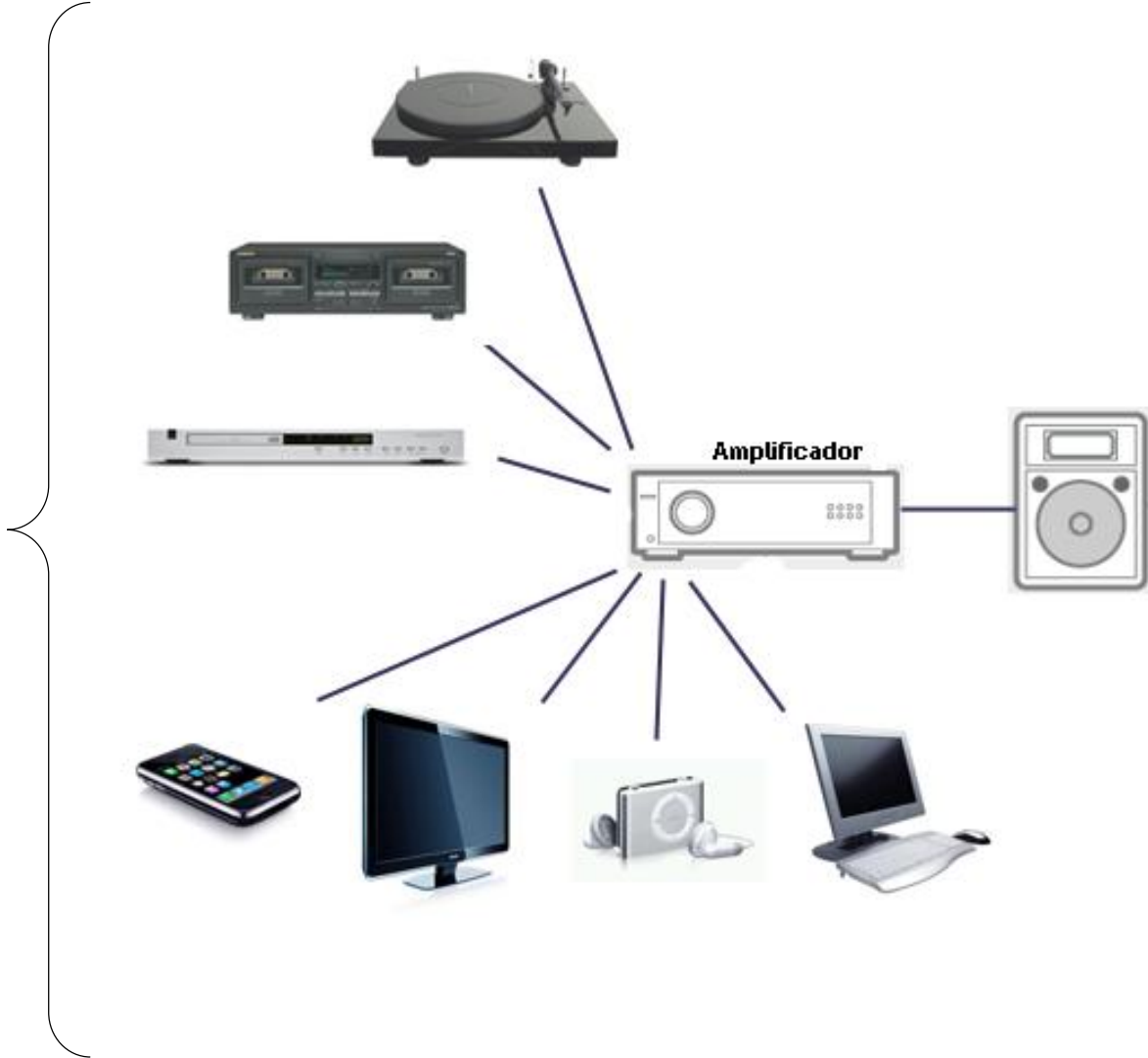
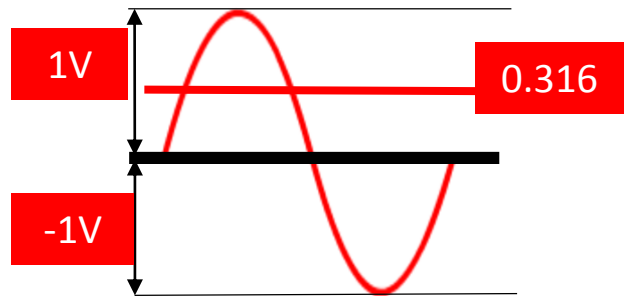
Cadena Electroacústica



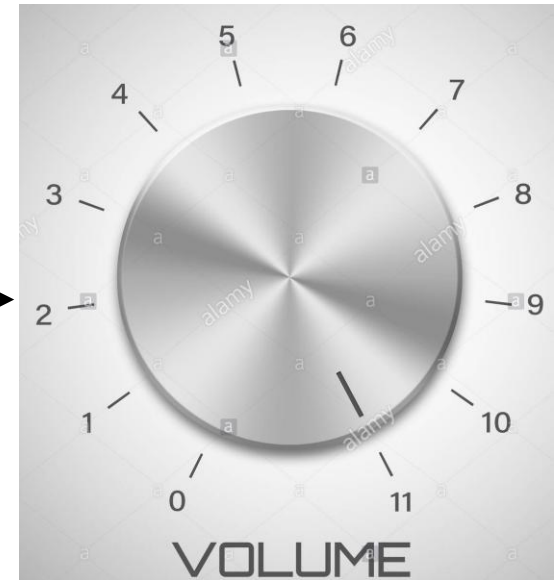
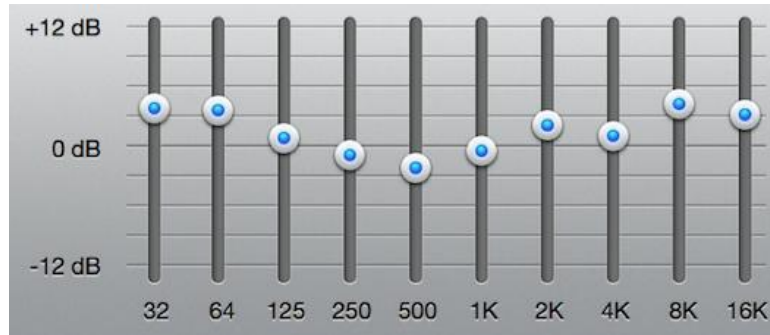
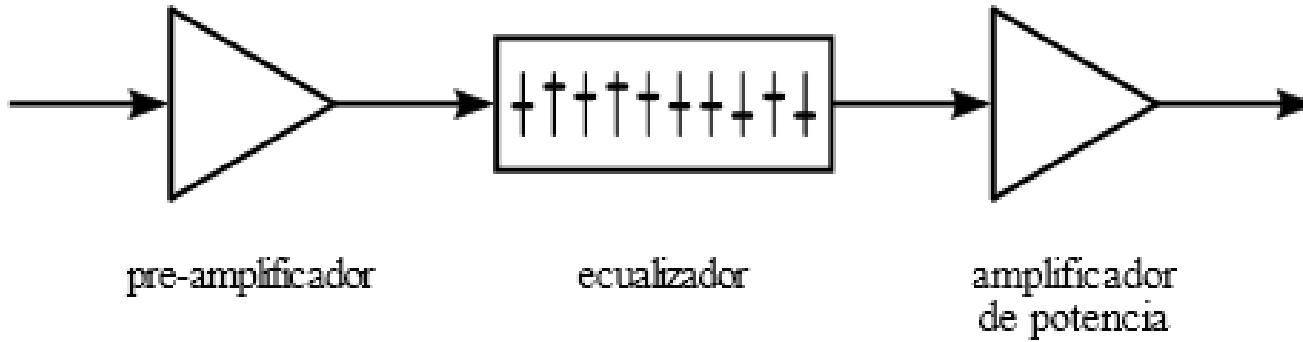
Señales de Entrada

Señales
sonoras
muy
pequeñas

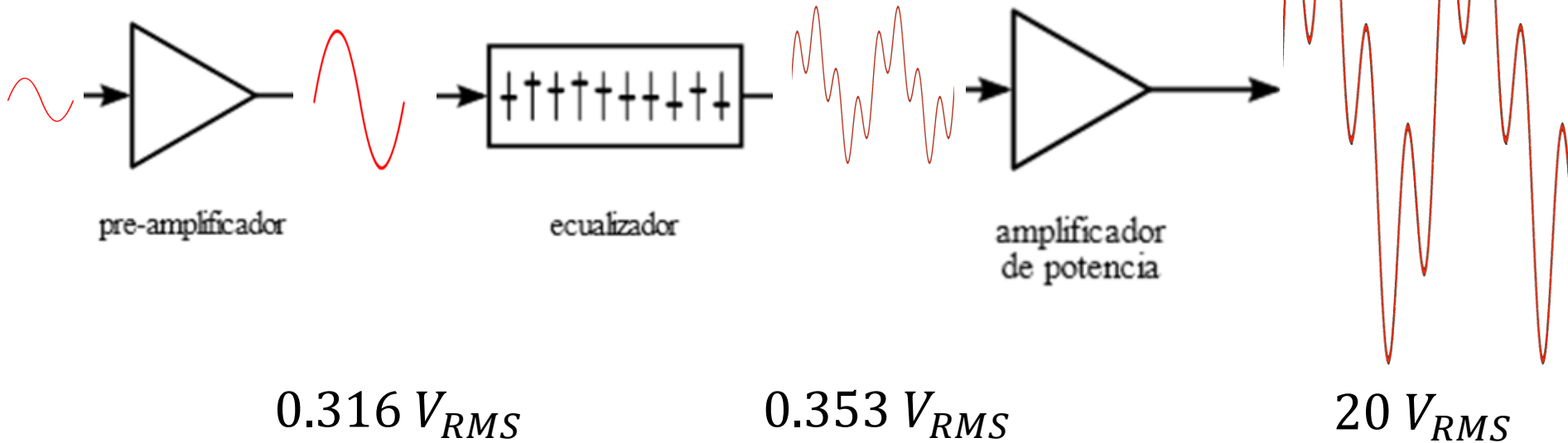
$$V_{RMS} = 0.316 V_{RMS}$$



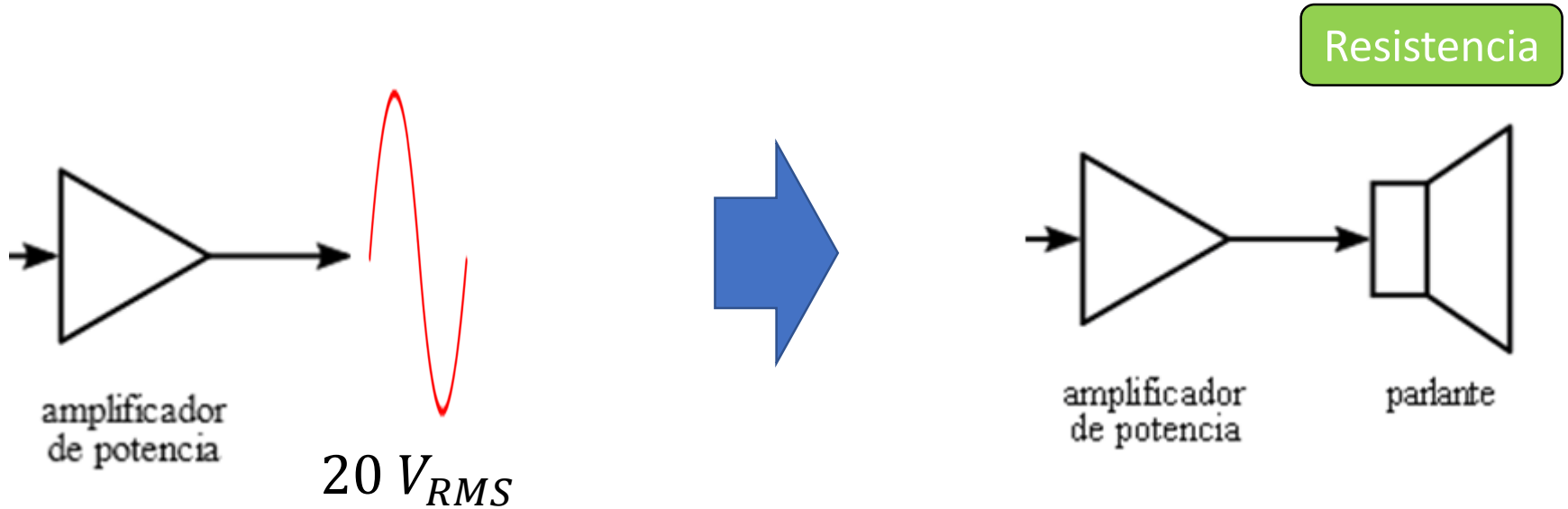
Amplificador de potencia



Repaso de lo visto hasta ahora



Potencia de un Amplificador



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

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