

Alimentation électrique

STI2D

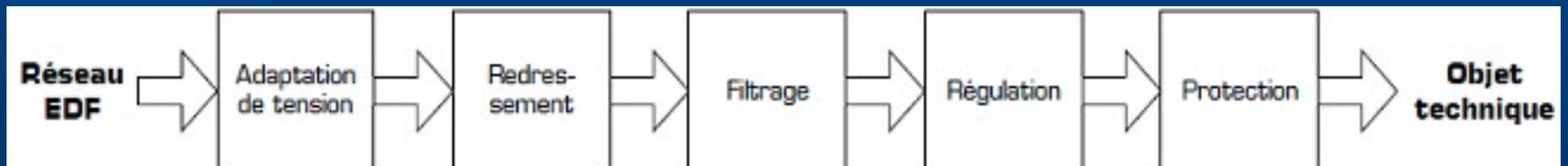
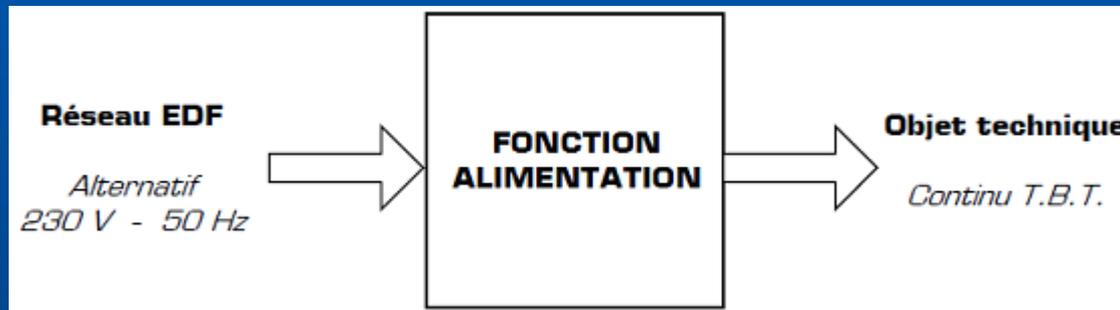


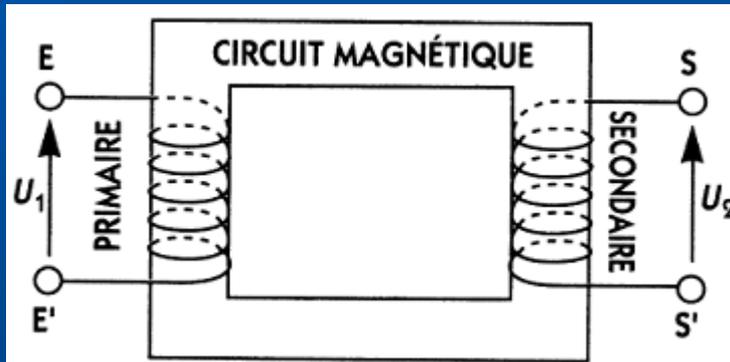
Schéma fonctionnel de l'alimentation d'un objet technique

Alimentation électrique

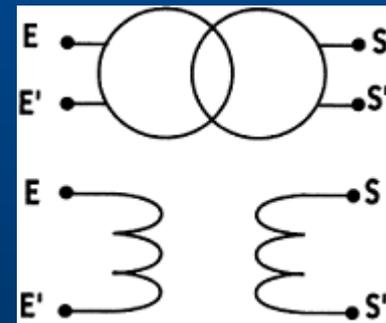
STI2D



1. Fonction ADAPTATION



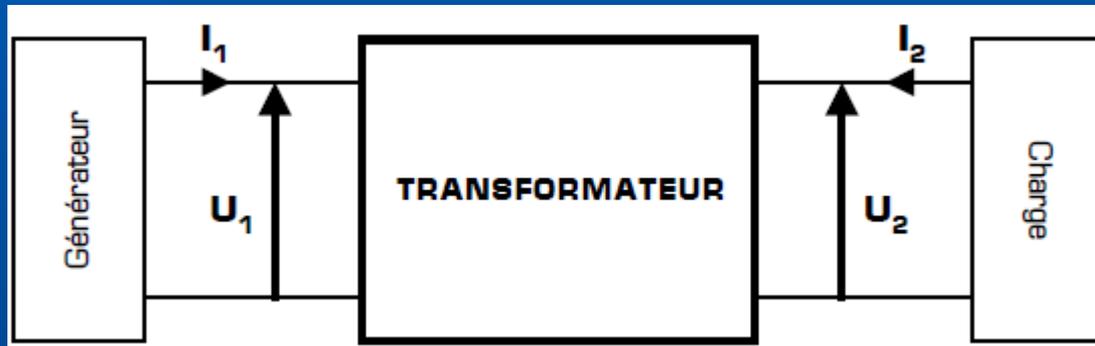
Le Transformateur



Symbole

Alimentation électrique

STI2D



$$m = \frac{N_2}{N_1}$$
$$m = \frac{N_2}{N_1} = \frac{U_2}{U_1}$$

Puissance apparente (VA) : $S = U_1 \cdot I_1 = U_2 \cdot I_2$

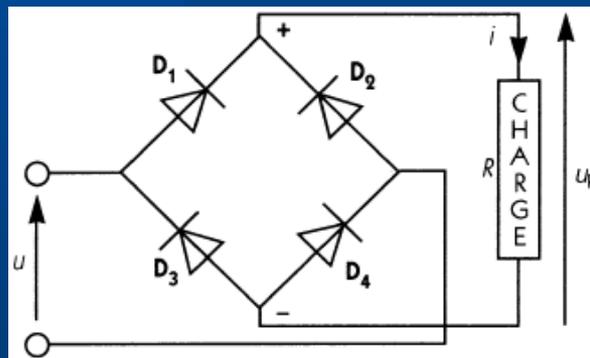
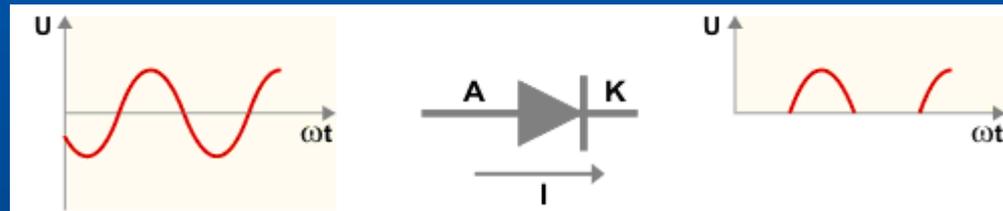
Transformateur réel : $U_1 \cdot I_1 > U_2 \cdot I_2$

Alimentation électrique

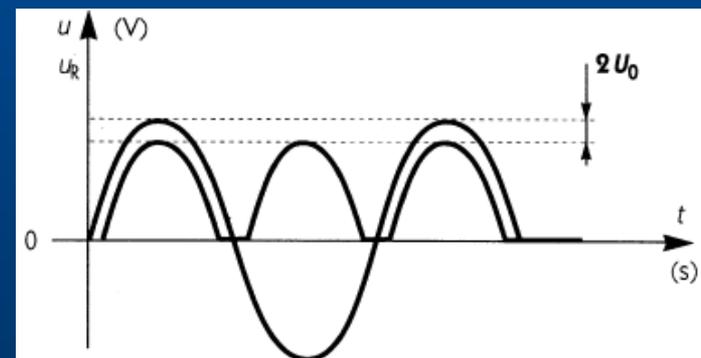
STI2D



2. Fonction REDRESSEMENT



Pont de Grätz



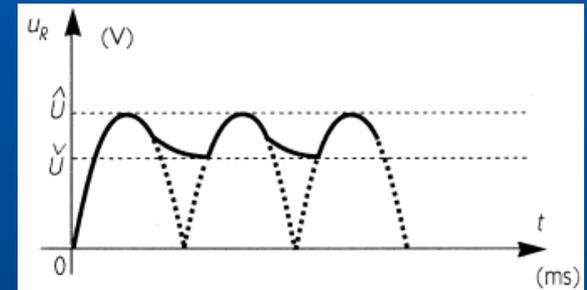
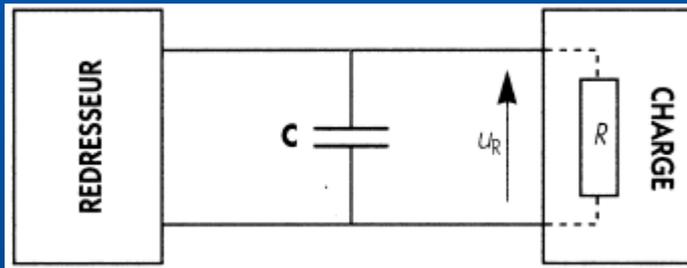
Redressement

Alimentation électrique

STI2D



3. Fonction FILTRAGE



Valeur moyenne :
$$\bar{U} = \frac{\hat{U} + \check{U}}{2}$$

Ondulation :
$$\Delta U = \frac{\hat{U} - \check{U}}{2}$$

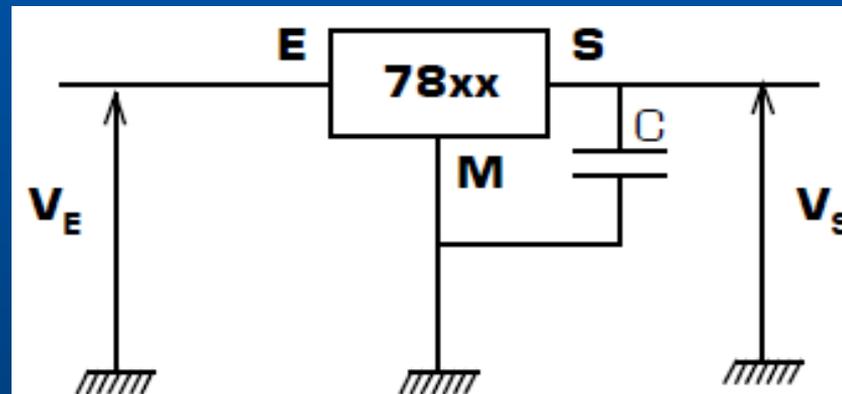
Taux d'ondulation :
$$\tau = \frac{\Delta U}{\bar{U}}$$

Alimentation électrique

STI2D



4. Fonction REGULATION



Objectif : atténuer l'ondulation

Alimentation électrique

STI2D



5. Fonction PROTECTION



- Surintensité
- Court circuit