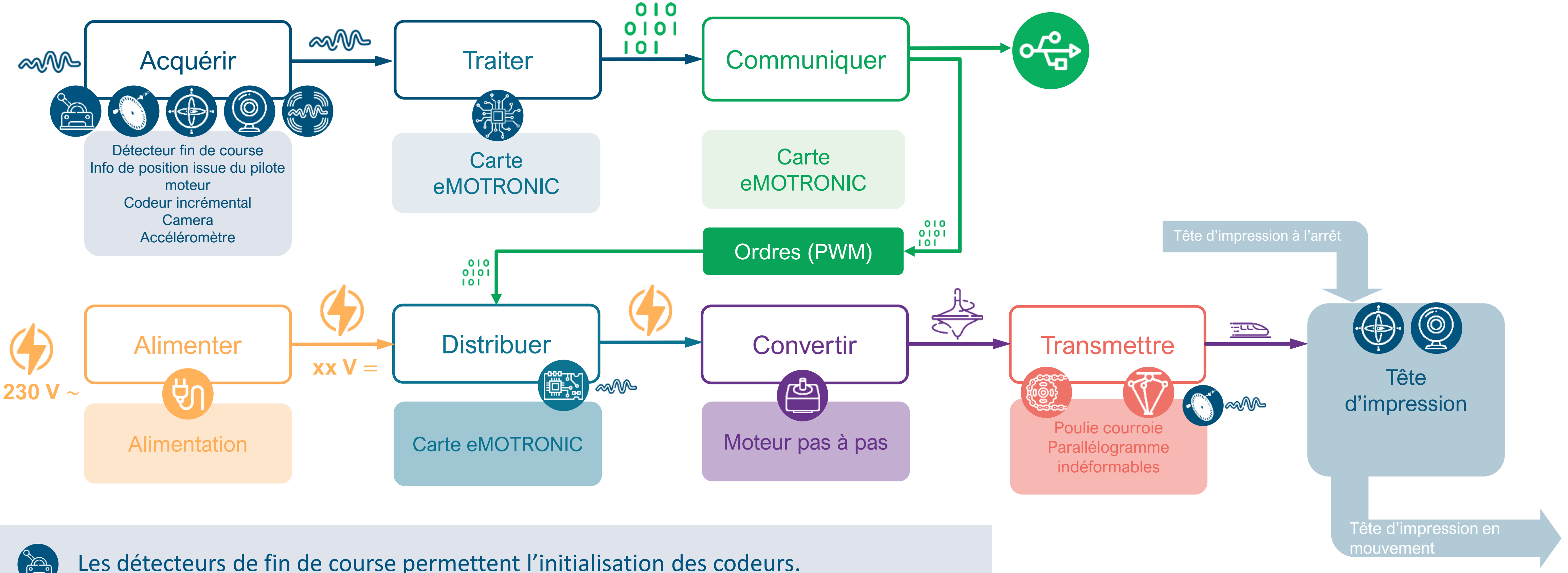
- Lkj
  - Lkj
  - Qcsdv
  - Cs:;m;
    - Mù;m;
    - Ùm;ùm
    -

02 Chaîne fonctionnelle

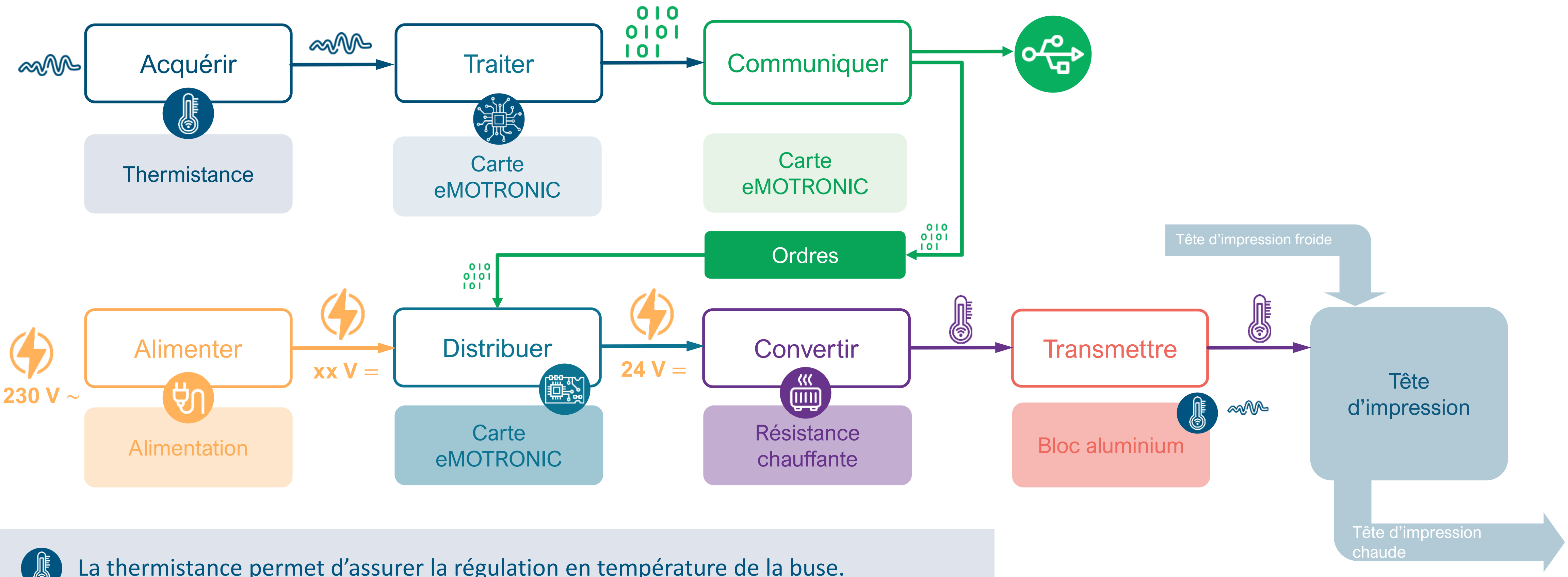
Chaine fonctionnelle de l'axe Z_γ



Les détecteurs de fin de course permettent l'initialisation des codeurs.

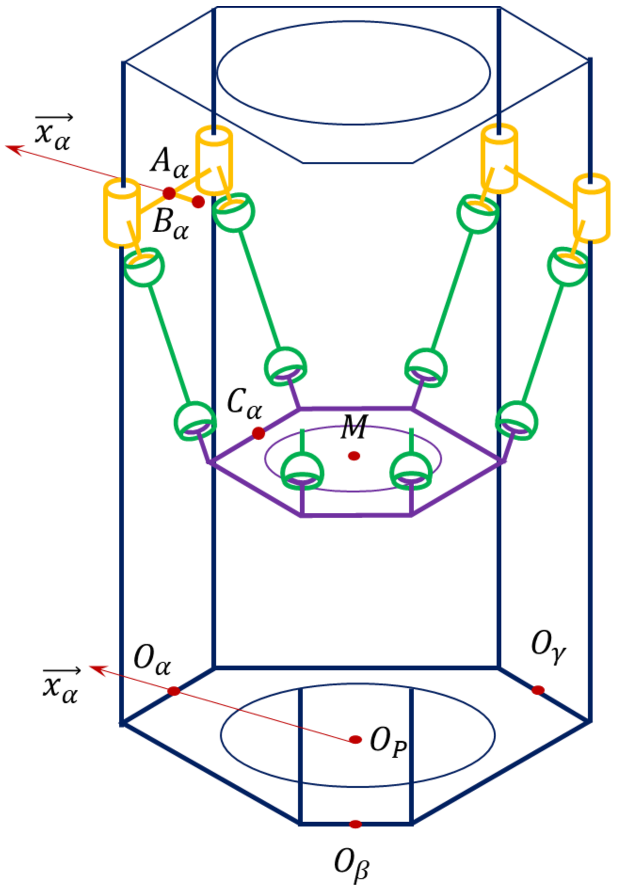
Tous les autres capteurs sont à but pédagogique

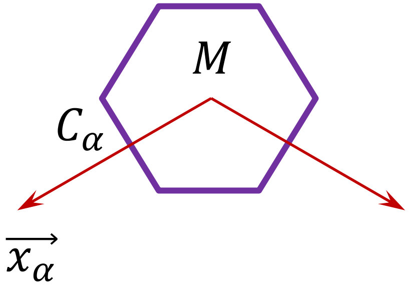
Chaine fonctionnelle de la tête chauffante

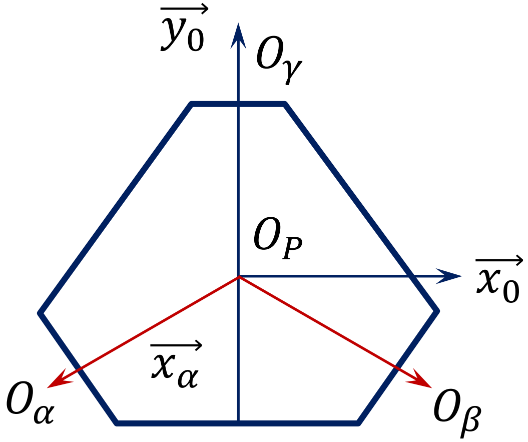


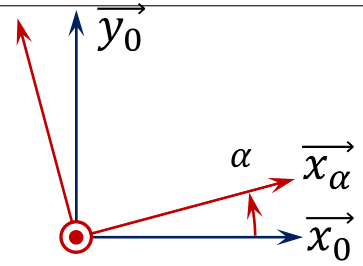
La thermistance permet d'assurer la régulation en température de la buse.

04 – Résolution cinématique





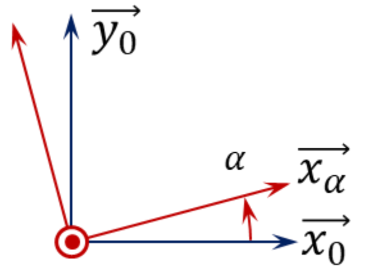




- ❑ $\overrightarrow{O_P O_\alpha} = L\overrightarrow{x_\alpha}$
- ❑ $\overrightarrow{O_\alpha A_\alpha} = z_\alpha \overrightarrow{z_0}$
- ❑ $\overrightarrow{A_\alpha B_\alpha} = -e\overrightarrow{x_\alpha}$
- ❑ $\overrightarrow{B_\alpha C_\alpha} = L_b \overrightarrow{u_\alpha}$
- ❑ $\overrightarrow{C_\alpha M} = -d\overrightarrow{x_\alpha}$
- ❑ $\overrightarrow{O_P M} = x_M \overrightarrow{x_0} + y_M \overrightarrow{y_0} + z_M \overrightarrow{z_0}$
- ❑ On pose $\ell = L - e - d$

- La fermeture géométrique permet d'écrire que
- $\overrightarrow{O_PM} = x_M\overrightarrow{x_0} + y_M\overrightarrow{y_0} + z_M\overrightarrow{z_0}$
- $\Leftrightarrow \overrightarrow{O_PO_\alpha} + \overrightarrow{O_\alpha A_\alpha} + \overrightarrow{A_\alpha B_\alpha} + \overrightarrow{B_\alpha C_\alpha} + \overrightarrow{C_\alpha M} = x_M\overrightarrow{x_0} + y_M\overrightarrow{y_0} + z_M\overrightarrow{z_0}$
- $\Leftrightarrow L\overrightarrow{x_\alpha} + z_\alpha\overrightarrow{z_0} - e\overrightarrow{x_\alpha} + L_b\overrightarrow{u_\alpha} - d\overrightarrow{x_\alpha} = x_M\overrightarrow{x_0} + y_M\overrightarrow{y_0} + z_M\overrightarrow{z_0}$
- $\Leftrightarrow L_b\overrightarrow{u_\alpha} = x_M\overrightarrow{x_0} + y_M\overrightarrow{y_0} + z_M\overrightarrow{z_0} - L\overrightarrow{x_\alpha} - z_\alpha\overrightarrow{z_0} + e\overrightarrow{x_\alpha} + d\overrightarrow{x_\alpha}$
- $\Leftrightarrow L_b\overrightarrow{u_\alpha} = x_M\overrightarrow{x_0} + y_M\overrightarrow{y_0} + z_M\overrightarrow{z_0} + (-L + e + d)\overrightarrow{x_\alpha} - z_\alpha\overrightarrow{z_0}$
- $\Leftrightarrow L_b\overrightarrow{u_\alpha} = x_M\overrightarrow{x_0} + y_M\overrightarrow{y_0} + (z_M - z_\alpha)\overrightarrow{z_0} - \ell\overrightarrow{x_\alpha}$
- $\Leftrightarrow L_b\overrightarrow{u_\alpha} = x_M\overrightarrow{x_0} + y_M\overrightarrow{y_0} + (z_M - z_\alpha)\overrightarrow{z_0} - \ell(\cos\alpha\,\overrightarrow{x_0} + \sin\alpha\,\overrightarrow{y_0})$
- $\Leftrightarrow L_b\overrightarrow{u_\alpha} = (x_M - \ell\cos\alpha)\overrightarrow{x_0} + (y_M - \ell\sin\alpha)\overrightarrow{y_0} + (z_M - z_\alpha)\overrightarrow{z_0}$
- $\Rightarrow L_b^2 = (x_M - \ell\cos\alpha)^2 + (y_M - \ell\sin\alpha)^2 + (z_M - z_\alpha)^2$
- $\Rightarrow L_b^2 - (x_M - \ell\cos\alpha)^2 - (y_M - \ell\sin\alpha)^2 = (z_M - z_\alpha)^2$
- $\Rightarrow z_\alpha = z_M - \sqrt{L_b^2 - (x_M - \ell\cos\alpha)^2 - (y_M - \ell\sin\alpha)^2}$

- $\overrightarrow{O_PO_\alpha} = L\overrightarrow{x_\alpha}$
- $\overrightarrow{O_\alpha A_\alpha} = z_\alpha\overrightarrow{z_0}$
- $\overrightarrow{A_\alpha B_\alpha} = -e\overrightarrow{x_\alpha}$
- $\overrightarrow{B_\alpha C_\alpha} = L_b\overrightarrow{u_\alpha}$
- $\overrightarrow{C_\alpha M} = -d\overrightarrow{x_\alpha}$
- $\overrightarrow{O_PM} = x_M\overrightarrow{x_0} + y_M\overrightarrow{y_0} + z_M\overrightarrow{z_0}$
- On pose $\ell = L - e - d$



- On a vu que :
  - $z_\alpha = z_M - \sqrt{L_b^2 - (x_M - \ell\cos\alpha)^2 - (y_M - \ell\sin\alpha)^2}$ avec $\alpha = -150°$
  - $z_\beta = z_M - \sqrt{L_b^2 - (x_M - \ell\cos\beta)^2 - (y_M - \ell\sin\beta)^2}$ avec $\beta = -30°$
  - $z_\gamma = z_M - \sqrt{L_b^2 - (x_M - \ell\cos\gamma)^2 - (y_M - \ell\sin\gamma)^2}$ avec $\gamma = 90°$

  - $z_\alpha = z_M - \sqrt{L_b^2 - \left(x_M + \frac{\ell\sqrt{3}}{2}\right)^2 - (y_M + 0{,}5\ell)^2}$
  - $z_\beta = z_M - \sqrt{L_b^2 - \left(x_M - \frac{\ell\sqrt{3}}{2}\right)^2 - (y_M + 0{,}5\ell)^2}$
  - $z_\gamma = z_M - \sqrt{L_b^2 - \left(x_M - \frac{\ell\sqrt{2}}{2}\right)^2 - \left(y_M - \frac{\ell\sqrt{2}}{2}\right)^2}$