



Laboratoire

Science et Ingénierie des Matériaux et des Procédés

Interfaçage Labview ↔ logiciel constructeur platine de déformation sous MEB



- 1) Descriptif de la platine de déformation
- 2) Logiciel constructeur
- 3) Fonctionnalités
- 4) Interface utilisateur
- 5) Un peu de code...
- 6) Perspectives



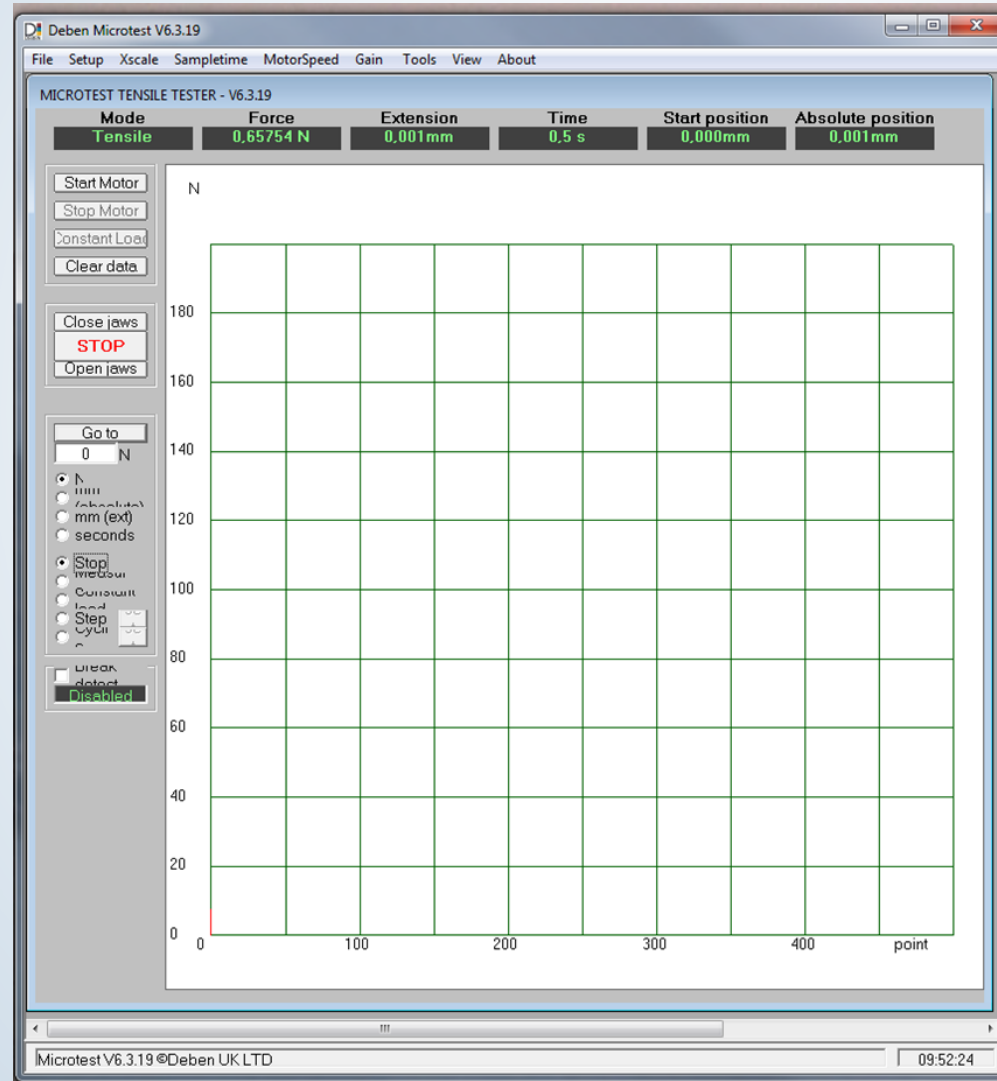
Descriptif de la platine de déformation



Deben → Gatan
mise en place dans un MEB

Force max 5000N
Vitesse de 0,033 mm/mn à 0,4 mm/mn
Dimension échantillon : 30x5x3mm
Tmax = 500°C

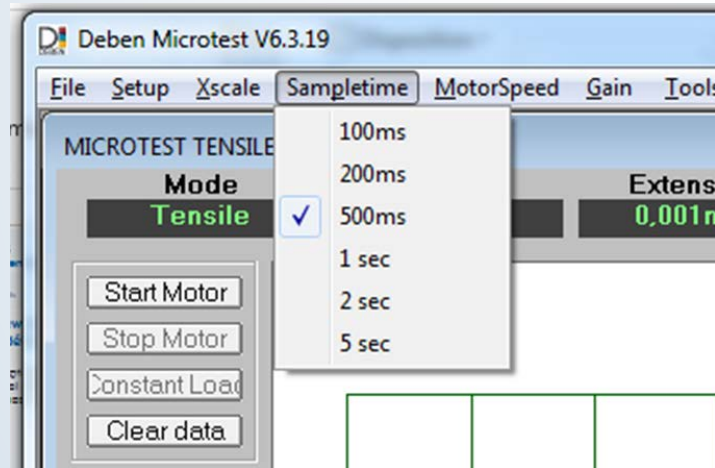
Logiciel constructeur



Deben Microtest

Fonctionnalités

Période d'échantillonnage
→ implantée, souhaitée

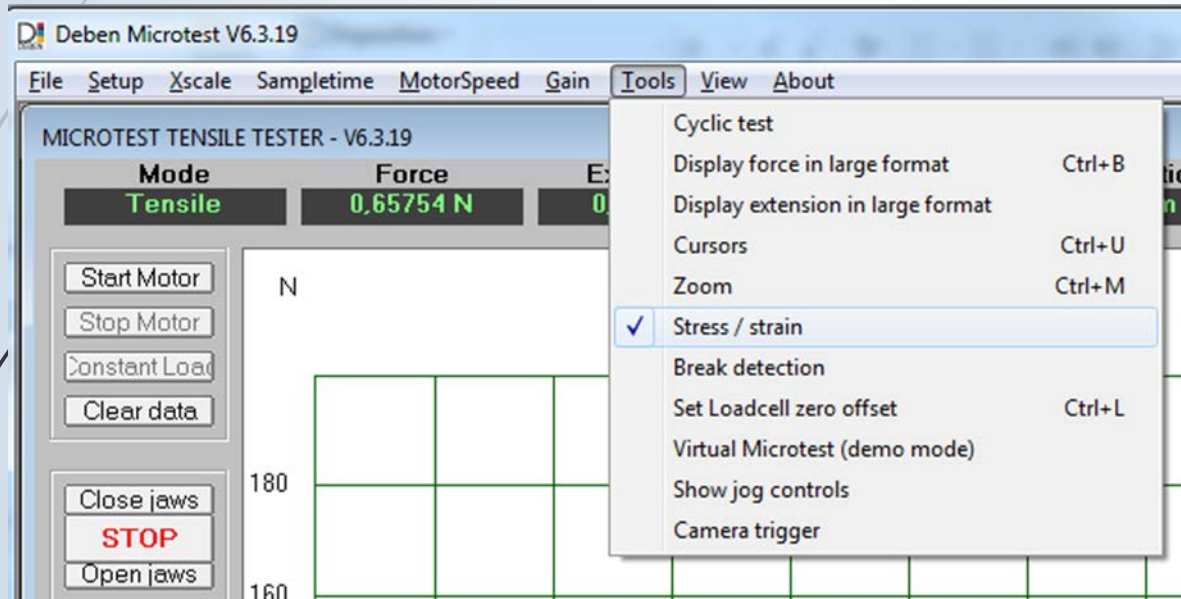


Marche / arrêt moteur
→ implantée, souhaitée



Fonctionnalités

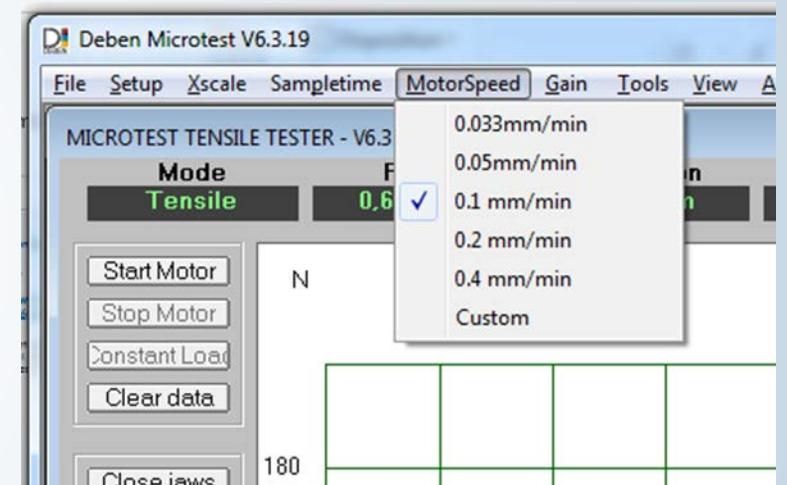
Contrainte / déformation
 → implantée, souhaitée



$$\sigma = F / S$$

$$\varepsilon = \ln (l / l_0)$$

Vitesse de déformation
 → **absente**, souhaitée



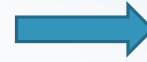
$$V_t = C_t \varepsilon$$

$$\dot{\varepsilon} = d \varepsilon / d t = C_t$$

$$\dot{\varepsilon} = V_t / l \quad \longrightarrow \quad V_t = \dot{\varepsilon} * (l_0 \pm \Delta l)$$

Fonctionnalités

Charge / décharge
→ **absente**, souhaitée



Retour à Offset Force

Asservissement Force
→ **Mal implantée**, souhaitée



Correction Offset Force

Mesures température
→ **absente**, souhaitée



Utilisation carte
d'acquisition USB

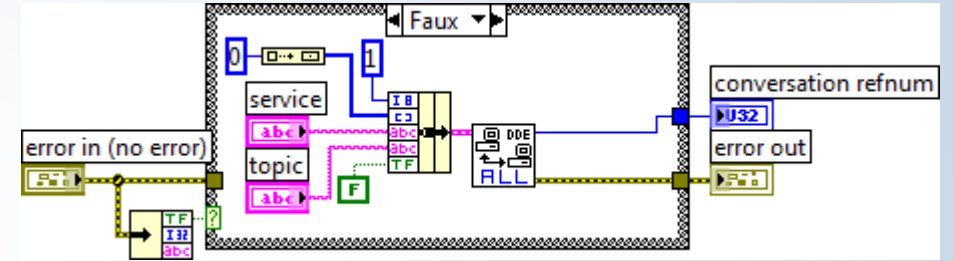
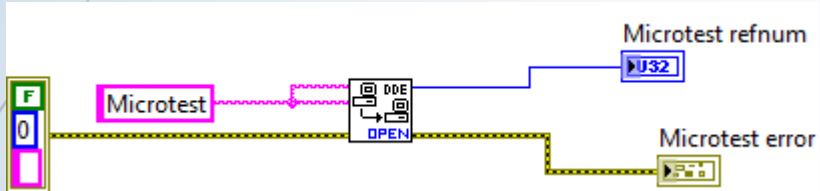
Interface Utilisateur

The interface is divided into several functional areas:

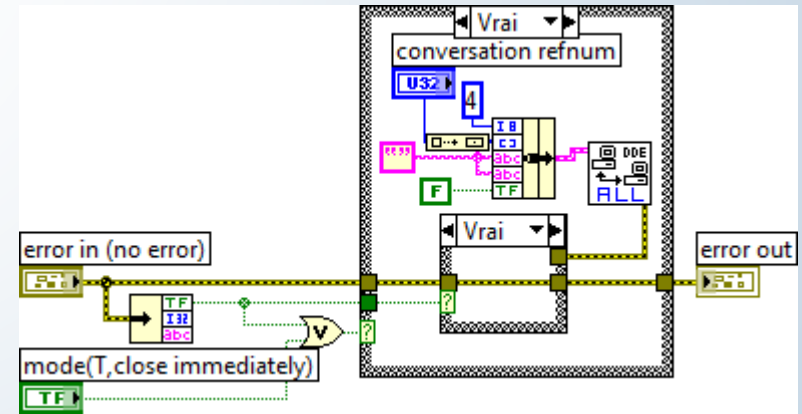
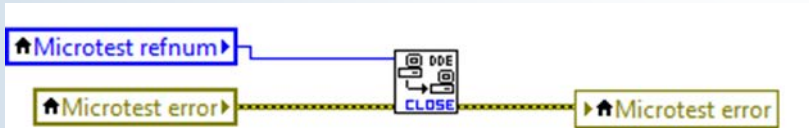
- Control Panel (Top Left):** Includes an "Open / Close jaws" section with a green "Close" button. Below it are input fields for "Tcons" (0), "Tmors" (0), "TC1" (0), and "TC2" (0). A "Sample Time" section has radio buttons for 100 ms, 200 ms, 500 ms, 1 sec, 2 sec, and 5 sec, with a "pech (s)" field set to 0. There is a "Strength SetPoint (N)" field set to 0. A "Strength / Stress Display" dropdown is set to "Strength". Below that are "Strength (N)" and "Stress (MPa)" fields, both at 0. A "Displ / Strain Ctrl & Display" dropdown is set to "Displacement". At the bottom of this section are "Displ (mm) / Strain () SetPoint" (0) and "Rate (mm/s) / StrainRate (1/s)" (0) fields, along with "Displ (mm)" (0) and "Position (mm)" (0,000) fields, and a "Clear" button.
- Status Displays (Top Right):** Four large red digital displays show "0" for "Tps_affich (s)", "Depl_affich (mm)", "Force affich (N)", and "Tmors_affich (°C)".
- Real-time Plots (Middle):** Three plots show data over an 80-second period: "T (°C)" vs "temps (s)", "Strength (N)" vs "temps (s)", and "Strain ()" vs "temps (s)". A fourth, larger plot on the right shows "Strength (N)" vs "Strain ()".
- Control and Test Parameters (Bottom):** Includes "Start / Pause" and "Stop" buttons. A "Position SetPoint (mm)" field (0) and "Duration (s)" field (0) are present. A "Set goto mode" section has radio buttons for "N", "mm (absolute)", "mm (extension)", and "Seconds", with a "Goto" button. A "Test_Type" dropdown is set to "Compression". Below it are "N° étape" (0) and "Vit mot (mm/mn)" (0) fields. A status bar shows "Prêt" (green), "Unloading" (cyan), "Start/Pause" (red), "Essai en cours" (green), and "Motor Running" (green). At the bottom right are "Offset_Force" (0,00) and "End Of Program" buttons.

Un peu de code...

Ouverture communication

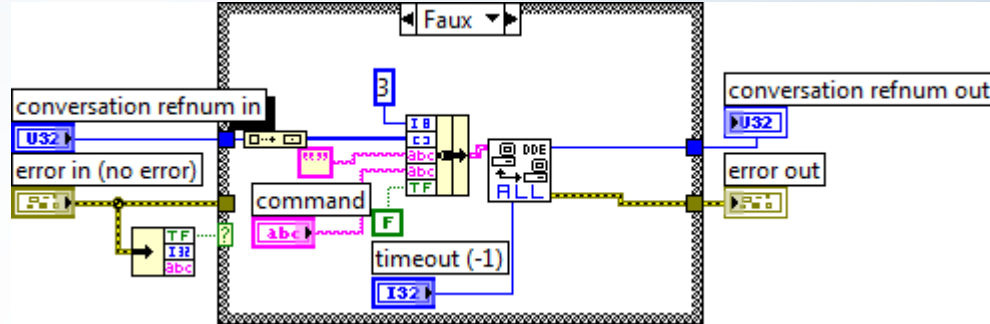


Fermeture communication

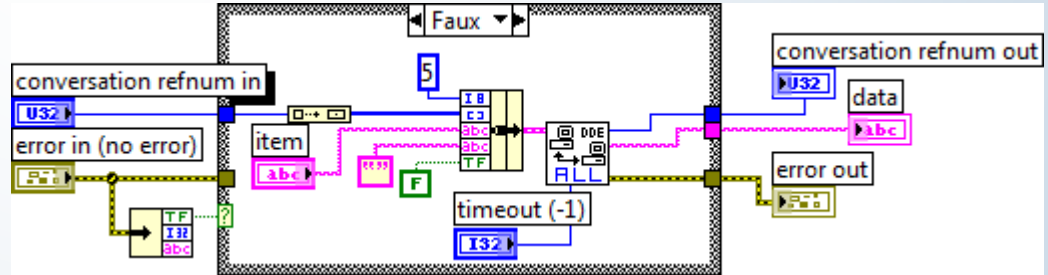


Un peu de code...

Commande sans réponse

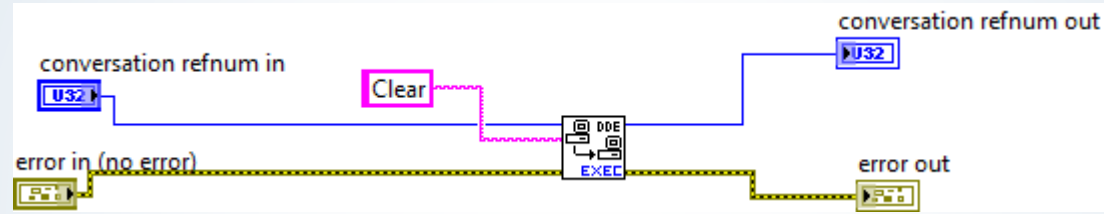


Commande avec réponse

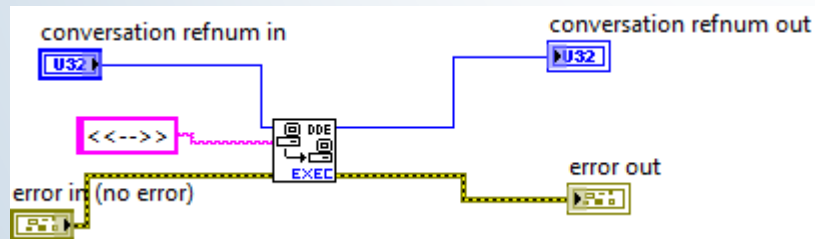


Un peu de code...

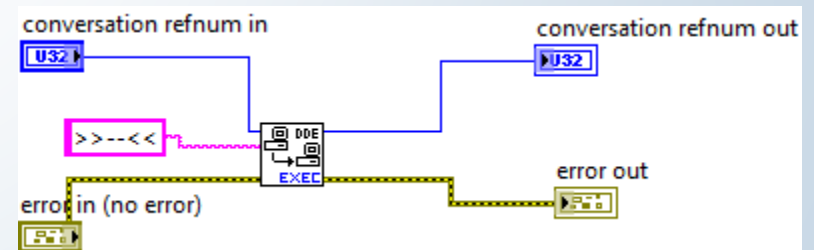
Mise à zéro des valeurs affichées



Positionnement max

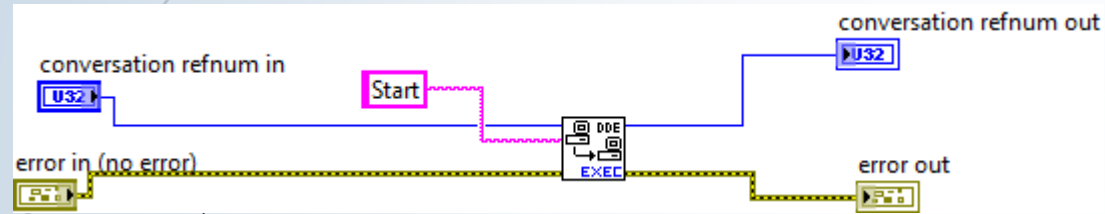


Positionnement min

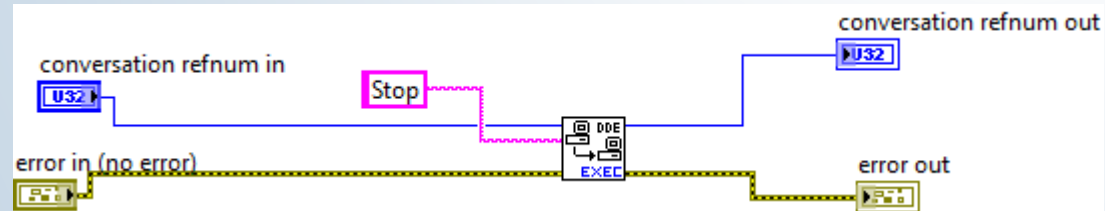


Un peu de code...

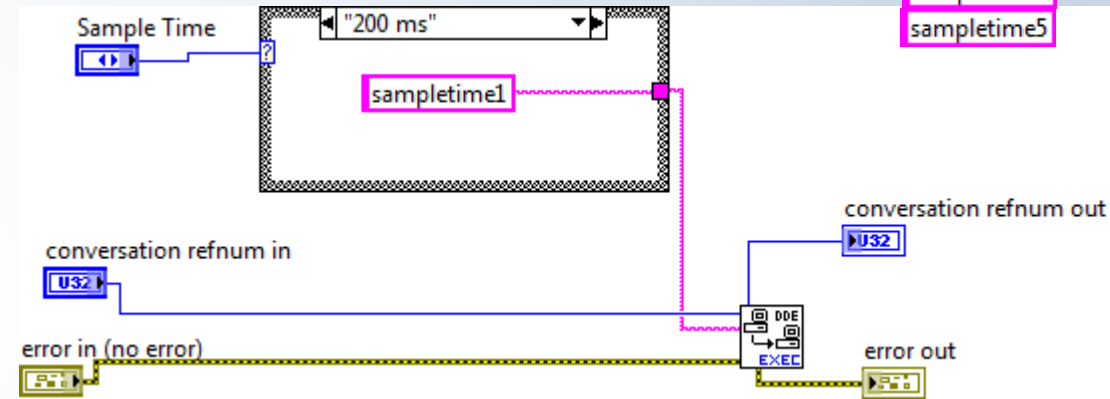
Démarrage moteur



Arrêt moteur

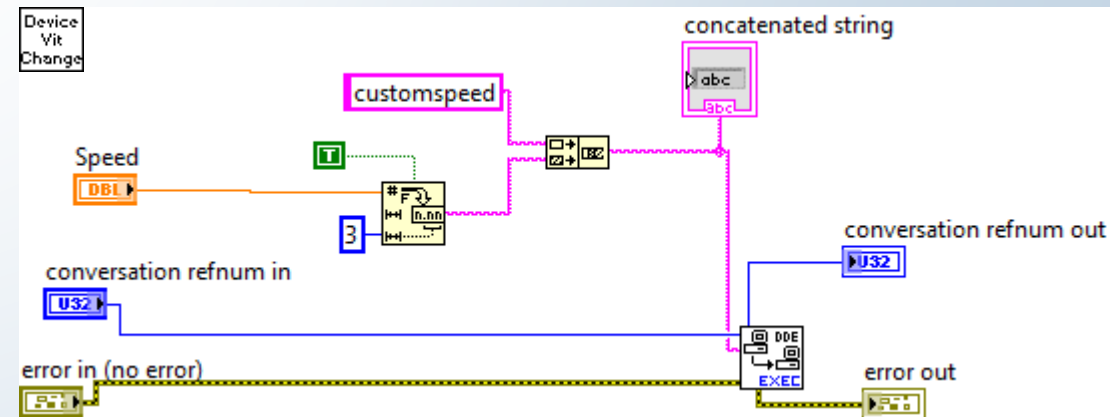


Choix période échantillonnage



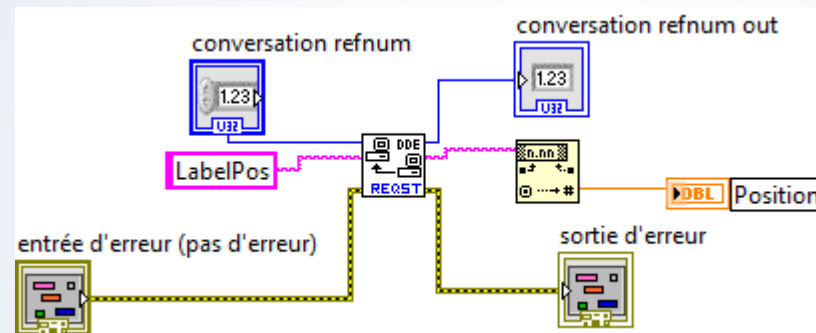
- sampletime0
- sampletime2
- sampletime3
- sampletime4
- sampletime5

Réglage vitesse



Un peu de code...

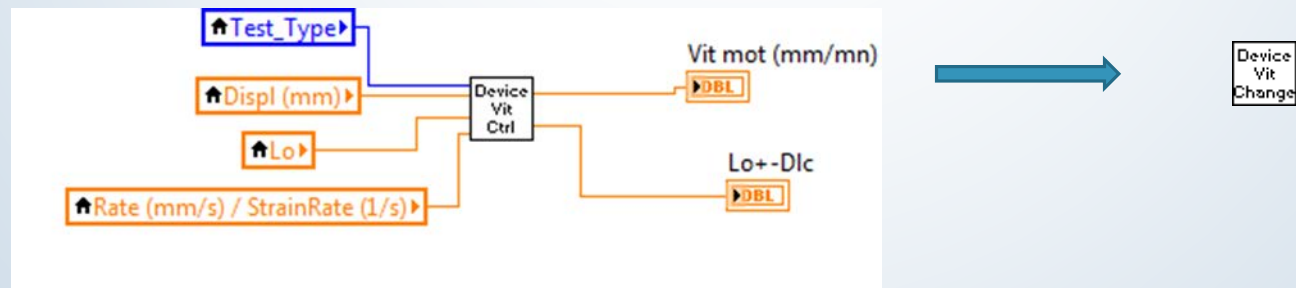
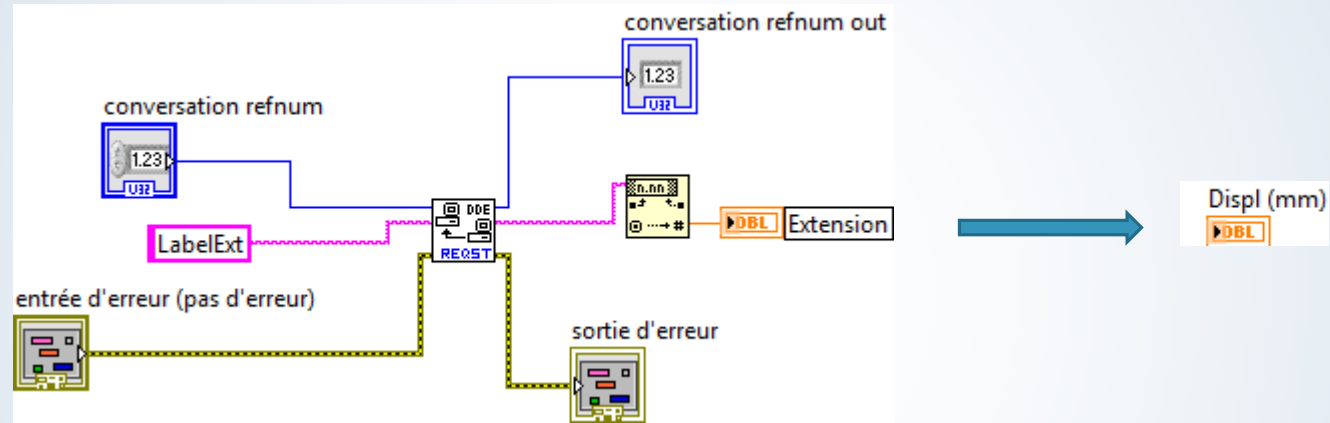
Récupération des informations déplacement, force,...



IsMotorRunning
LabelTime
LabelExt
LabelForce
LabelPos

Un peu de code...

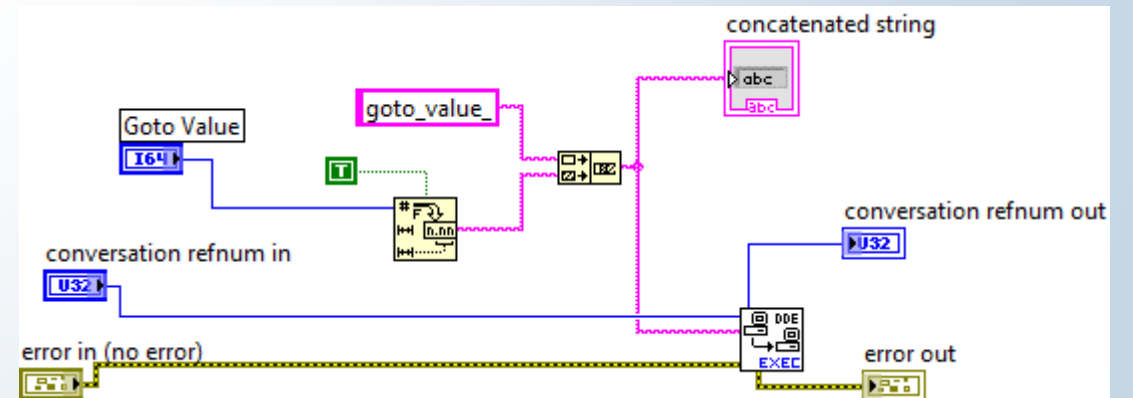
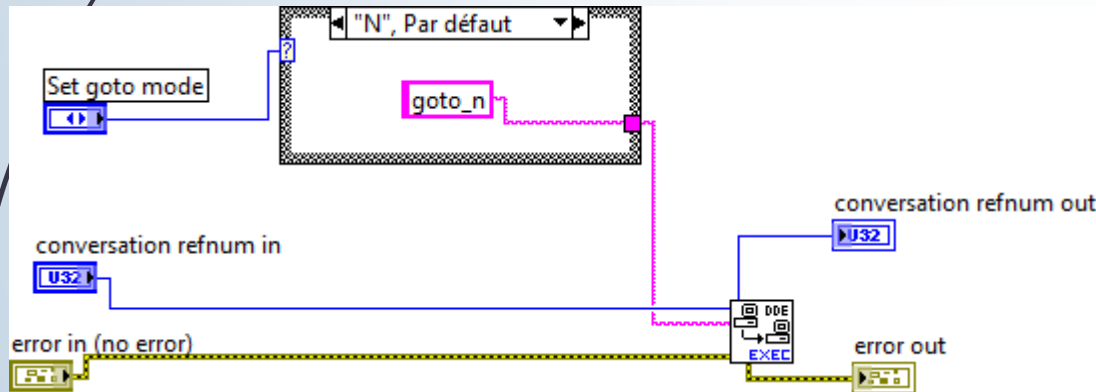
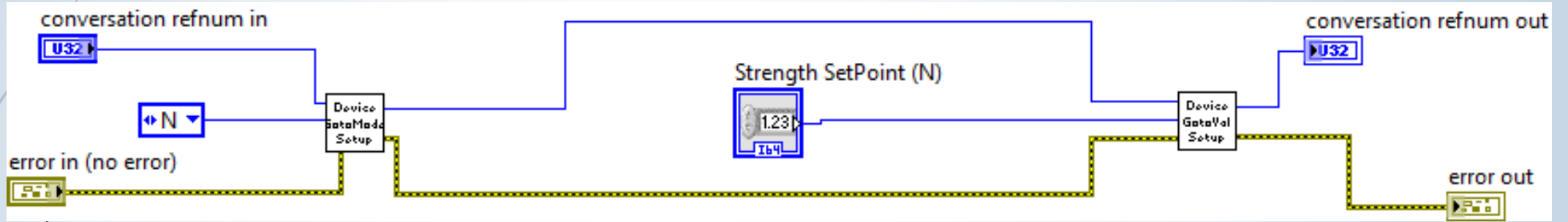
Vitesse de déformation



$$V_t = \dot{\epsilon} * (l_0 \pm \Delta l)$$

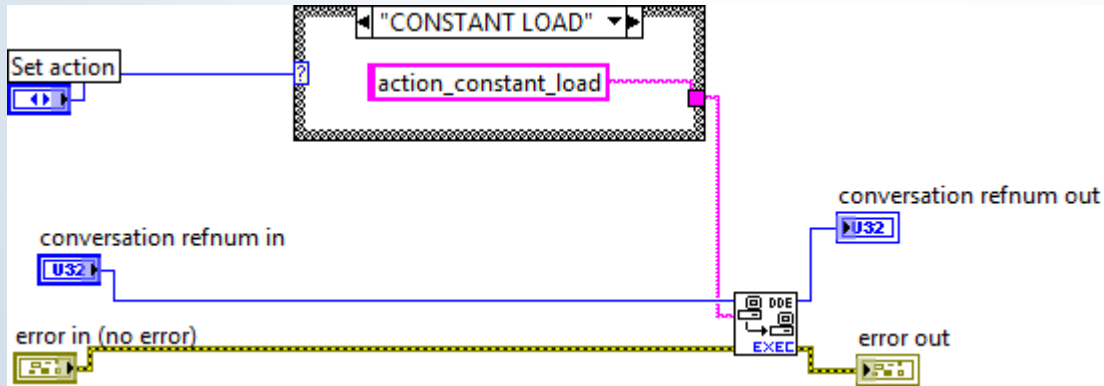
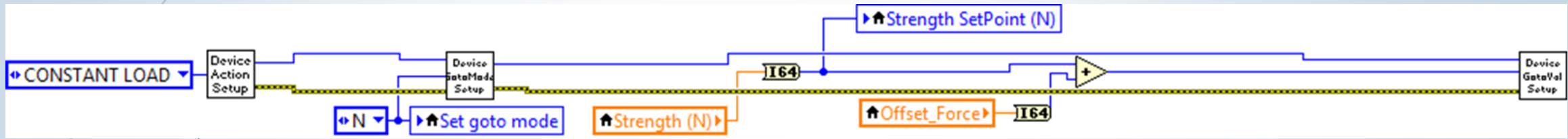
Un peu de code...

Décharge



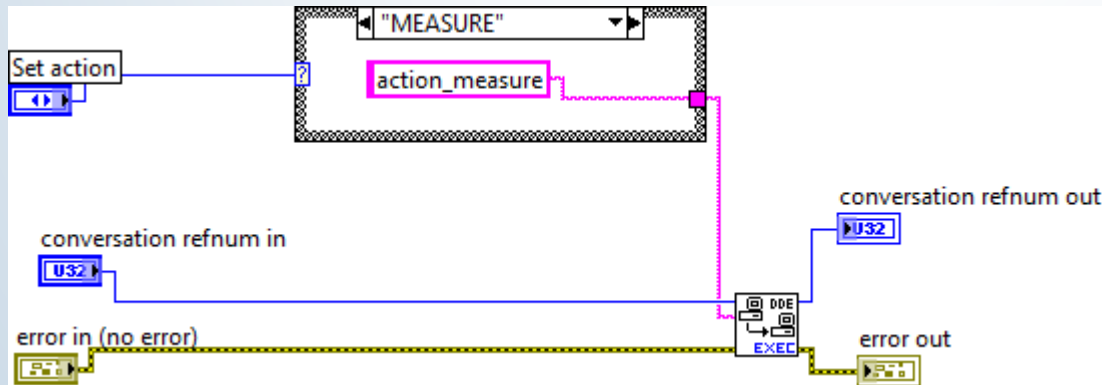
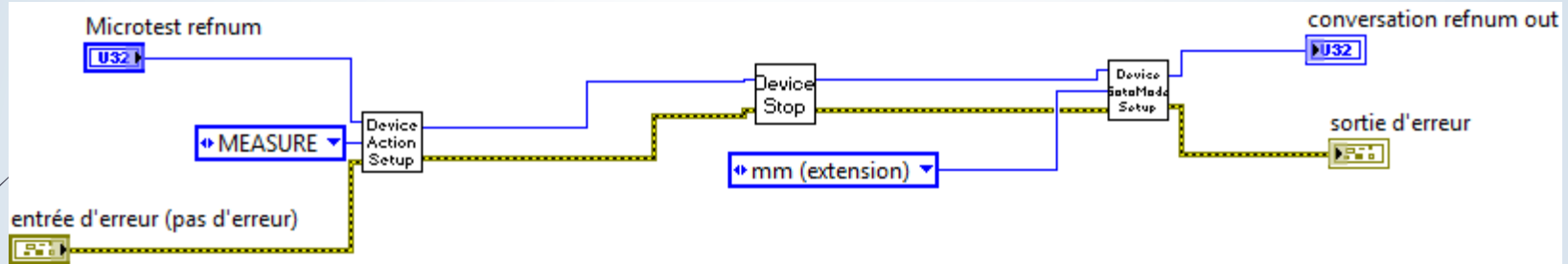
Un peu de code...

Asservissement de force



Un peu de code...

Retour asservissement déplacement



Perspectives

Actuellement module de contrôle de chauffage indépendant.

Récupération des valeurs de consignes par lecture des contenus des fenêtres windows !!!

