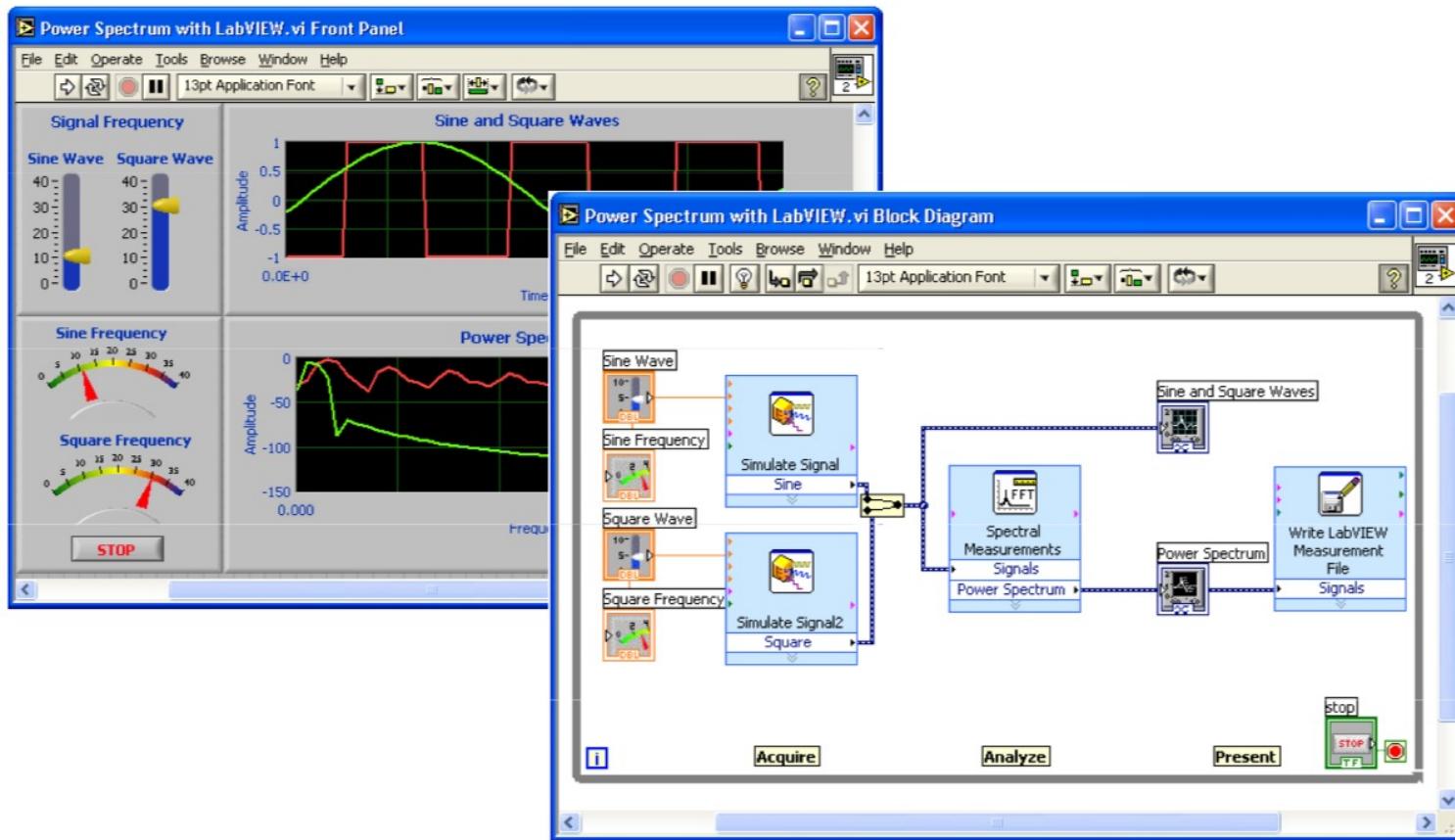


# Introduction à LabVIEW



# **Instrumentation Virtuelle avec LabVIEW**

LabVIEW (contraction de Laboratory Virtual Instrument Engineering Workbench) est le cœur d'une plate-forme de conception de systèmes de mesure et de contrôle, fondée sur un environnement de développement graphique de National Instruments.

LabVIEW est utilisé principalement pour l'acquisition de données, pour le contrôle d'instruments et pour l'automatisme industriel.

# Instrumentation Virtuelle avec LabVIEW

Les programmes LabVIEW sont appelés instruments virtuels ou VIs, car leur apparence et leur fonctionnement imitent souvent des instruments physiques, tels que des oscilloscopes et des multimètres.

LabVIEW contient un ensemble complet d'outils pour acquérir, analyser, afficher et stocker des données, ainsi que des outils pour vous aider à résoudre les problèmes de code que vous écrivez. Lorsque vous créez un nouveau VI, vous verrez deux fenêtres: la fenêtre de la face-avant et le diagramme.

La fenêtre de la face-avant est l'interface utilisateur du VI. Les contrôles définissent les entrées et les indicateurs affichent les sorties.

Le diagramme contient le code permettant de contrôler les objets de la face-avant.

# Les programmes LabVIEW sont appelés Instruments Virtuels ou Virtual Instruments (VIs)

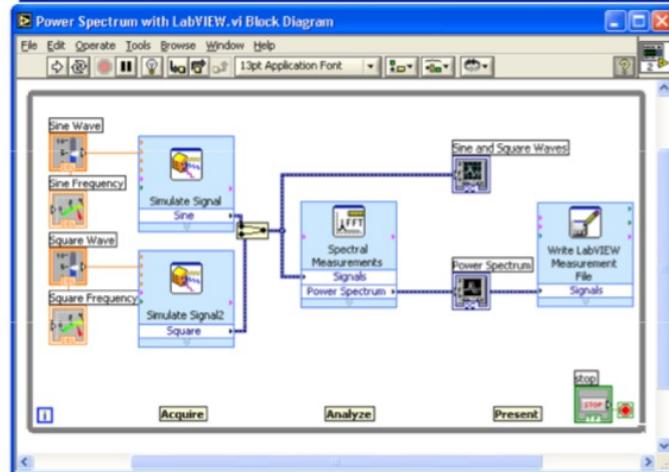
## Face avant

- Commandes = Entrées
- Indicateurs = Sorties

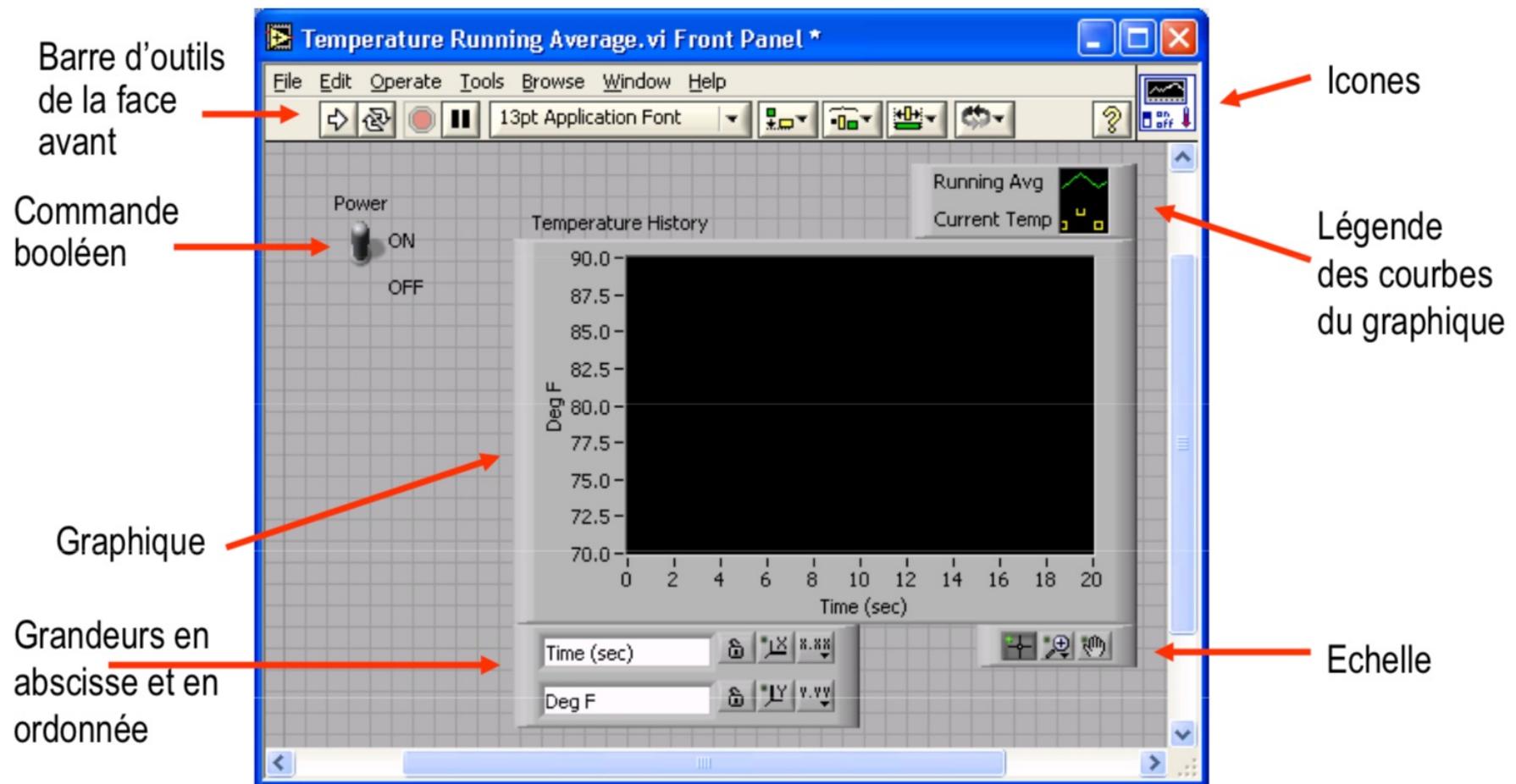


## Diagramme

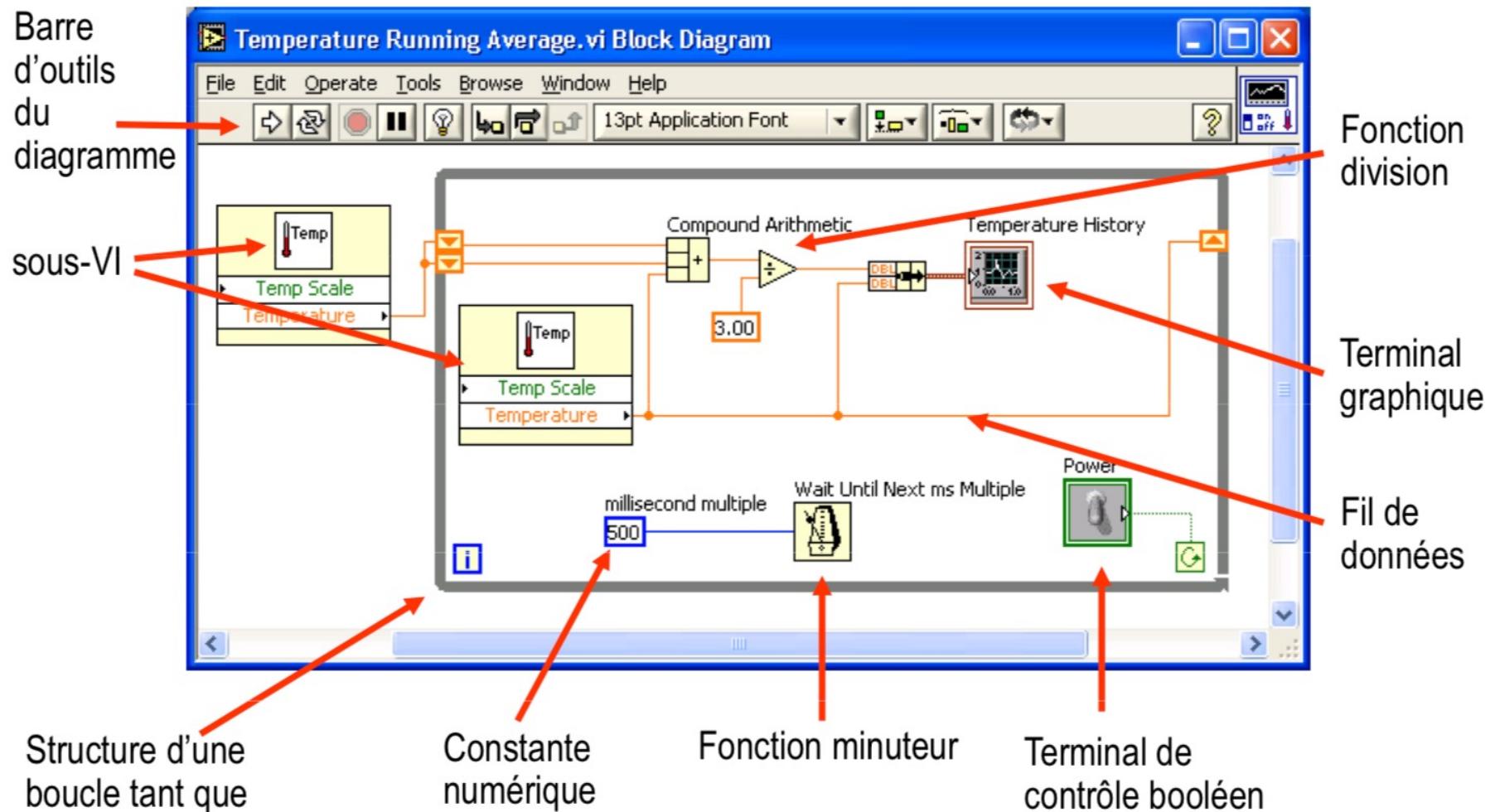
- Programme complémentaire de la face avant



# Face avant d'un VI

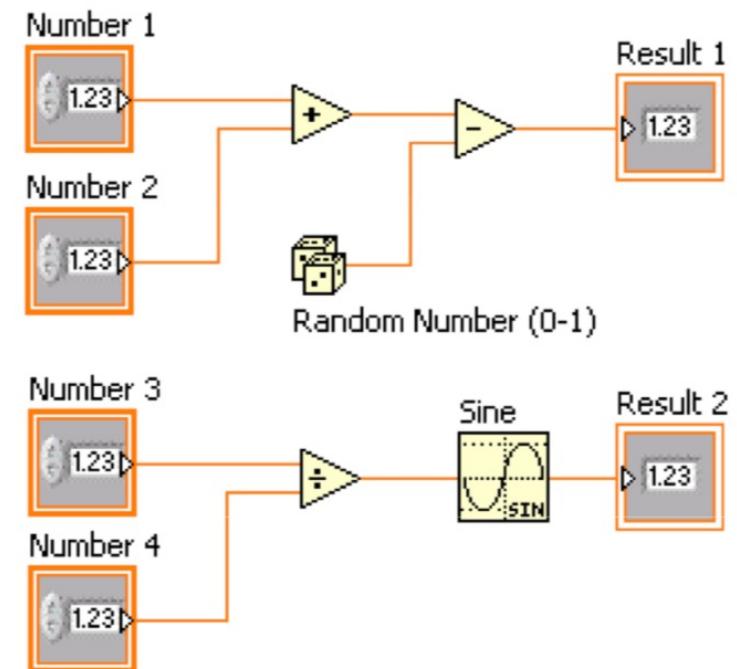


# Diagramme d'un VI



# Programmation par Flux de Données

- L'exécution du diagramme dépend du flux de données; il ne s'exécute pas de gauche à droite ;
- L'exécution du nœud se fait quand les données sont disponibles à tous les terminaux d'entrée ;
- Puis les nœuds fournissent des données à tous les terminaux de sortie.



# Palettes de commandes et de fonctions



Palette de commandes  
(Fenêtre Face avant)

Palettes de fonctions  
(Fenêtre Diagramme)





VI Package Manager...



Copie de TP

circuits II



metrologie



NI LabVIEW

2023 Q1 (...)



Analokit



Google

Chrome



semaine3



Corbeille



VI Package  
Manager...



Copie de TP  
circuits II



metrologie



NI LabVIEW  
2023 Q1 (...)



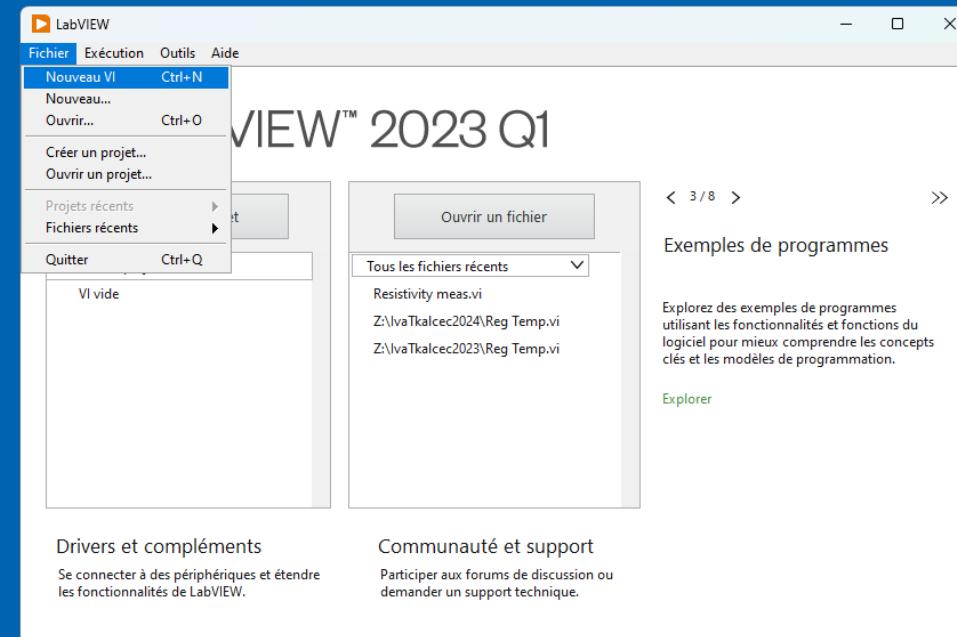
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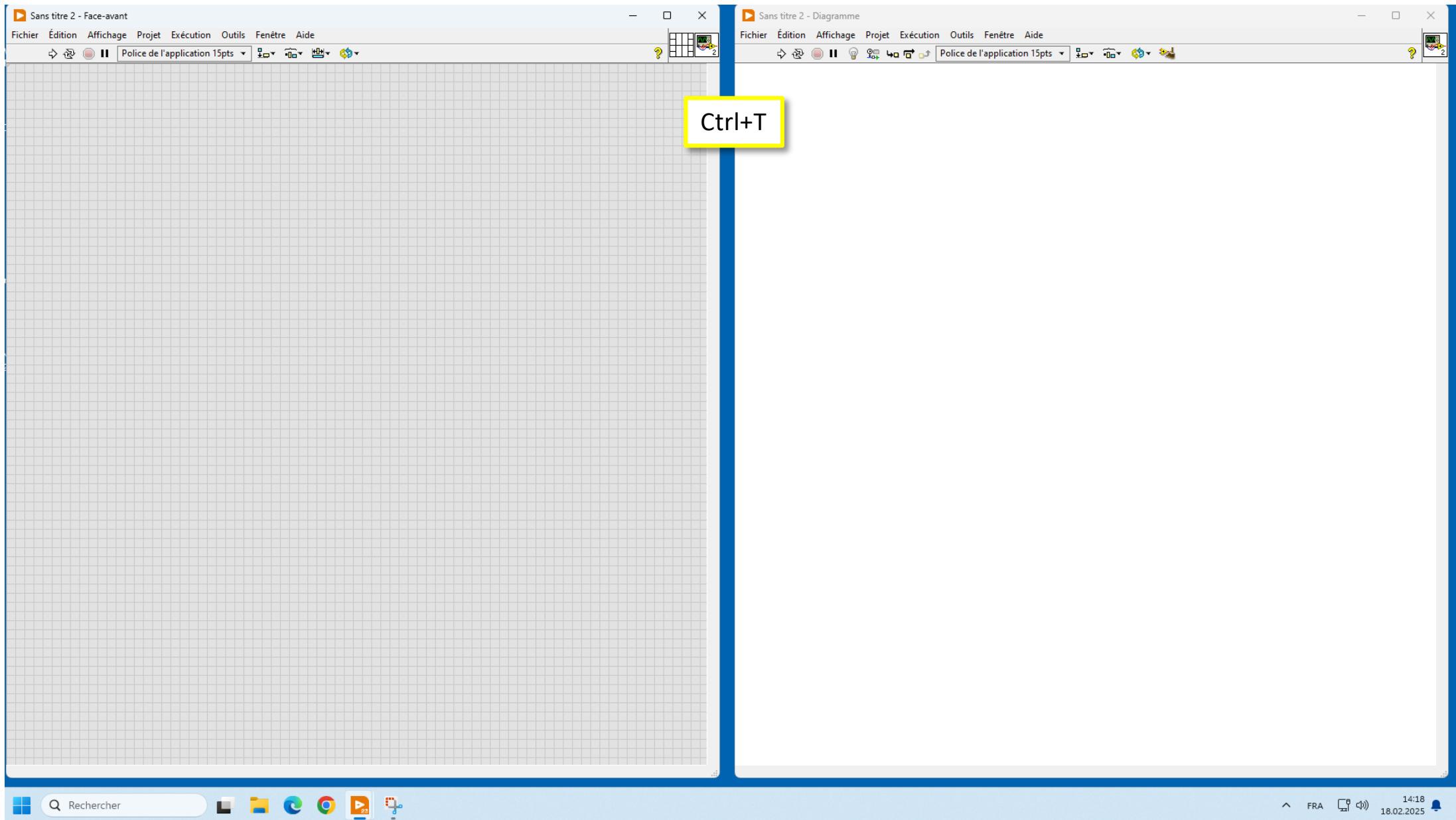
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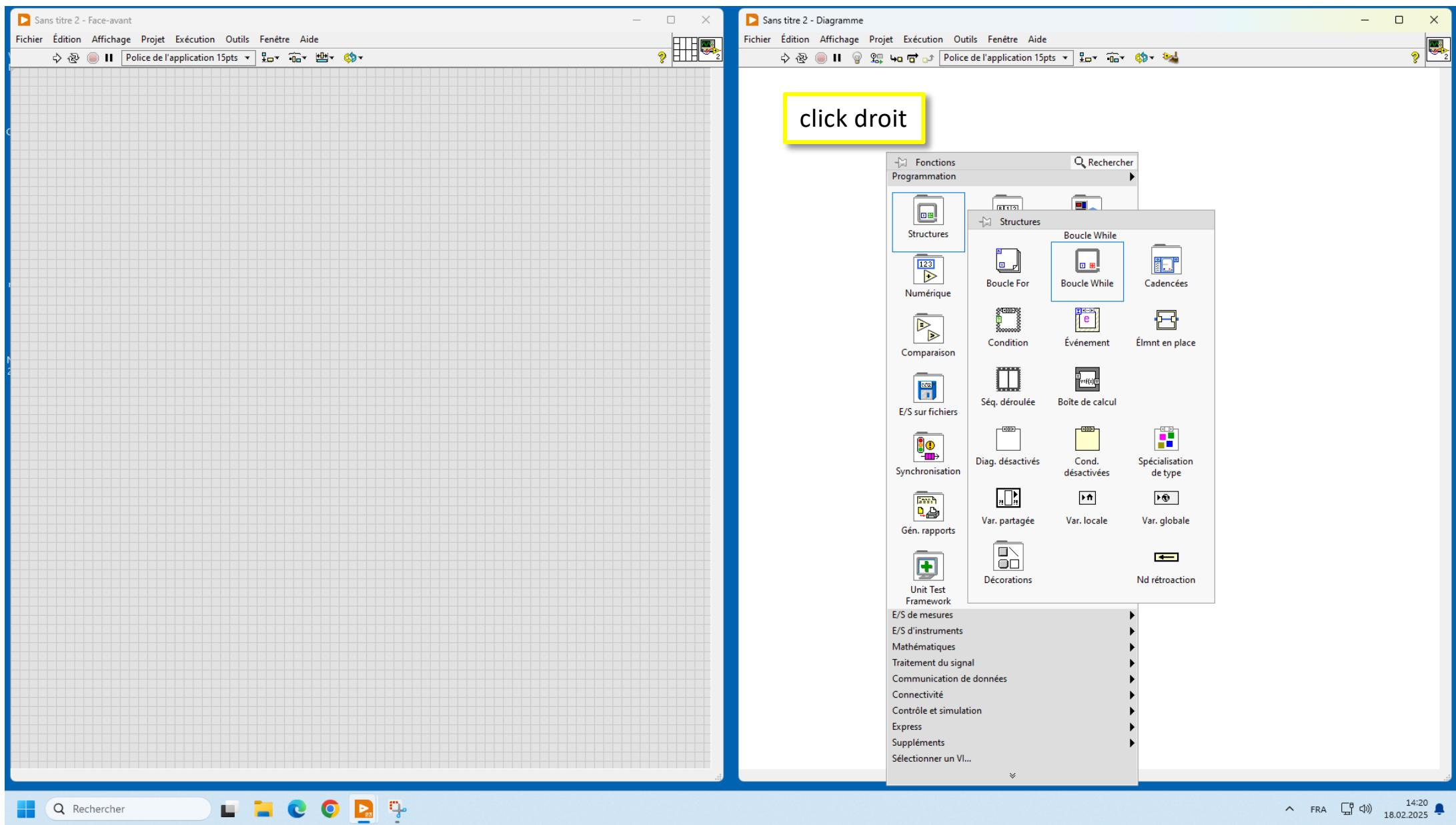


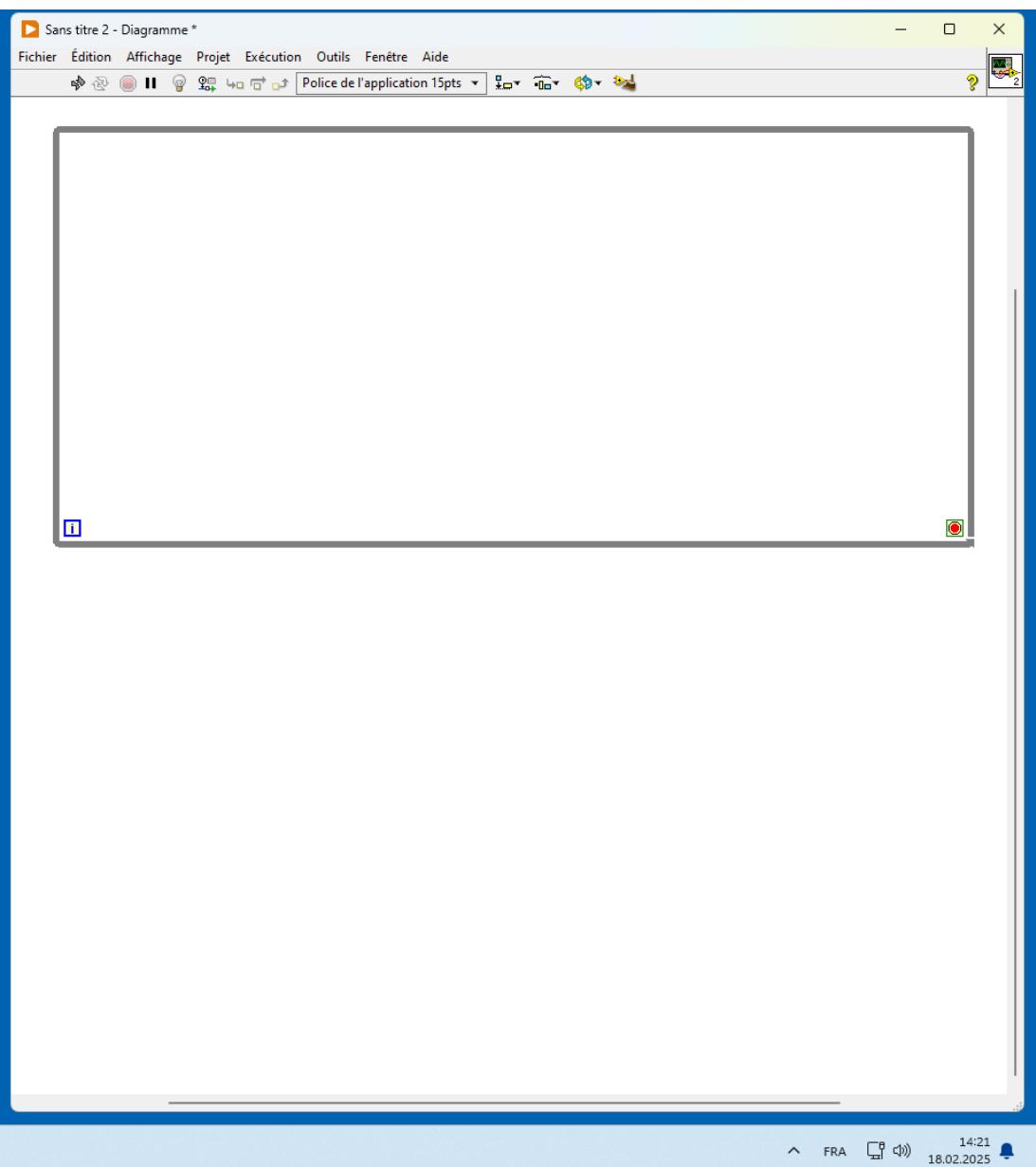
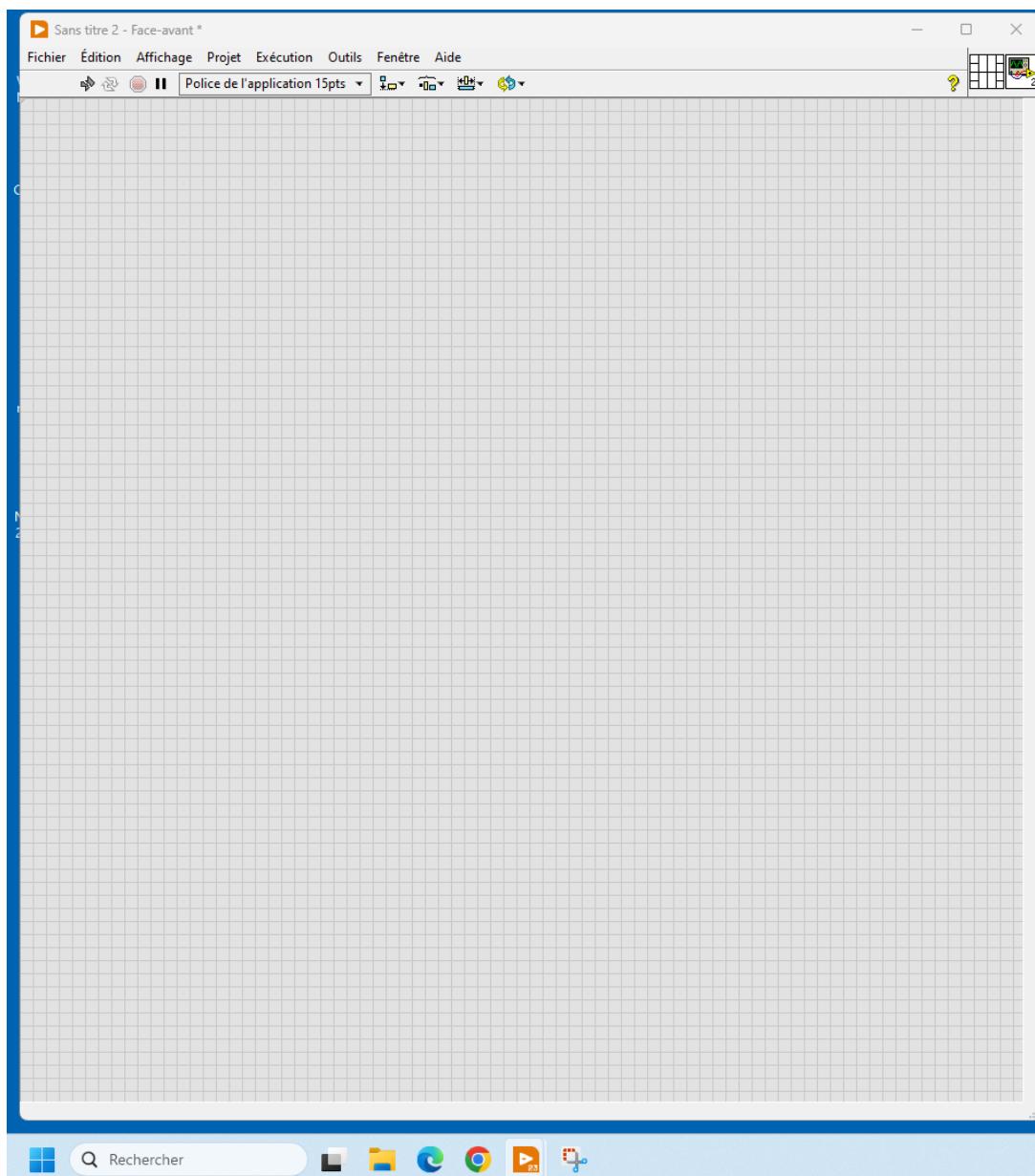
Rechercher



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**Ctrl+H**

Aide contextuelle

Boucle While  
[While Loop]



Répète le code contenu dans son sous-diagramme jusqu'à ce qu'une condition spécifique se produise. Une boucle While s'exécute toujours au moins une fois.

[Aide détaillée](#)



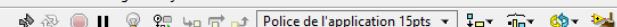
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Sans titre 2 - Diagramme\*

Fichier Édition Affichage Projet Exécution Outils Fenêtre Aide

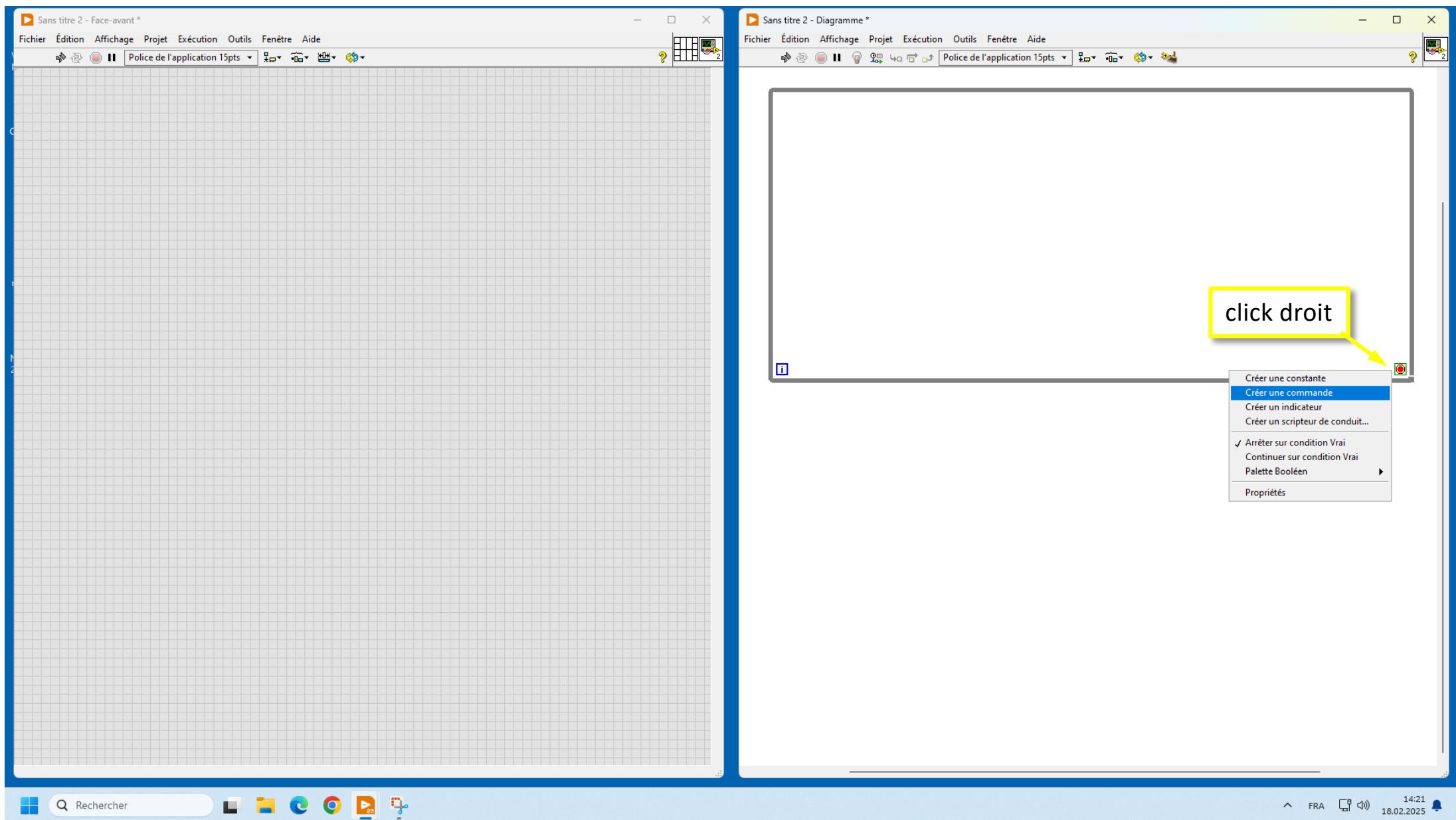


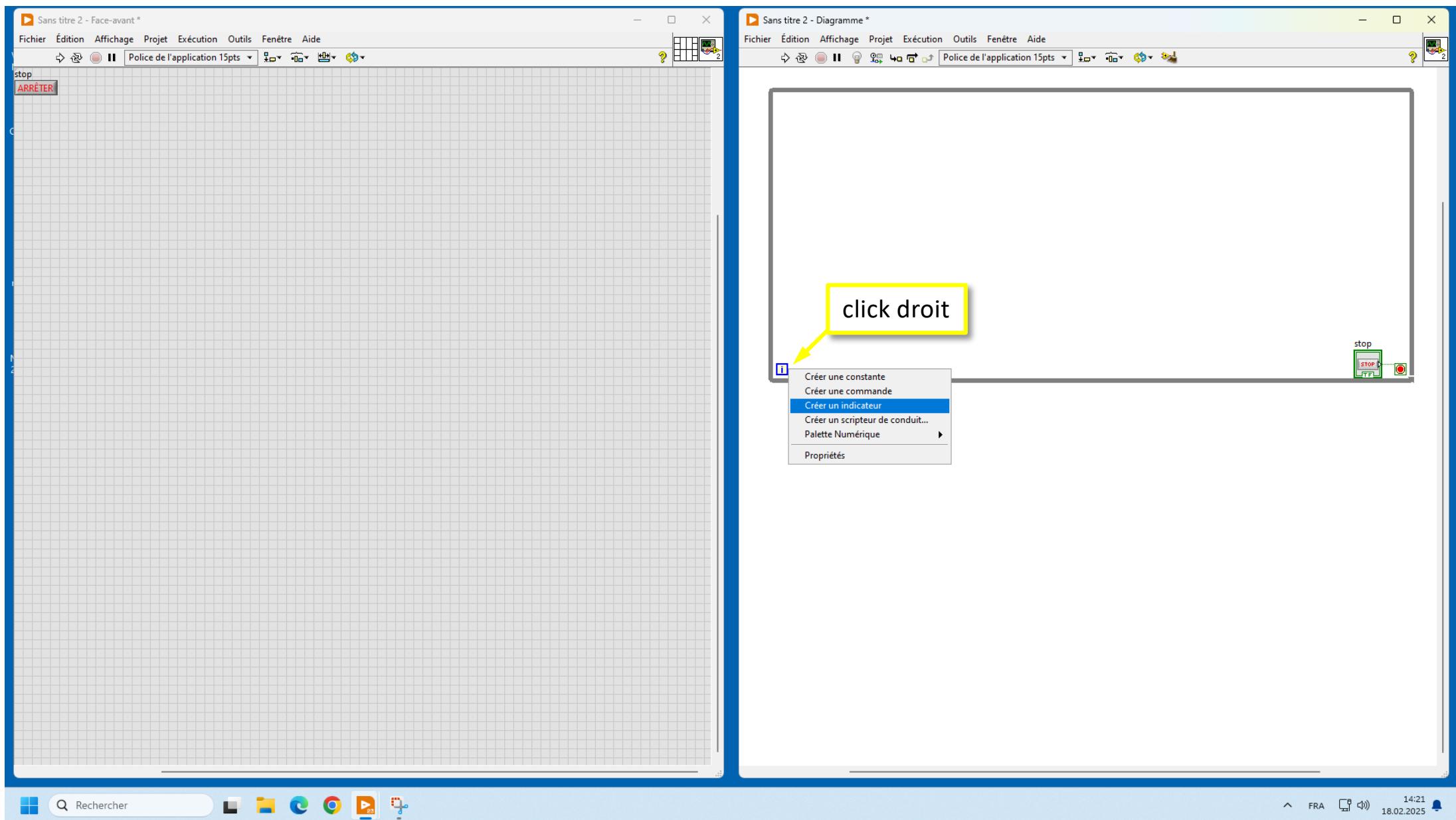
Police de l'application 15pts

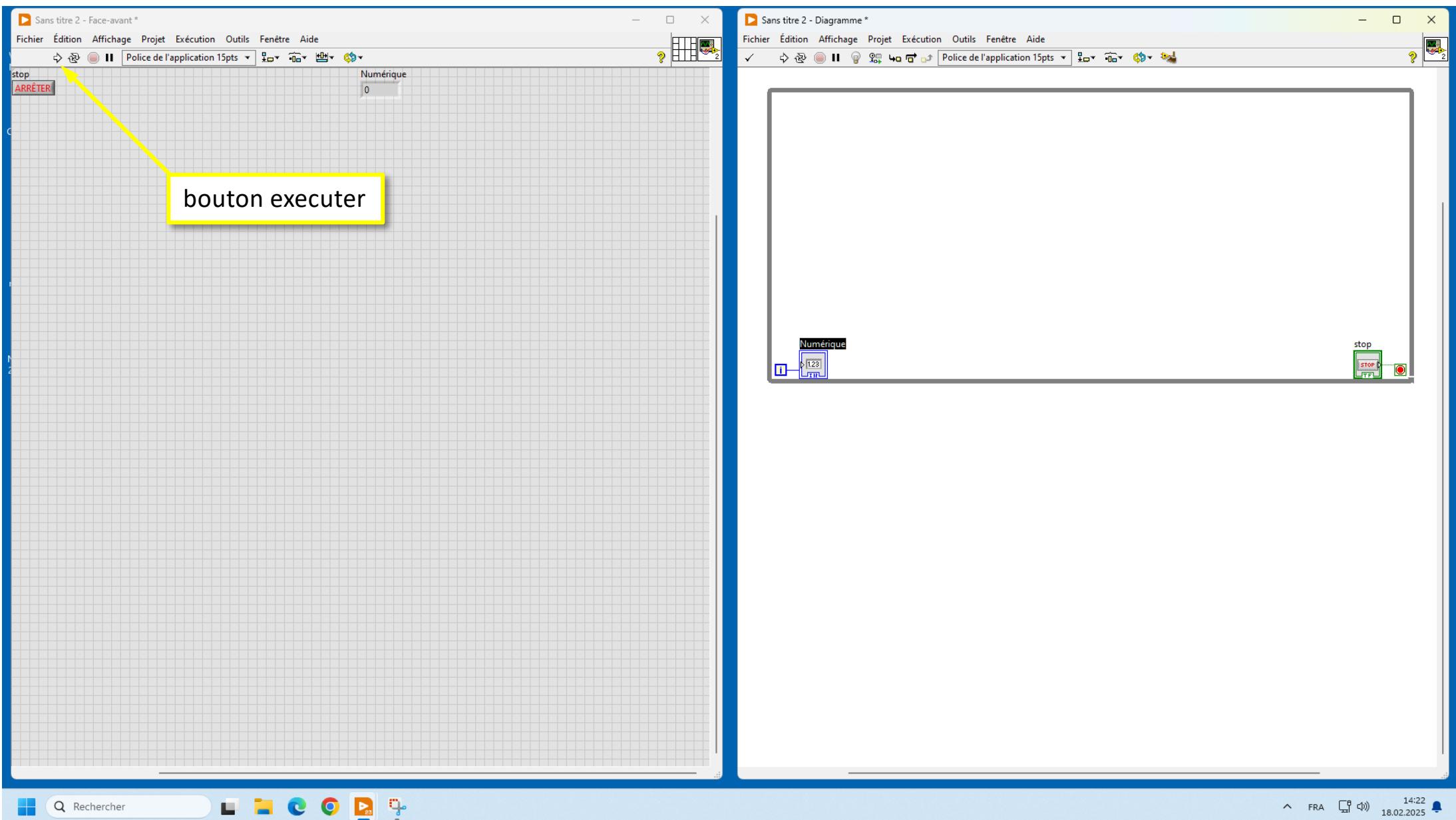


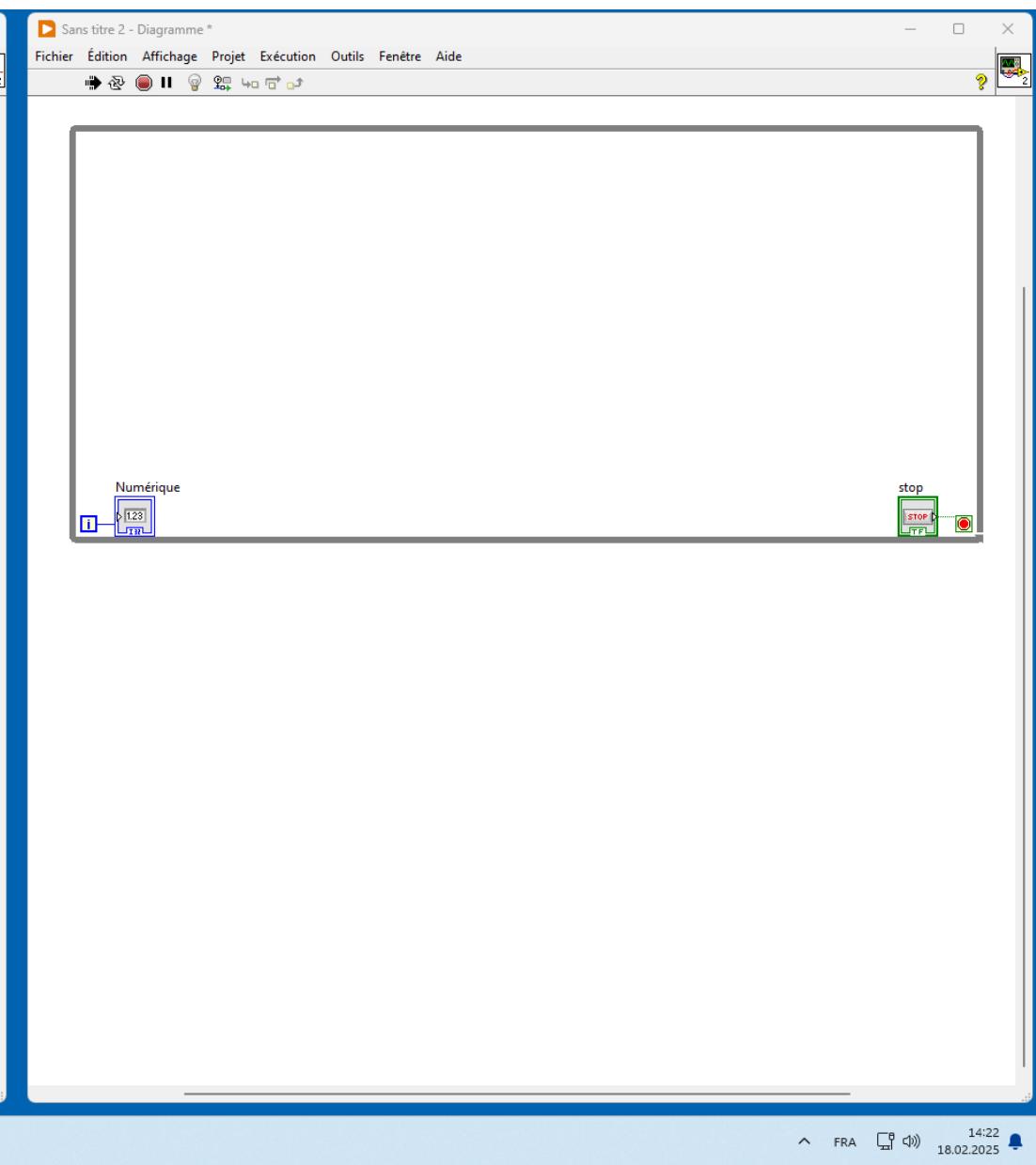
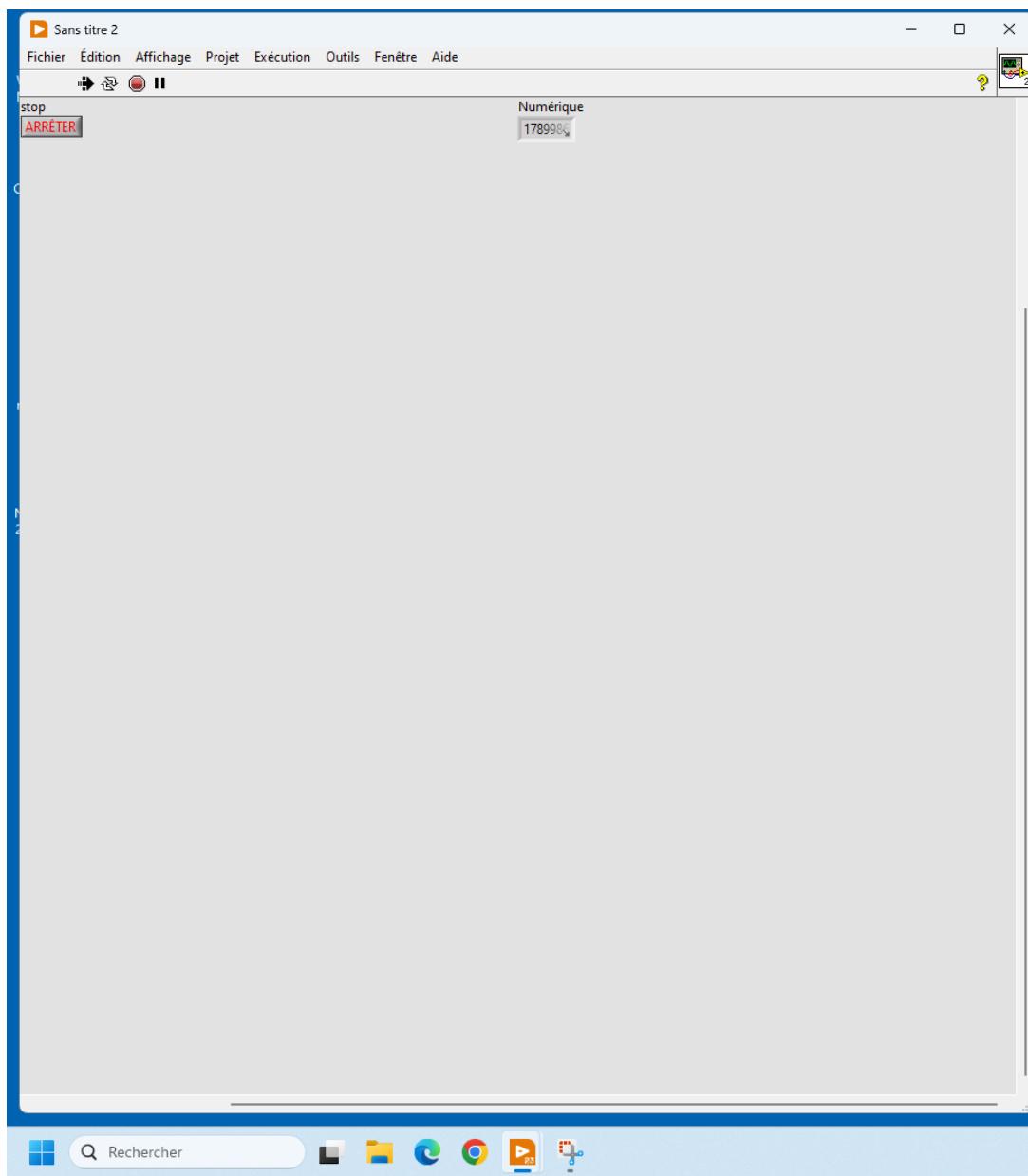
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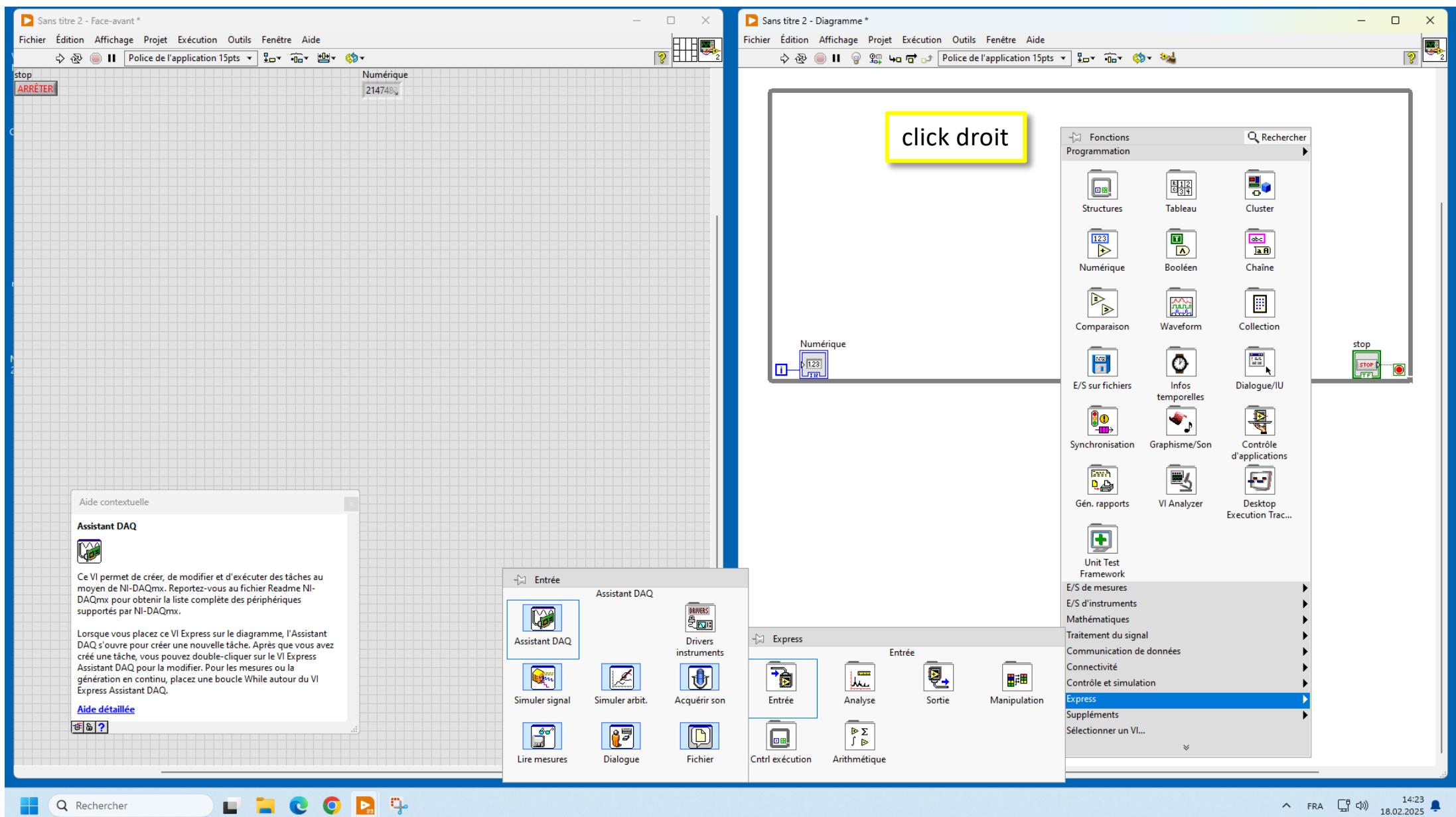
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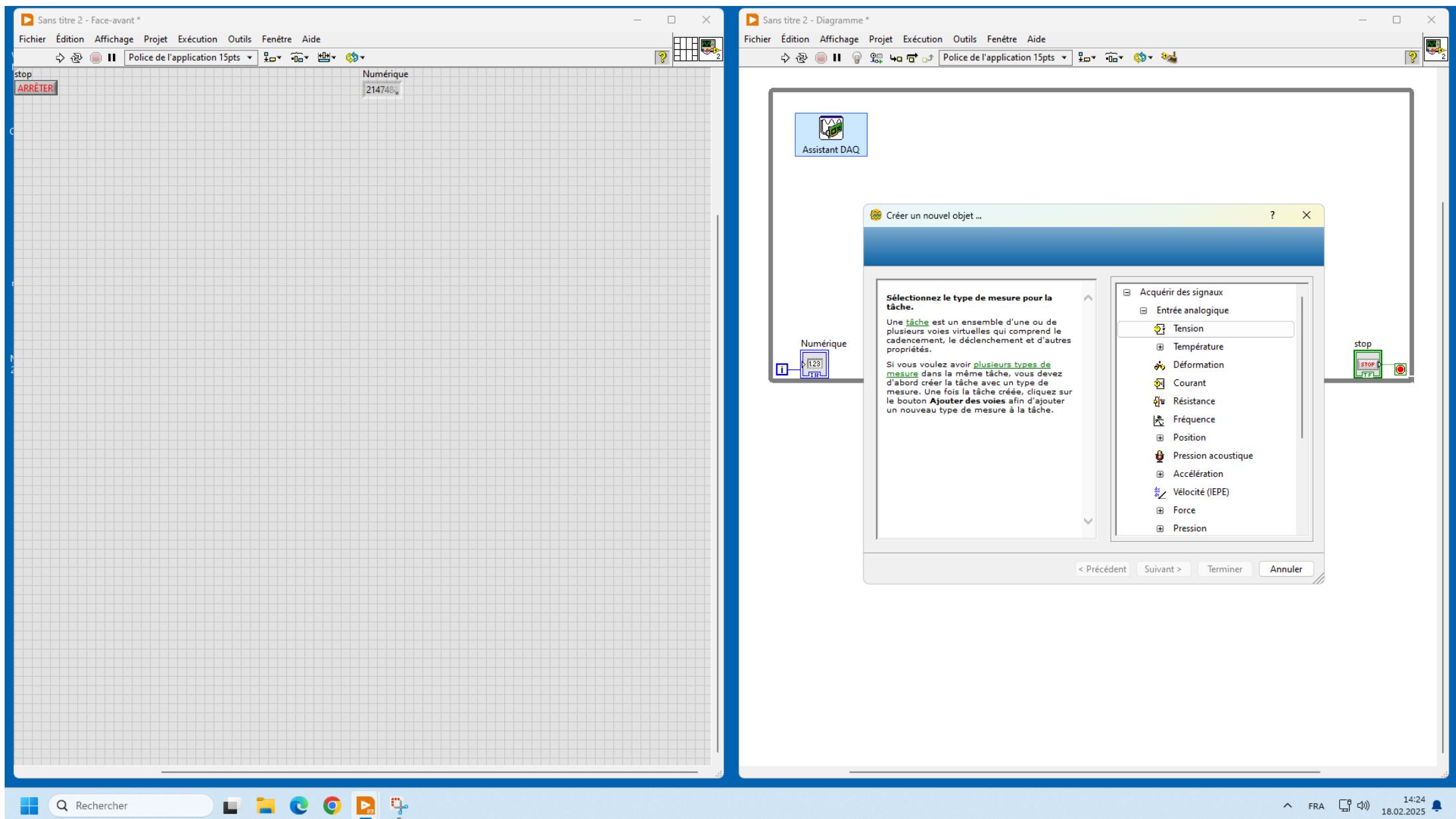


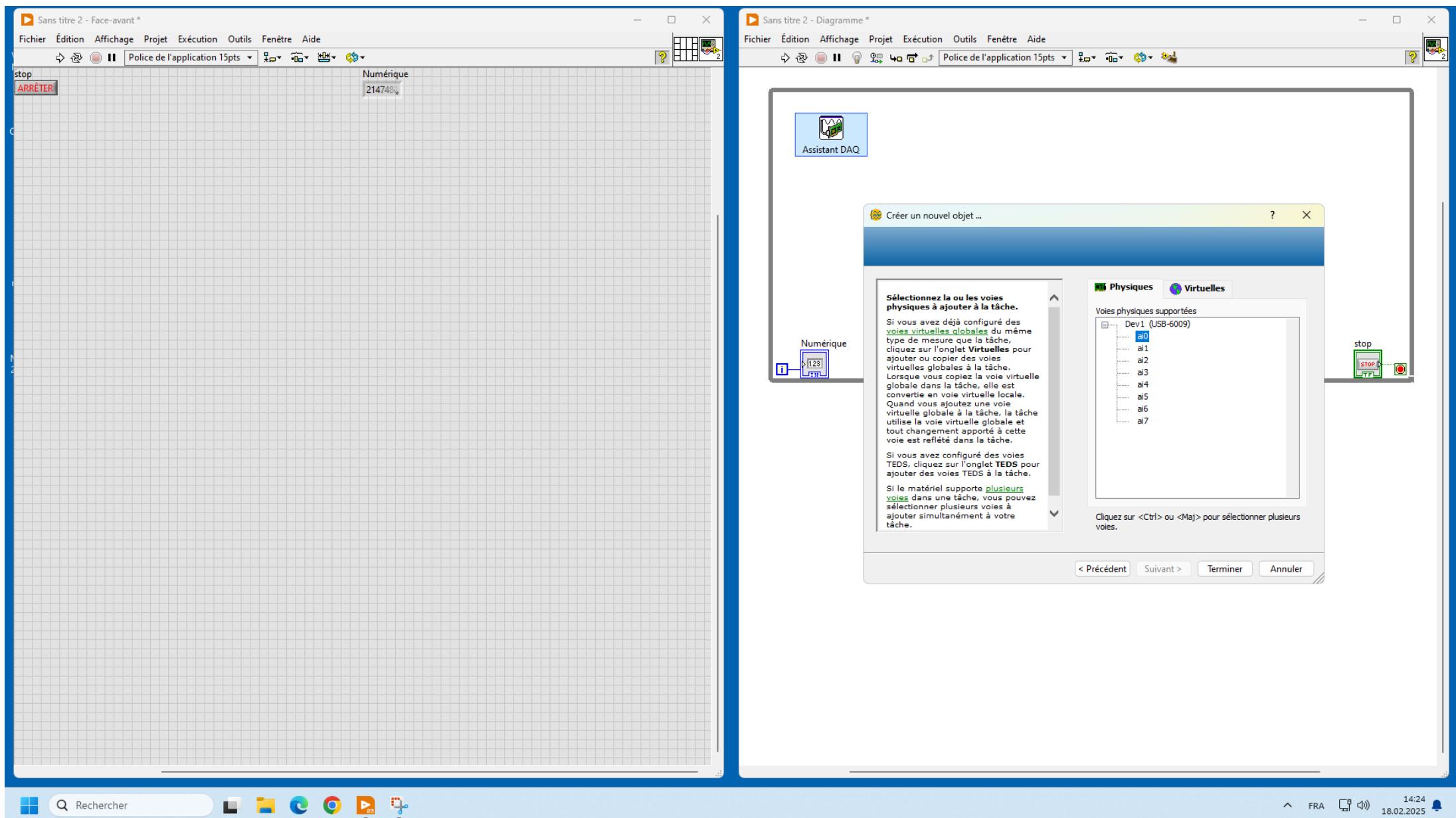


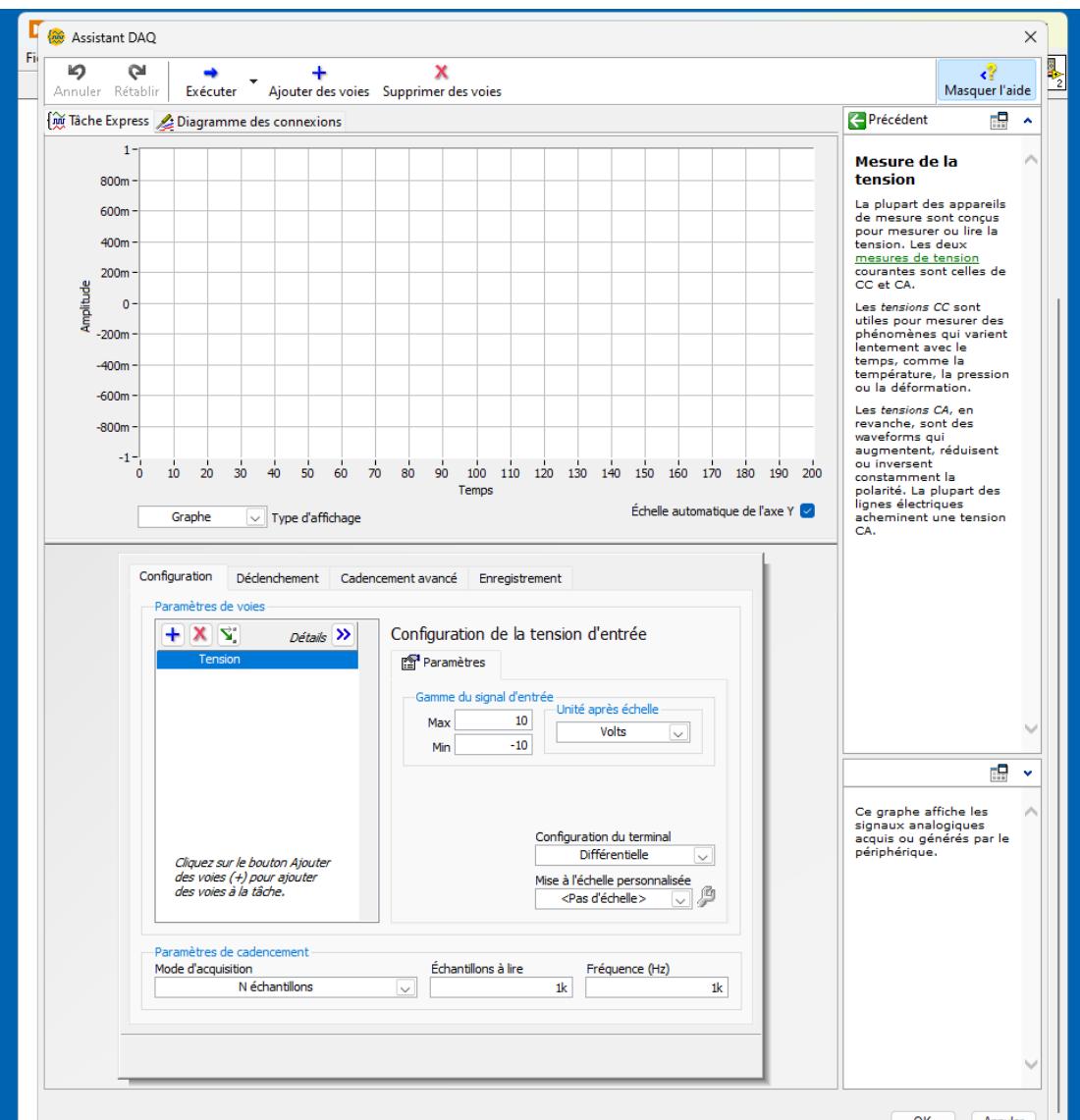
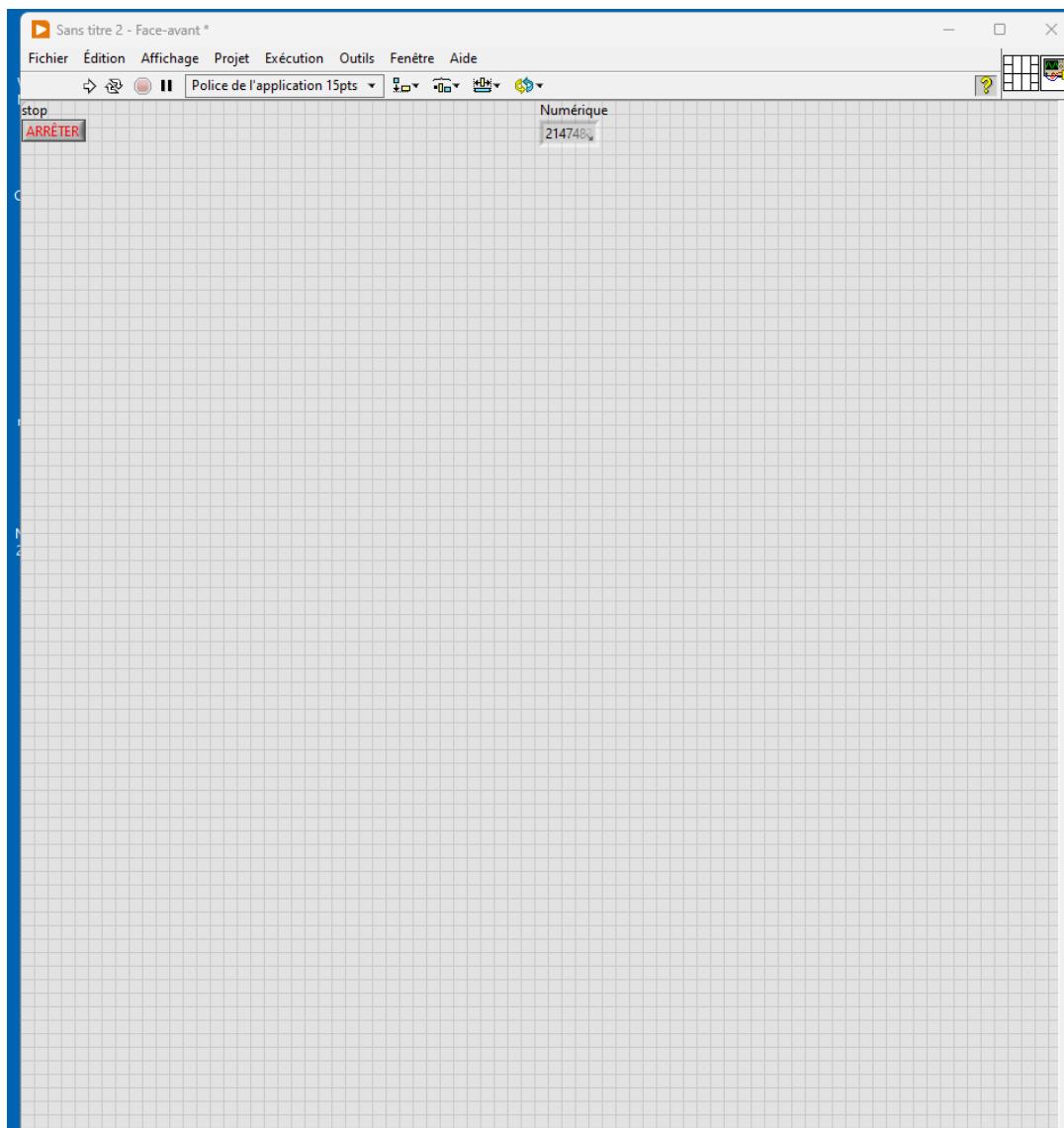


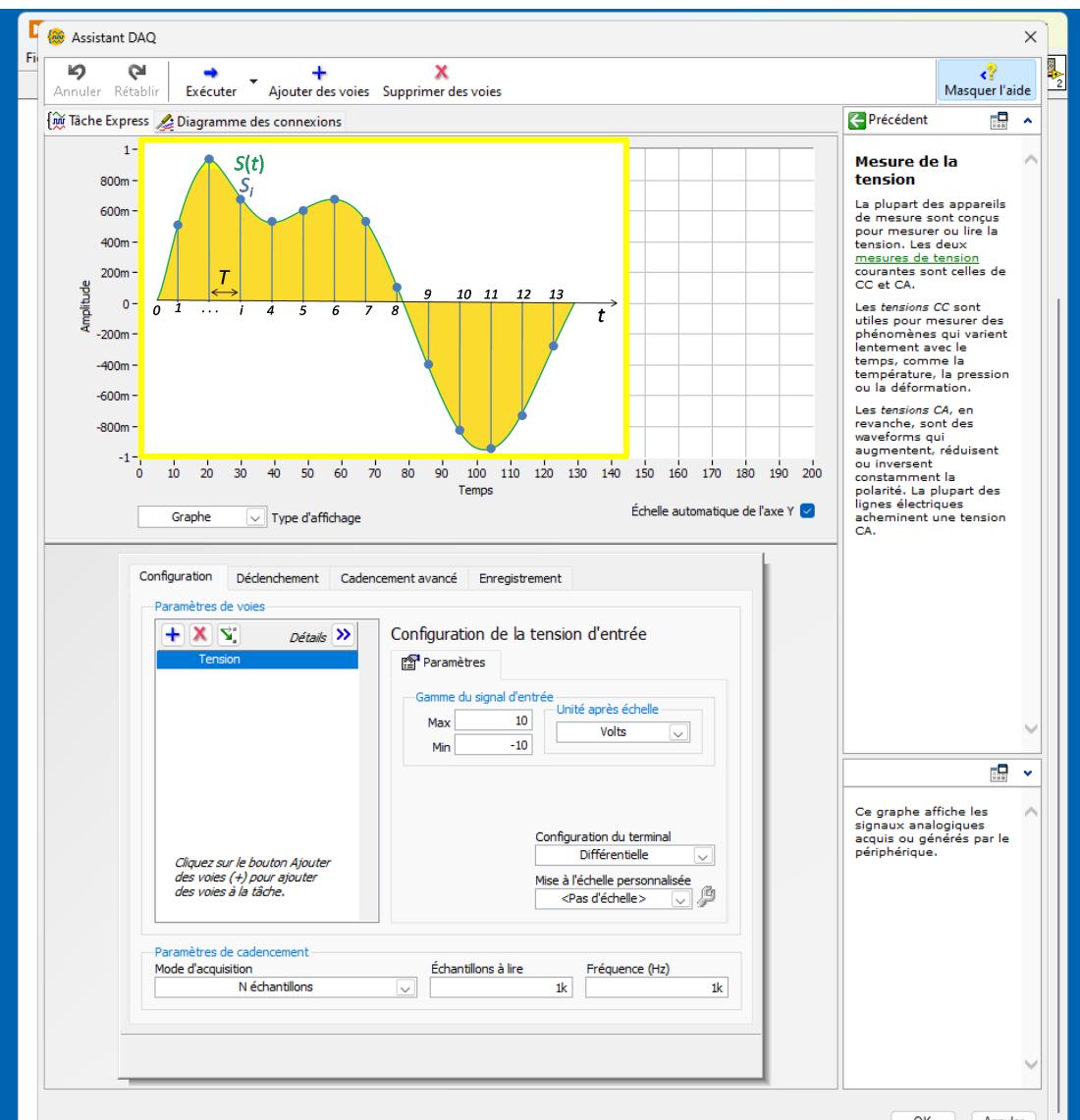
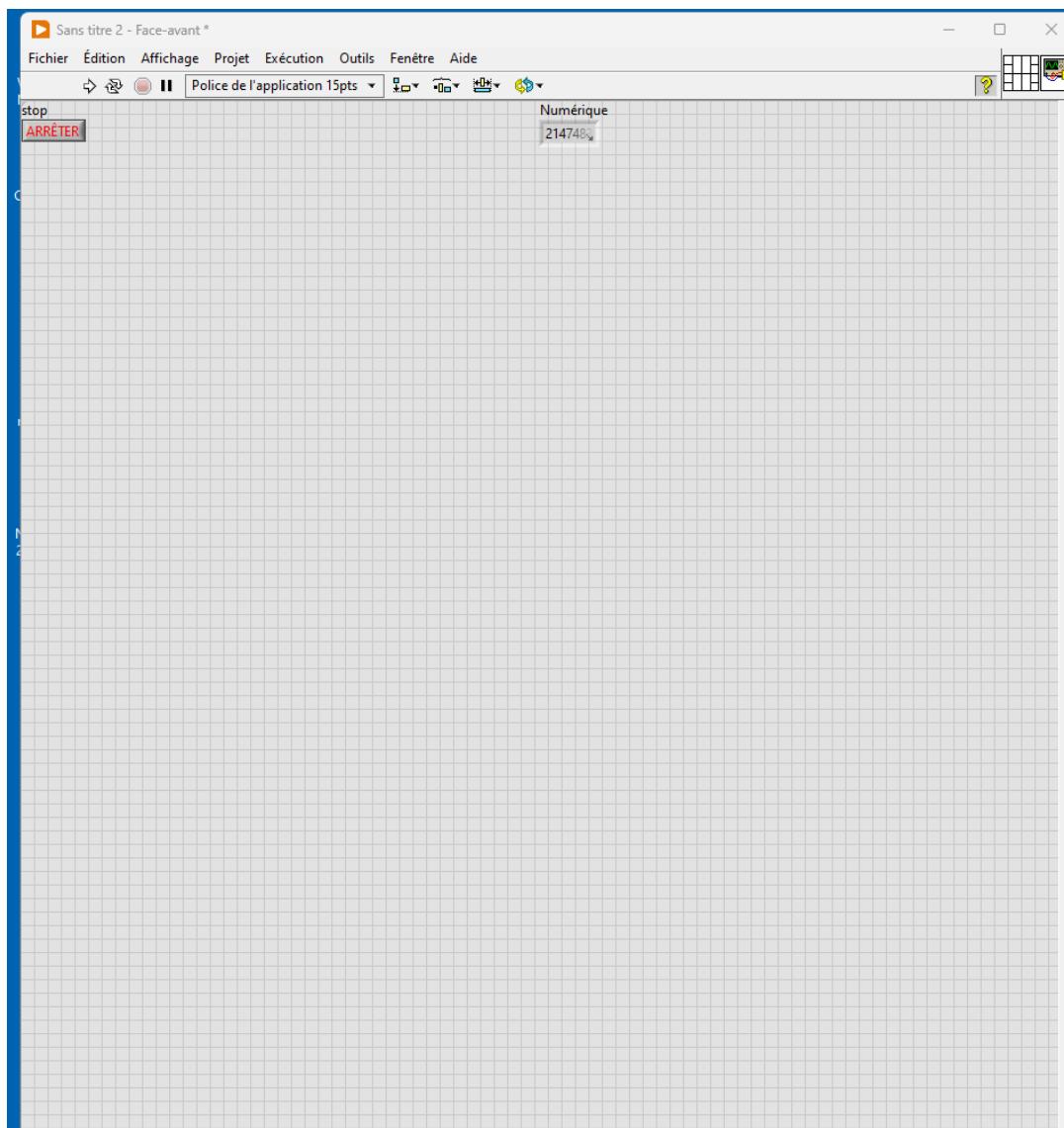


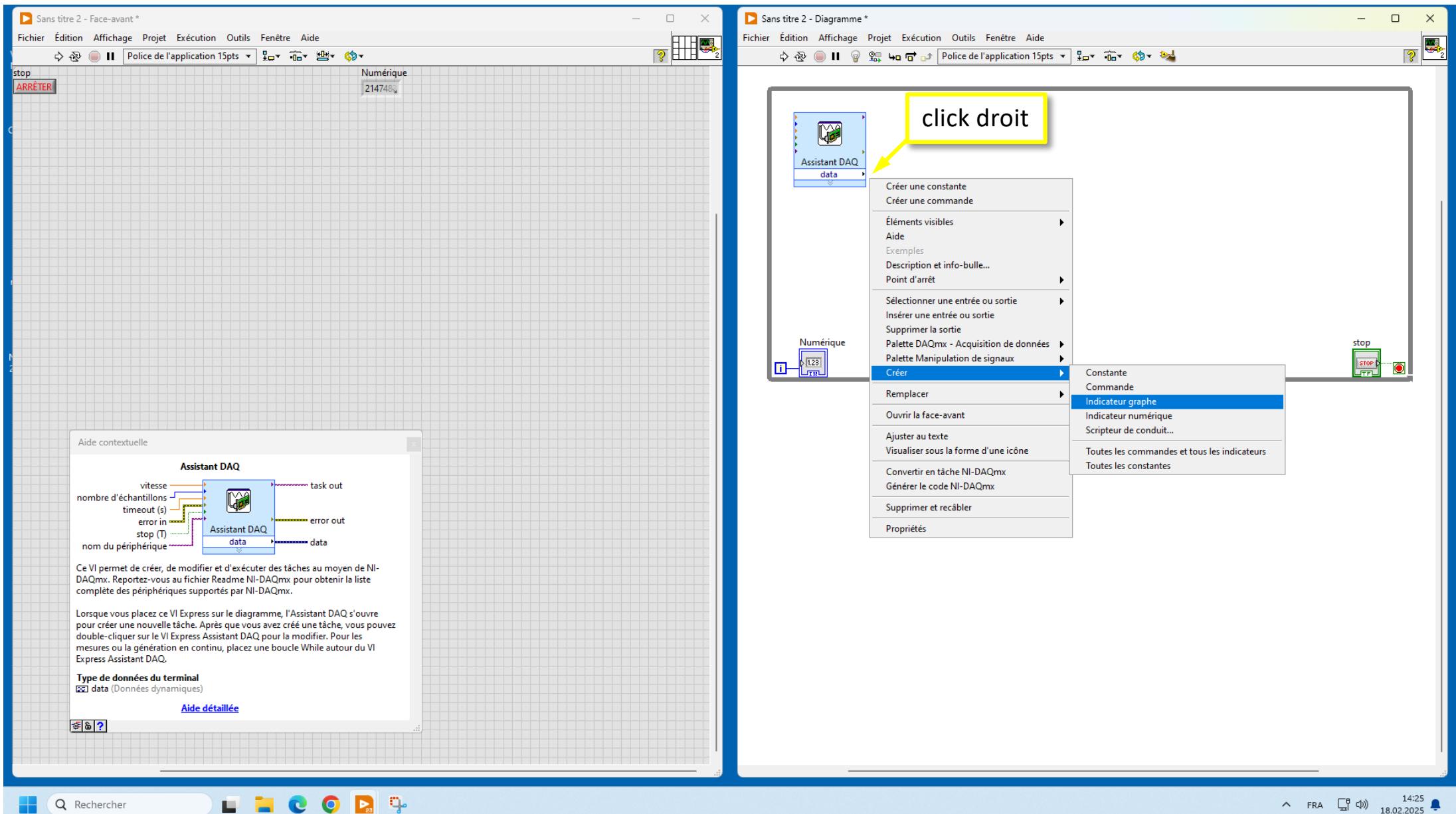


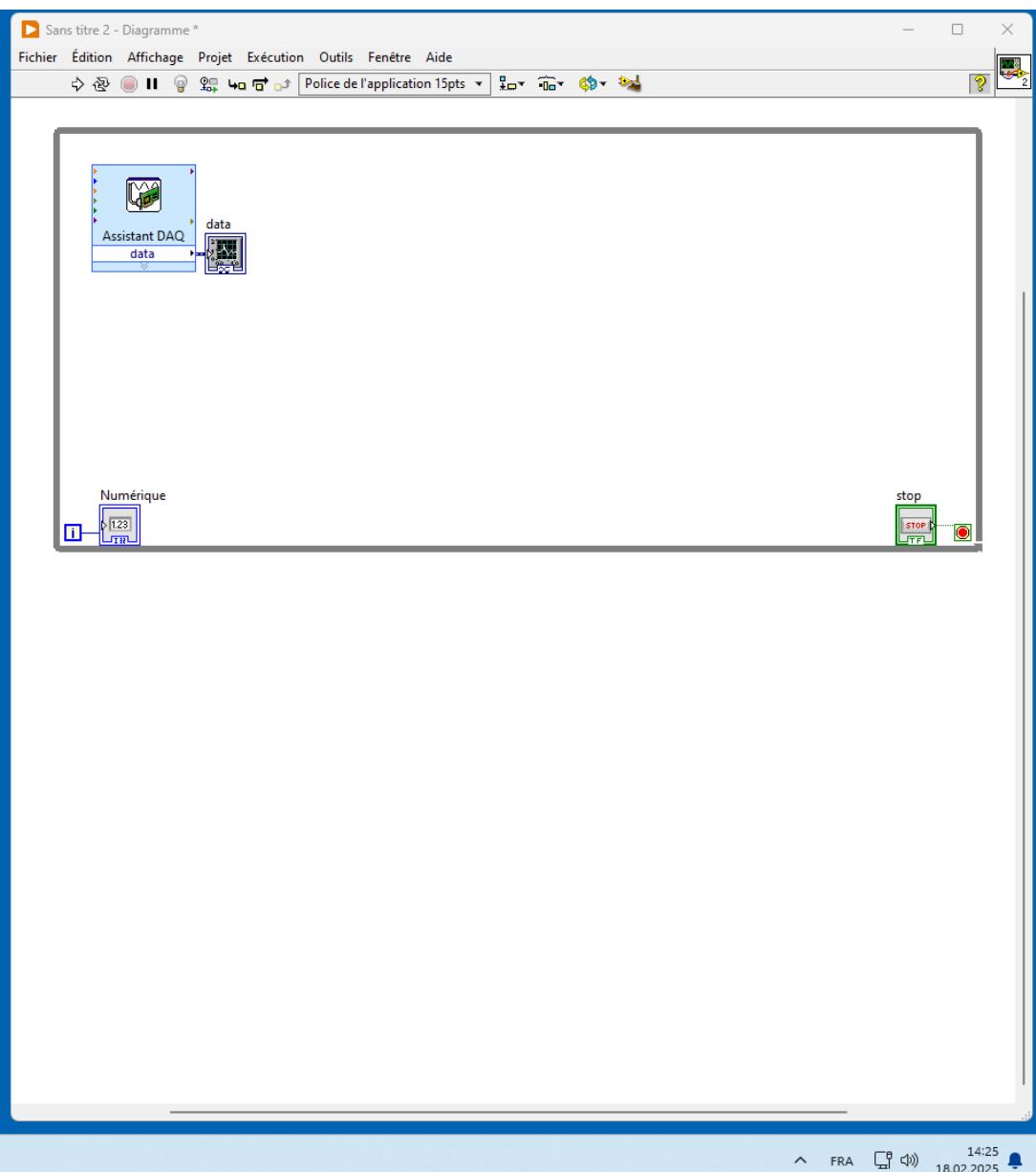
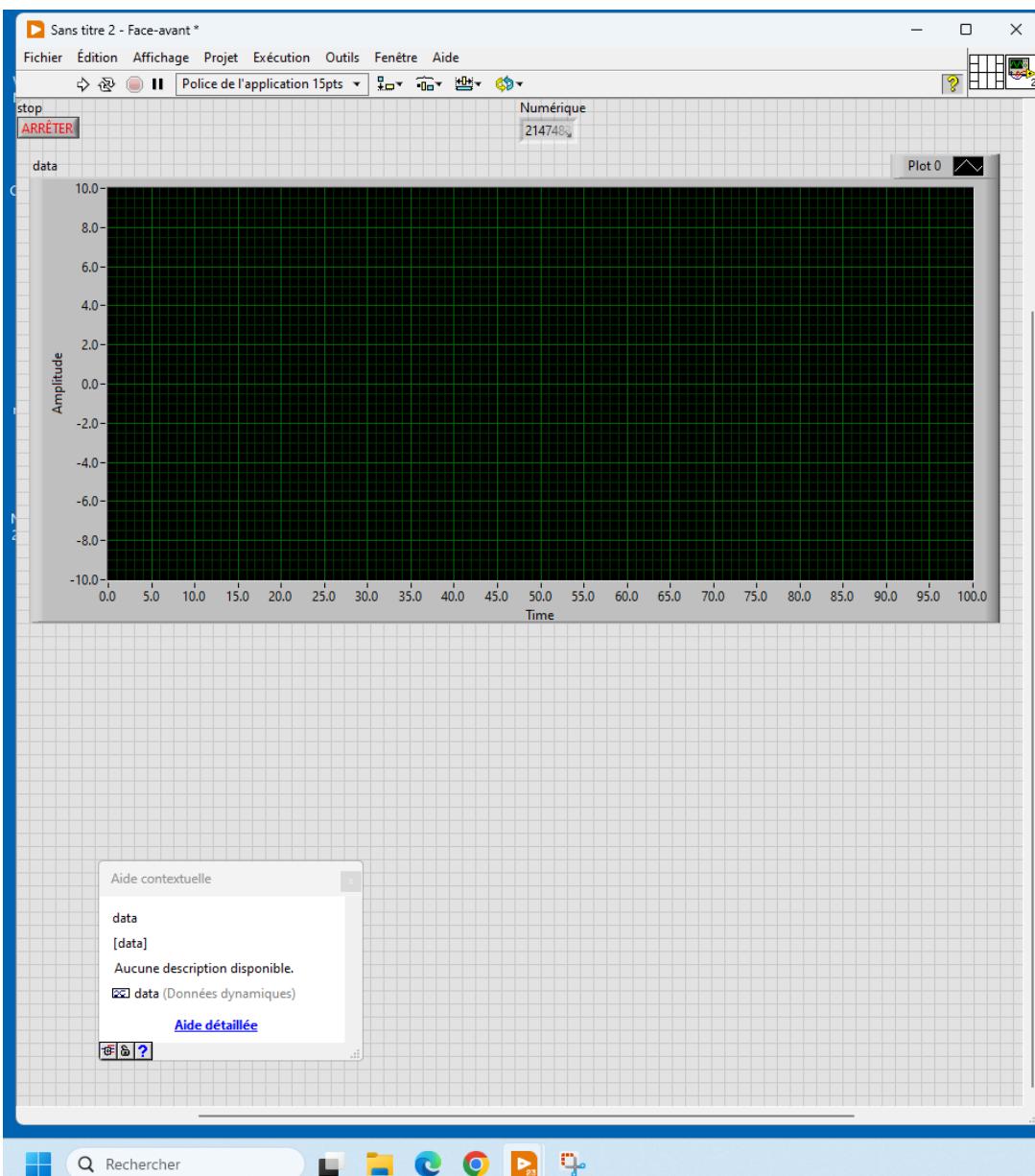


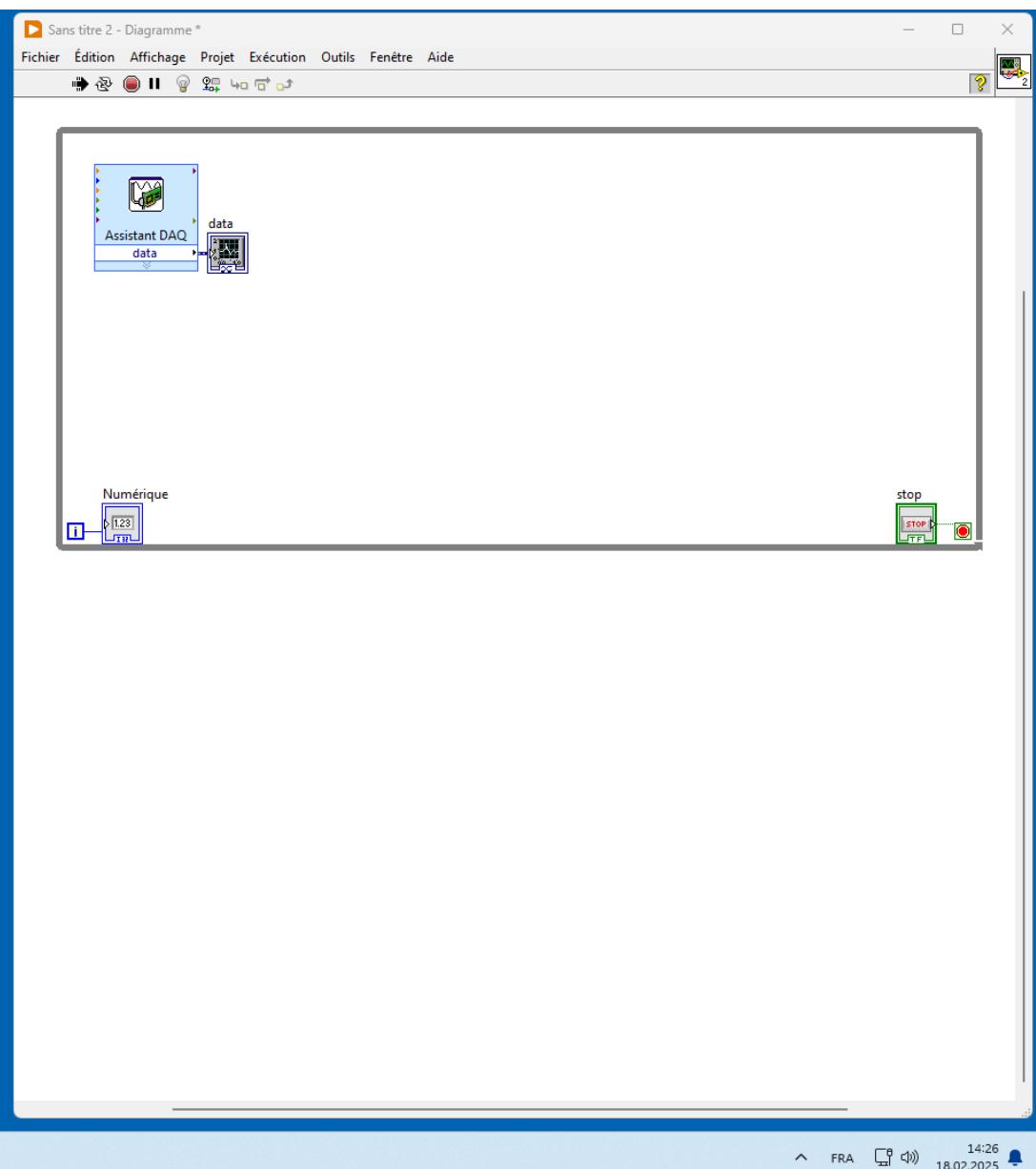
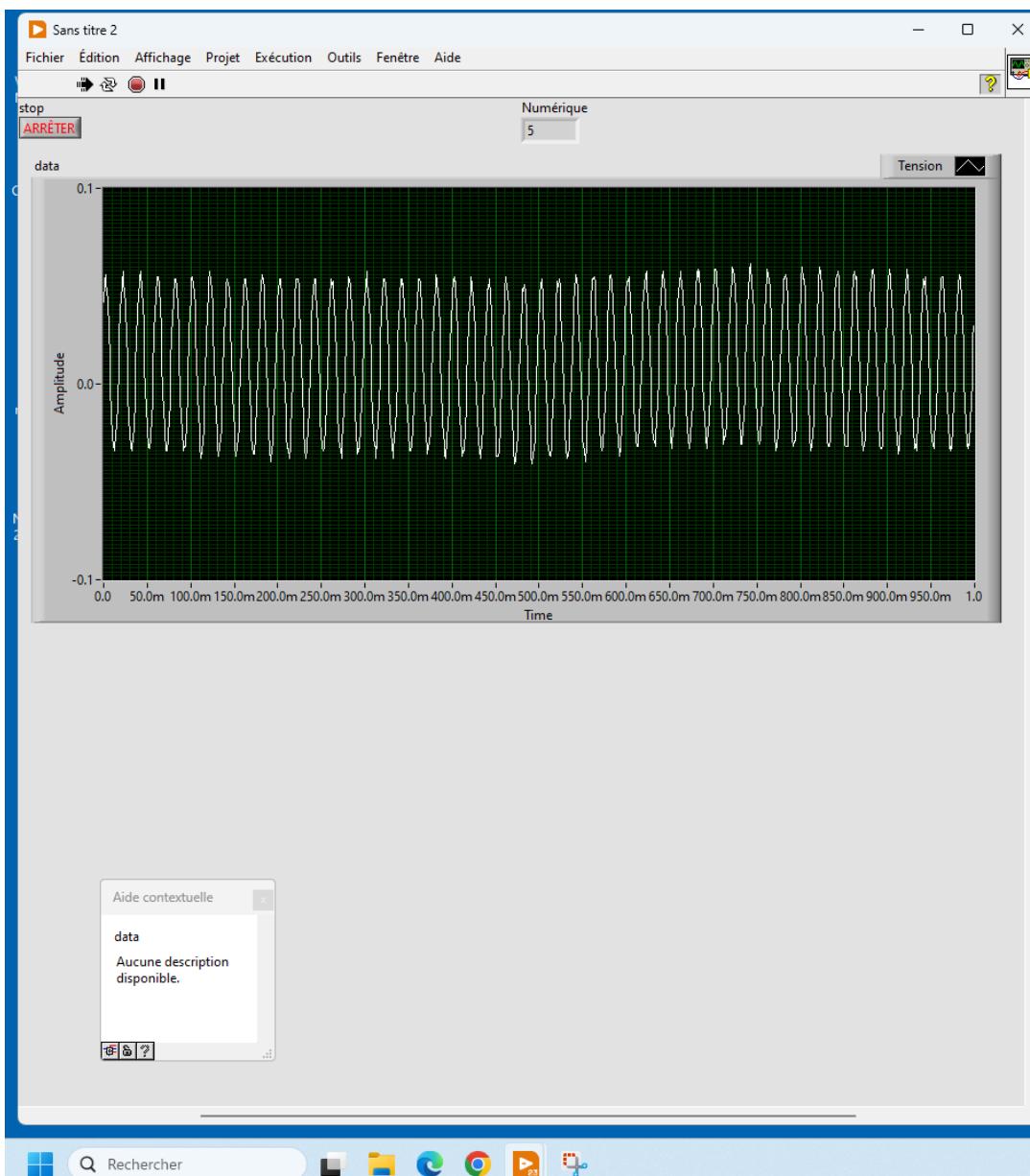


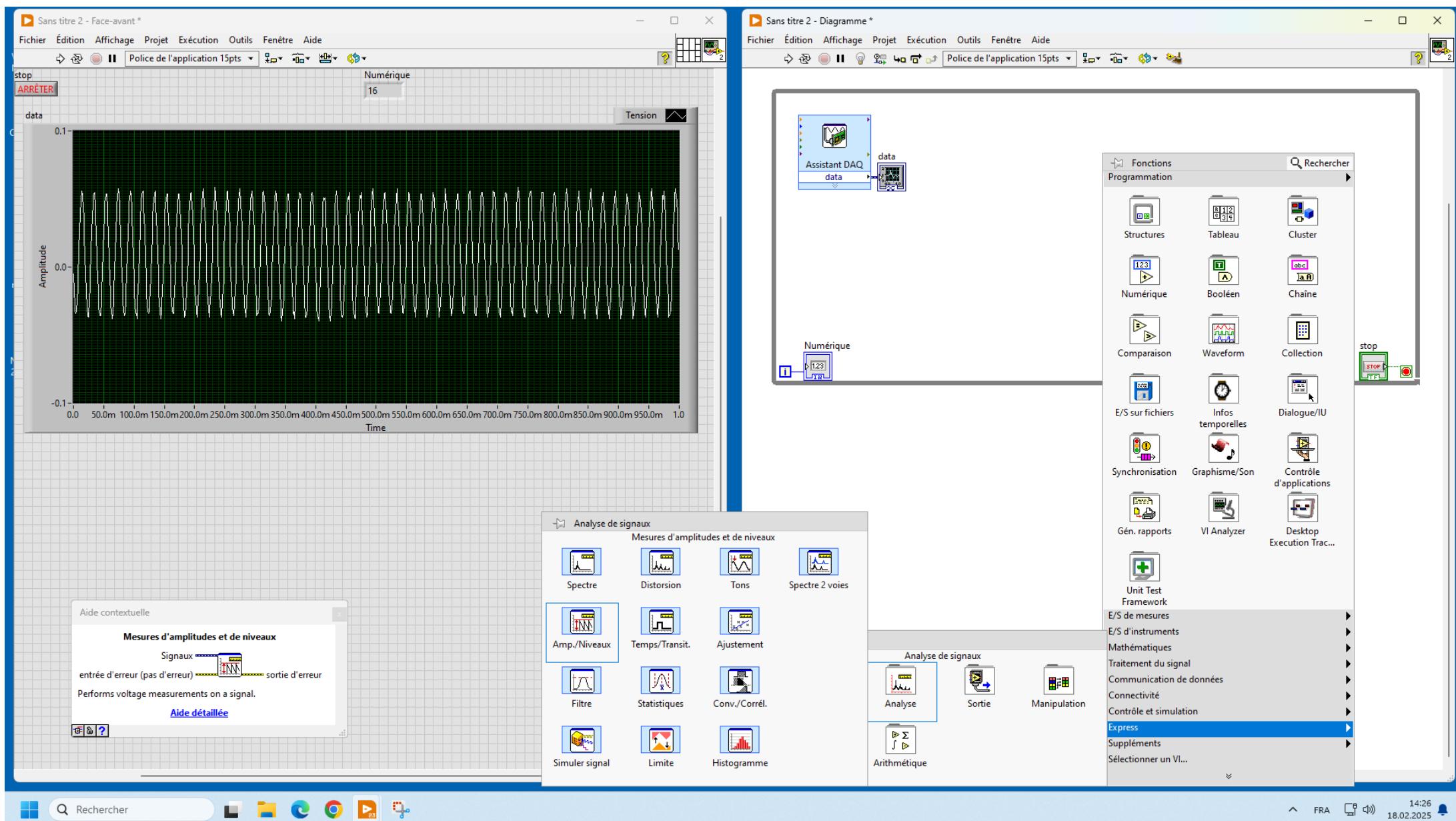


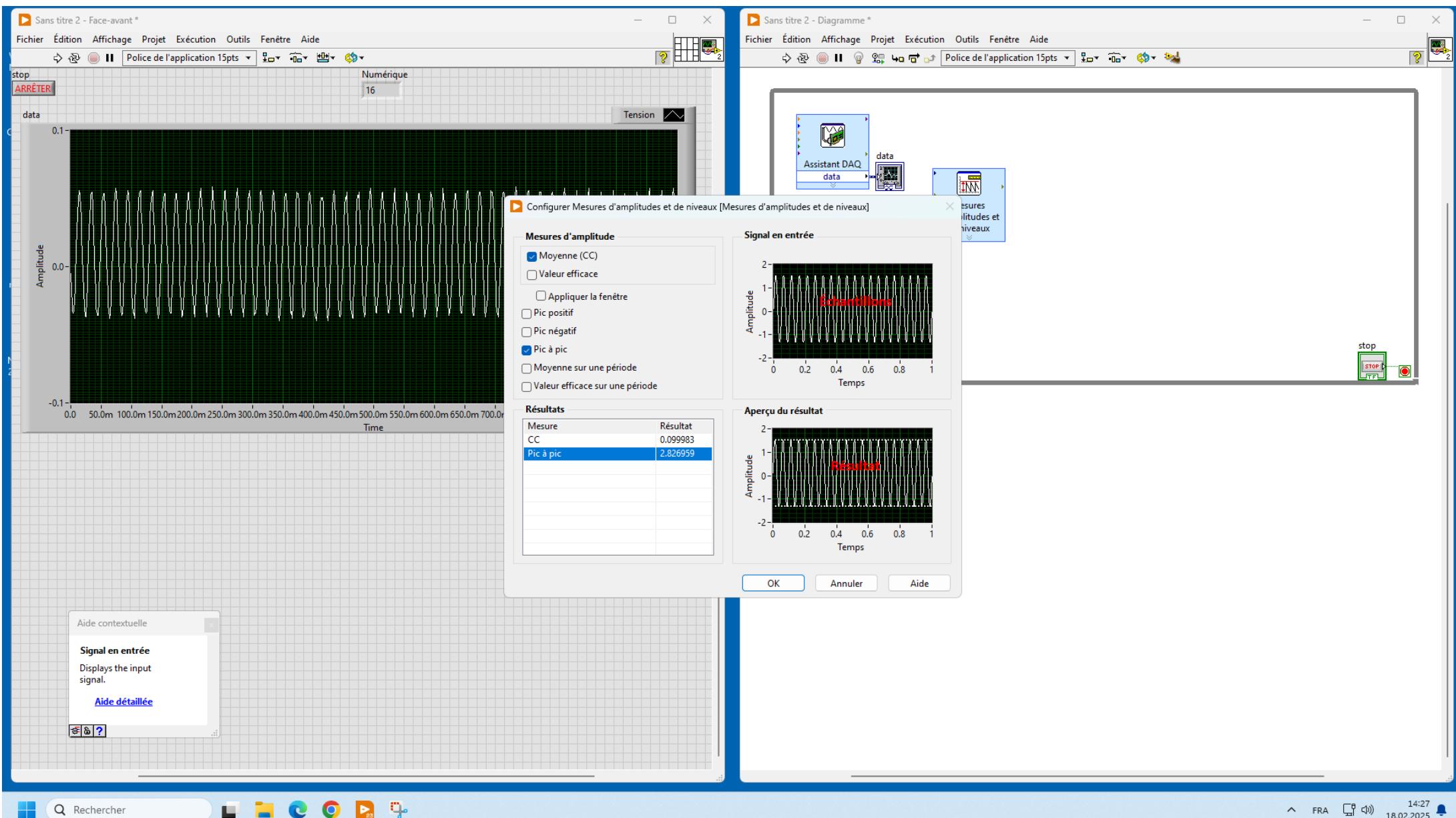


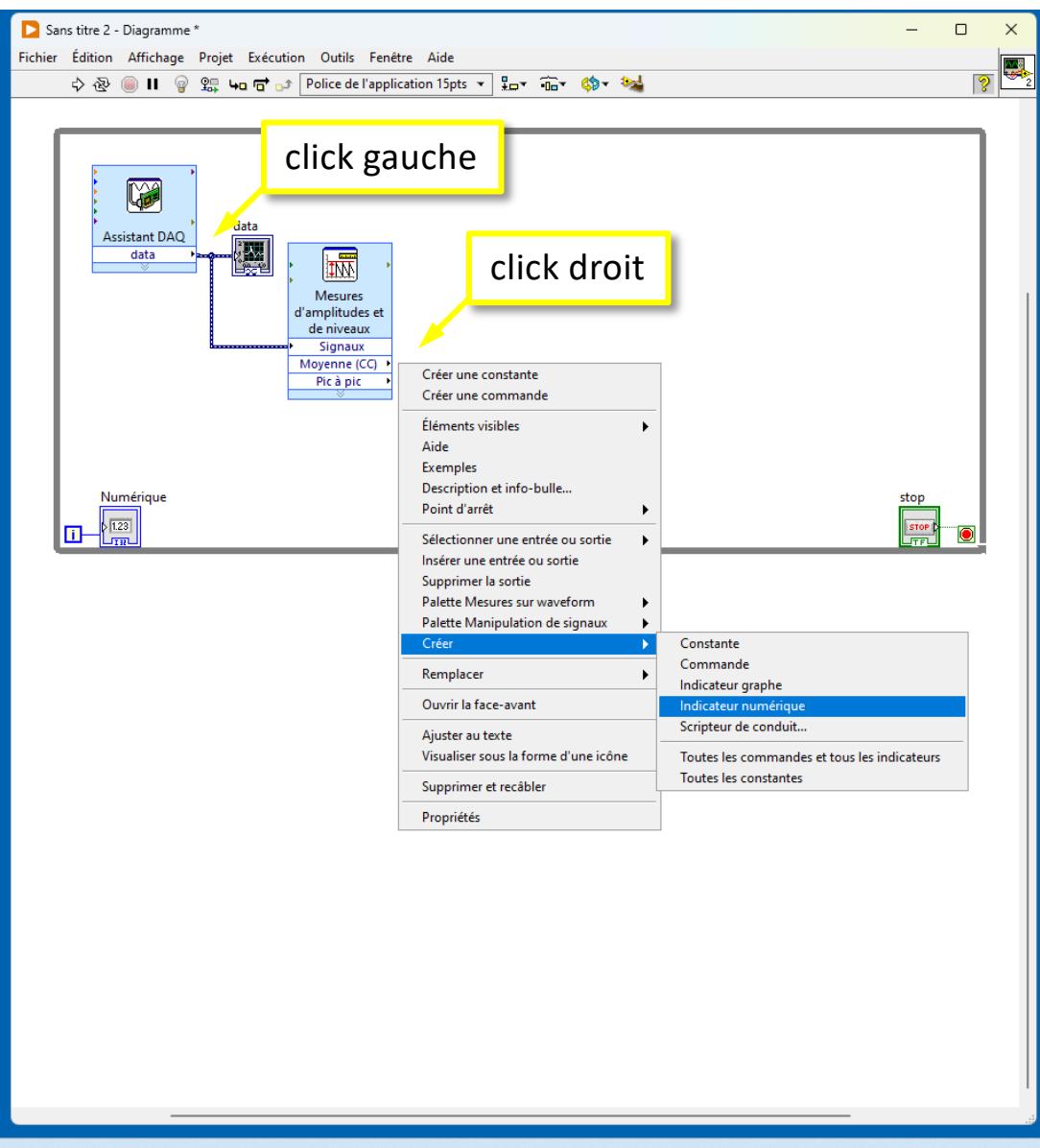
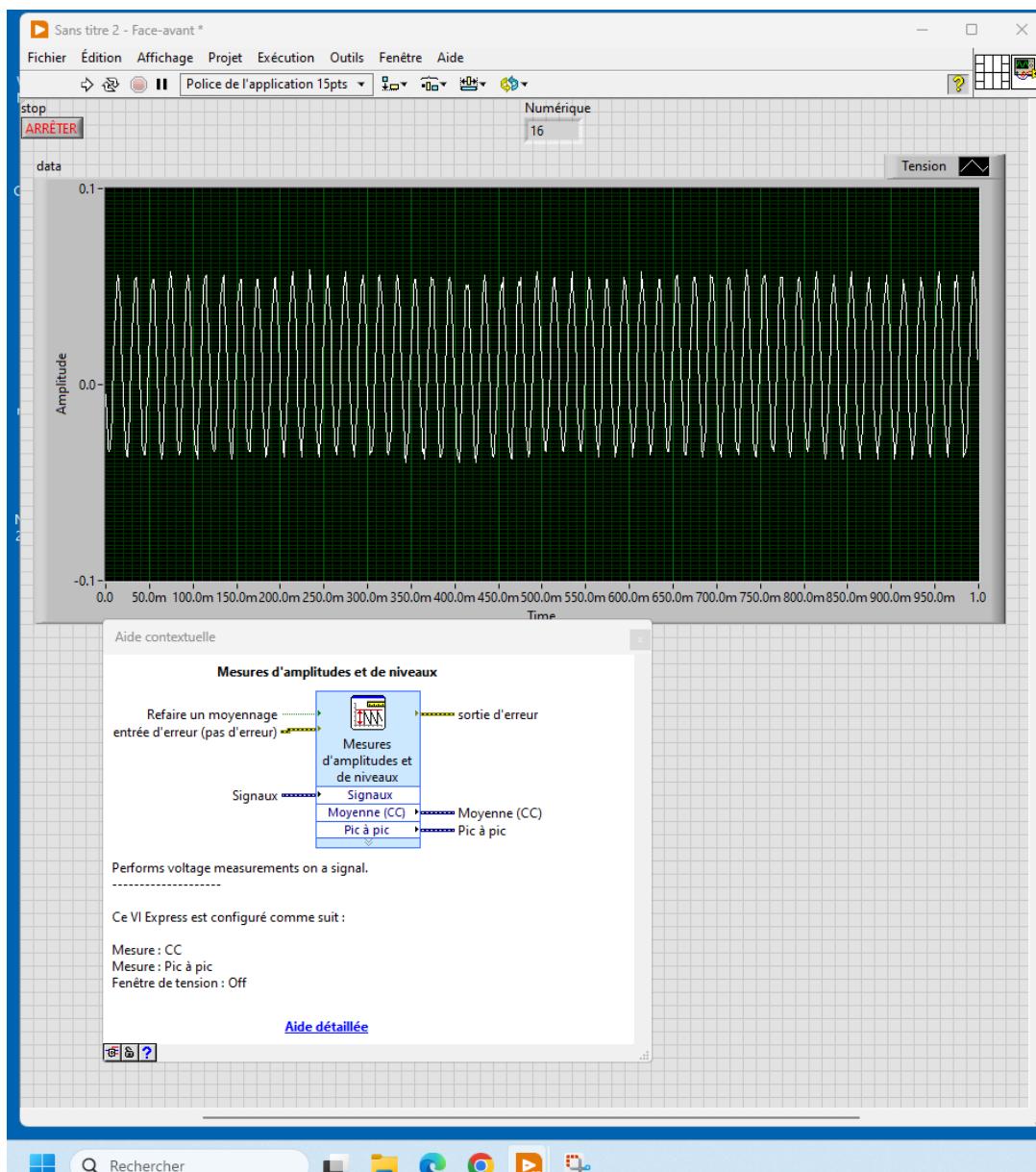


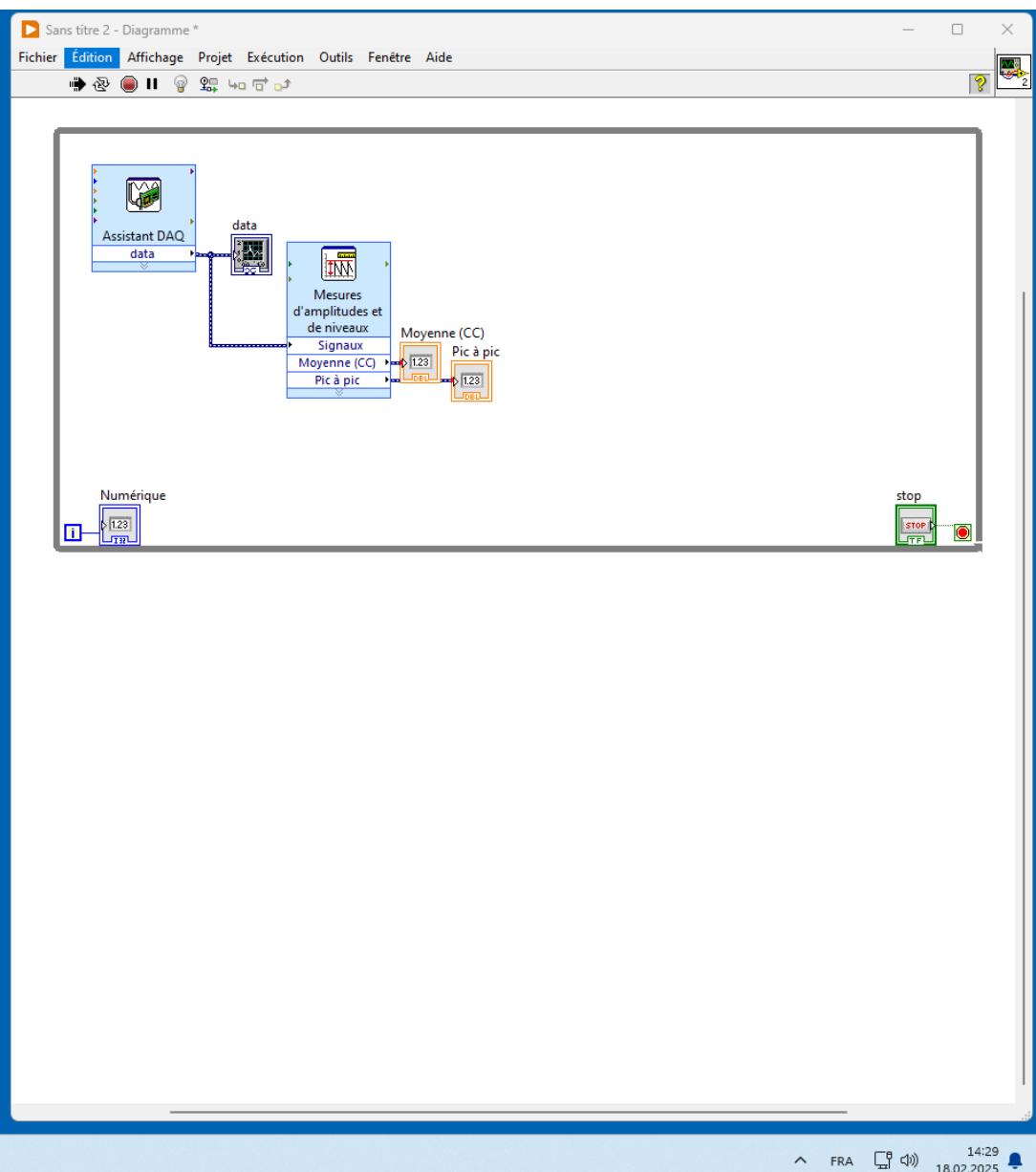
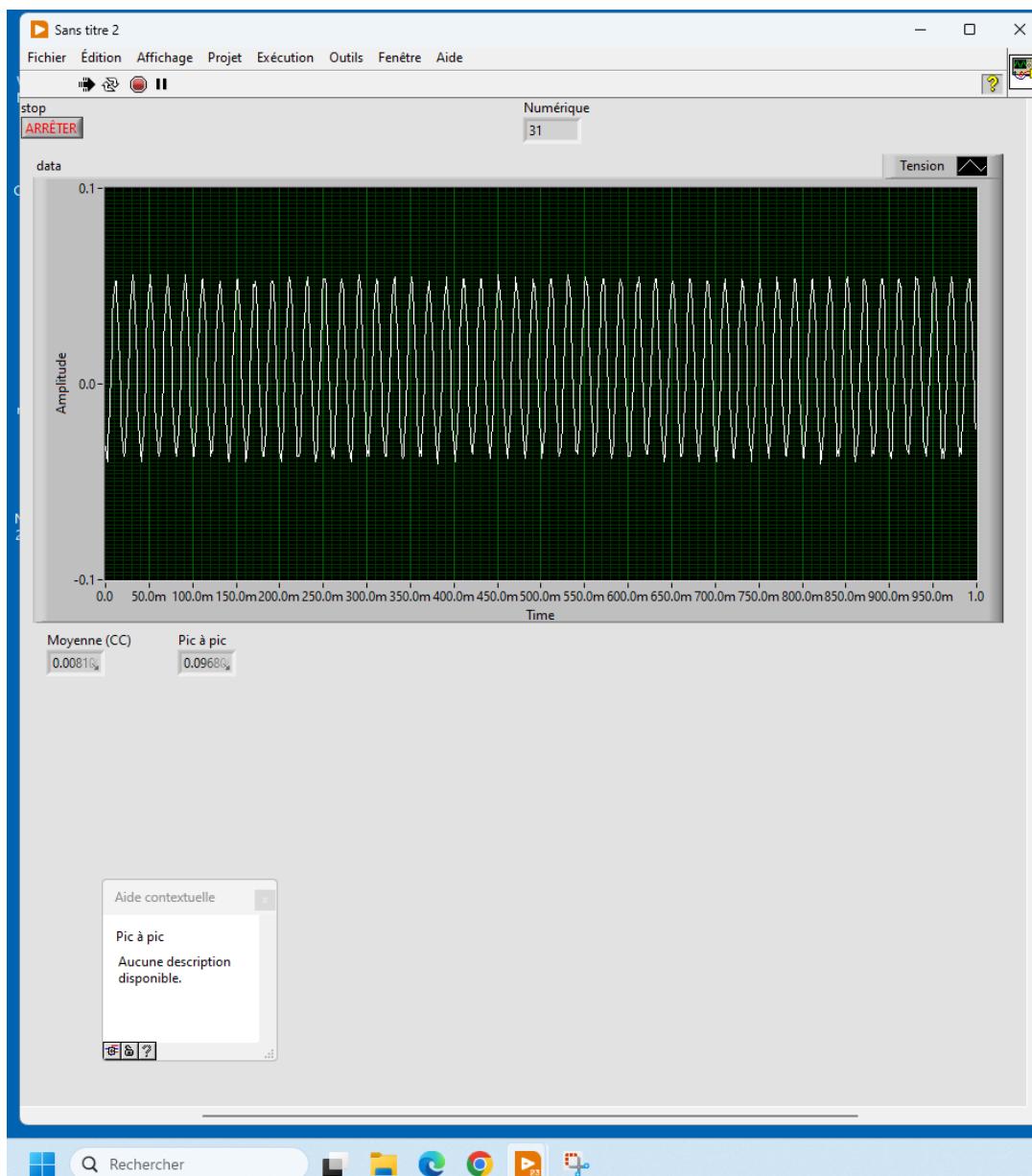


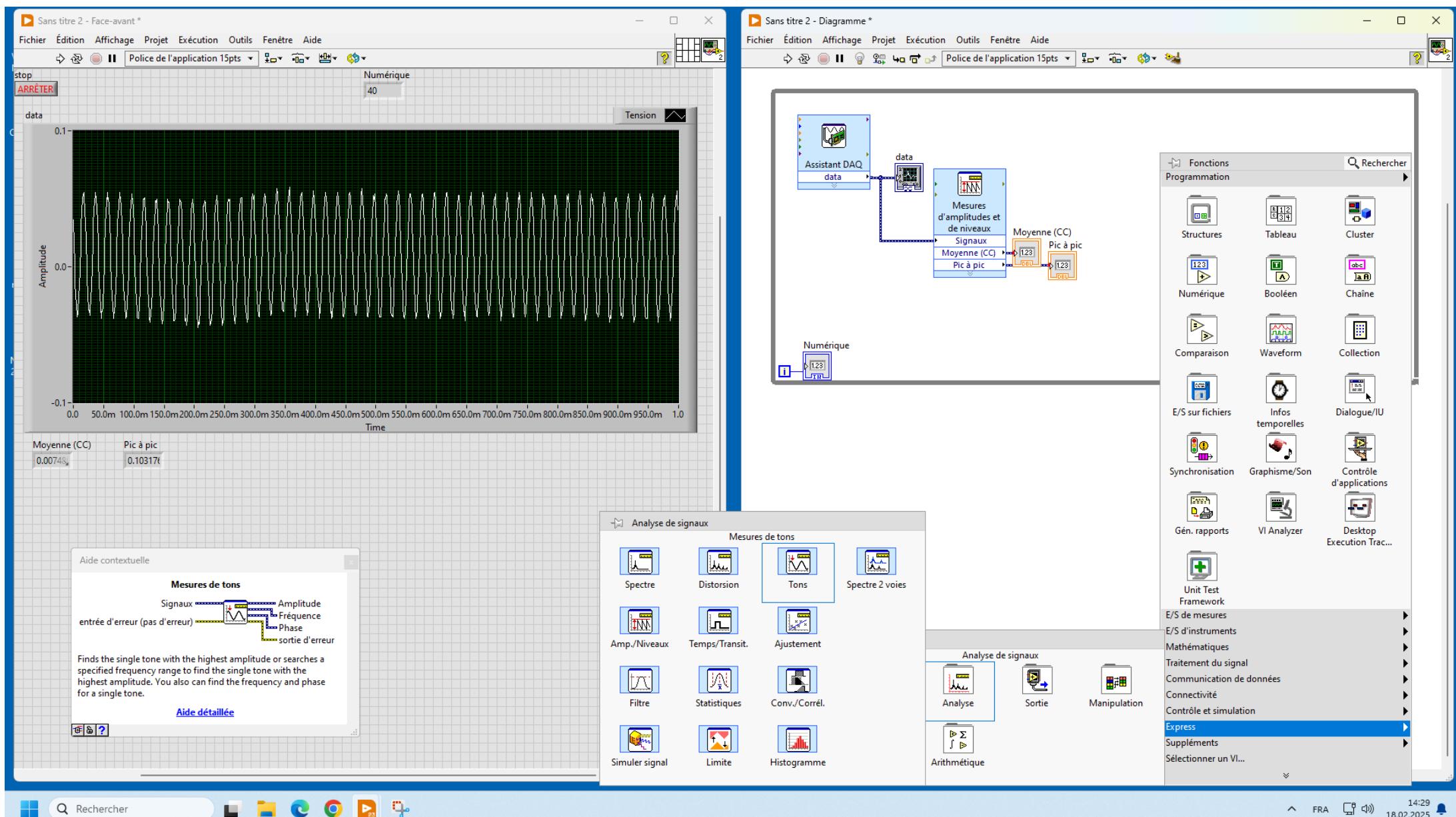


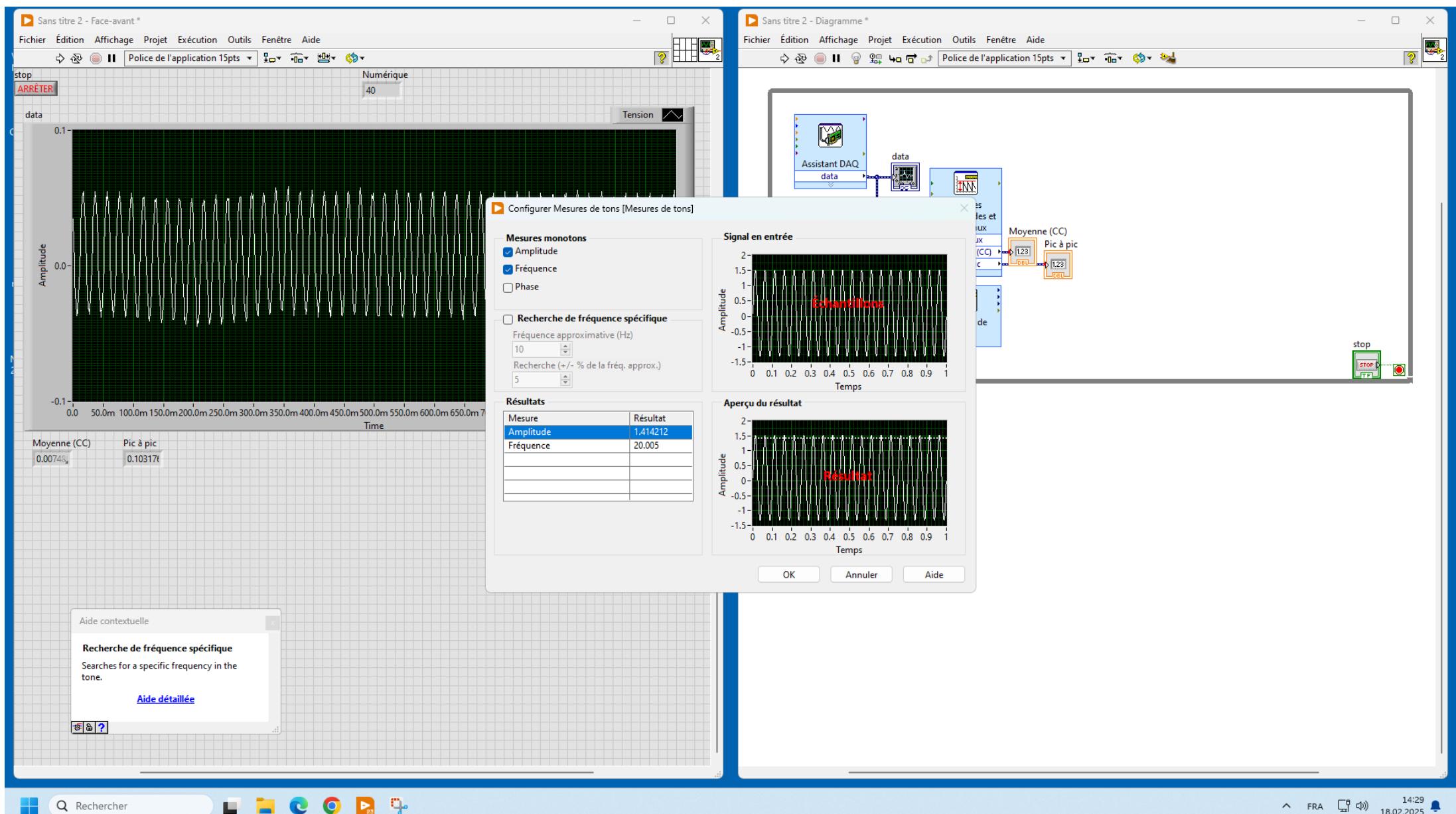


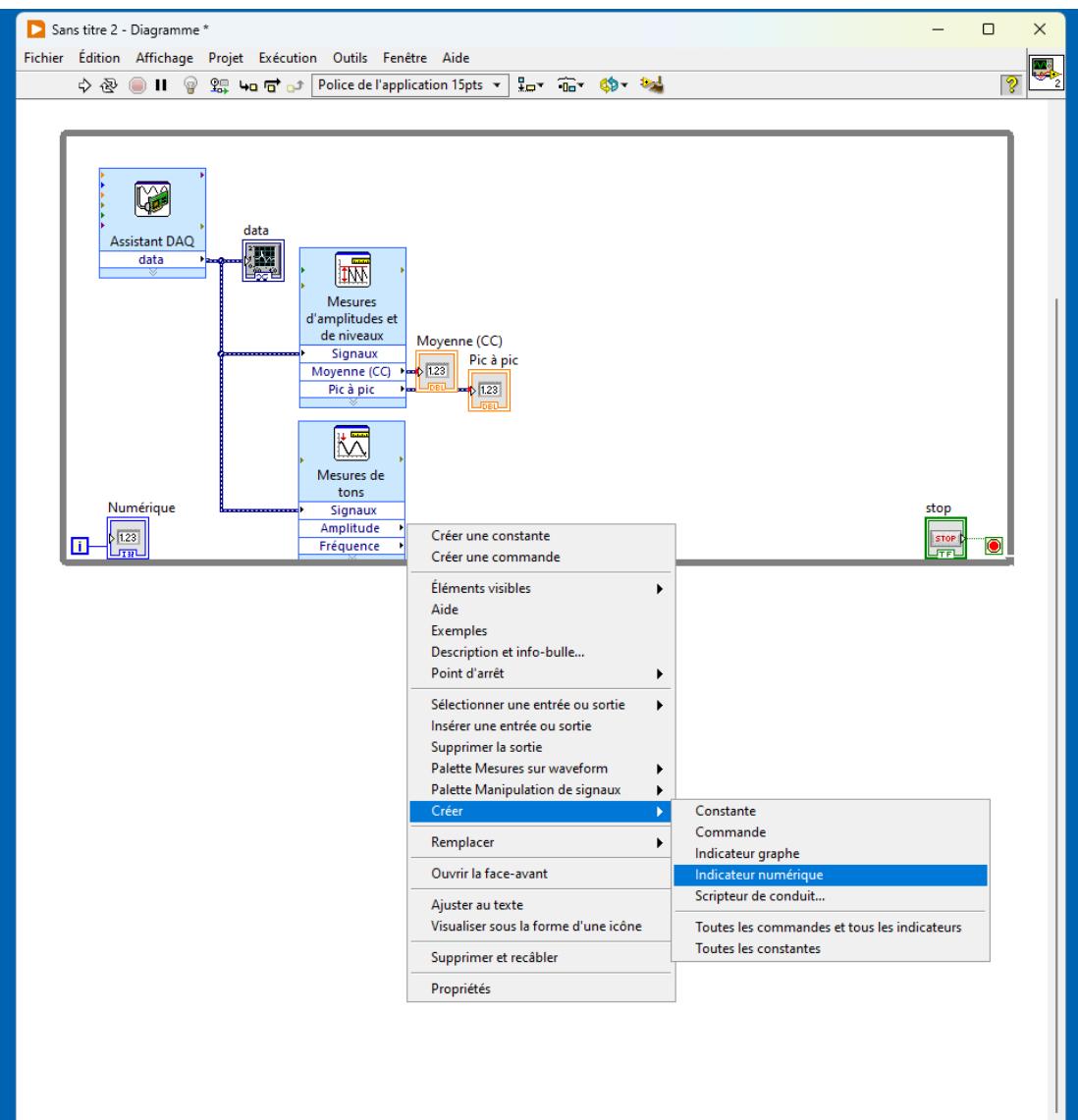
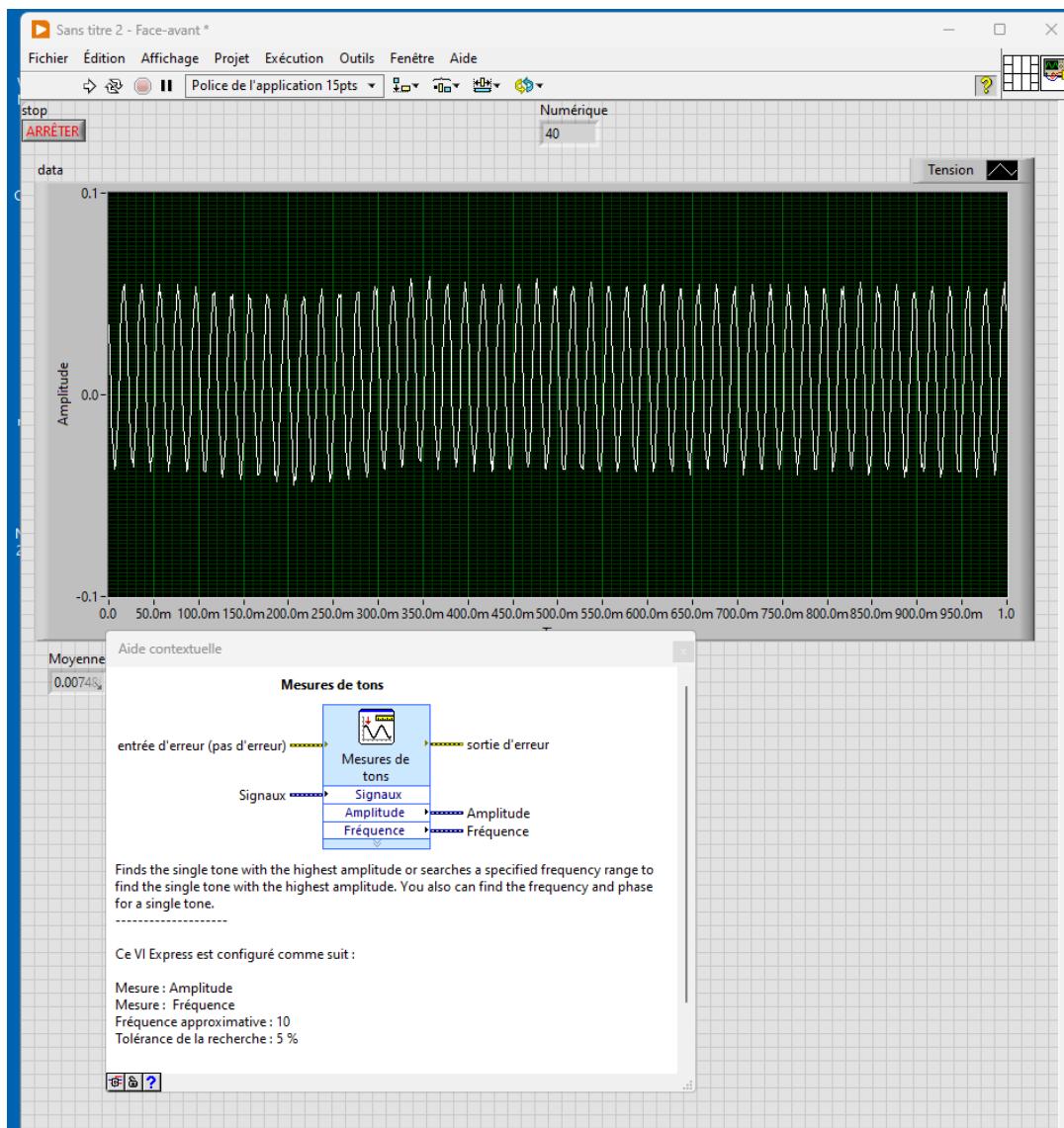


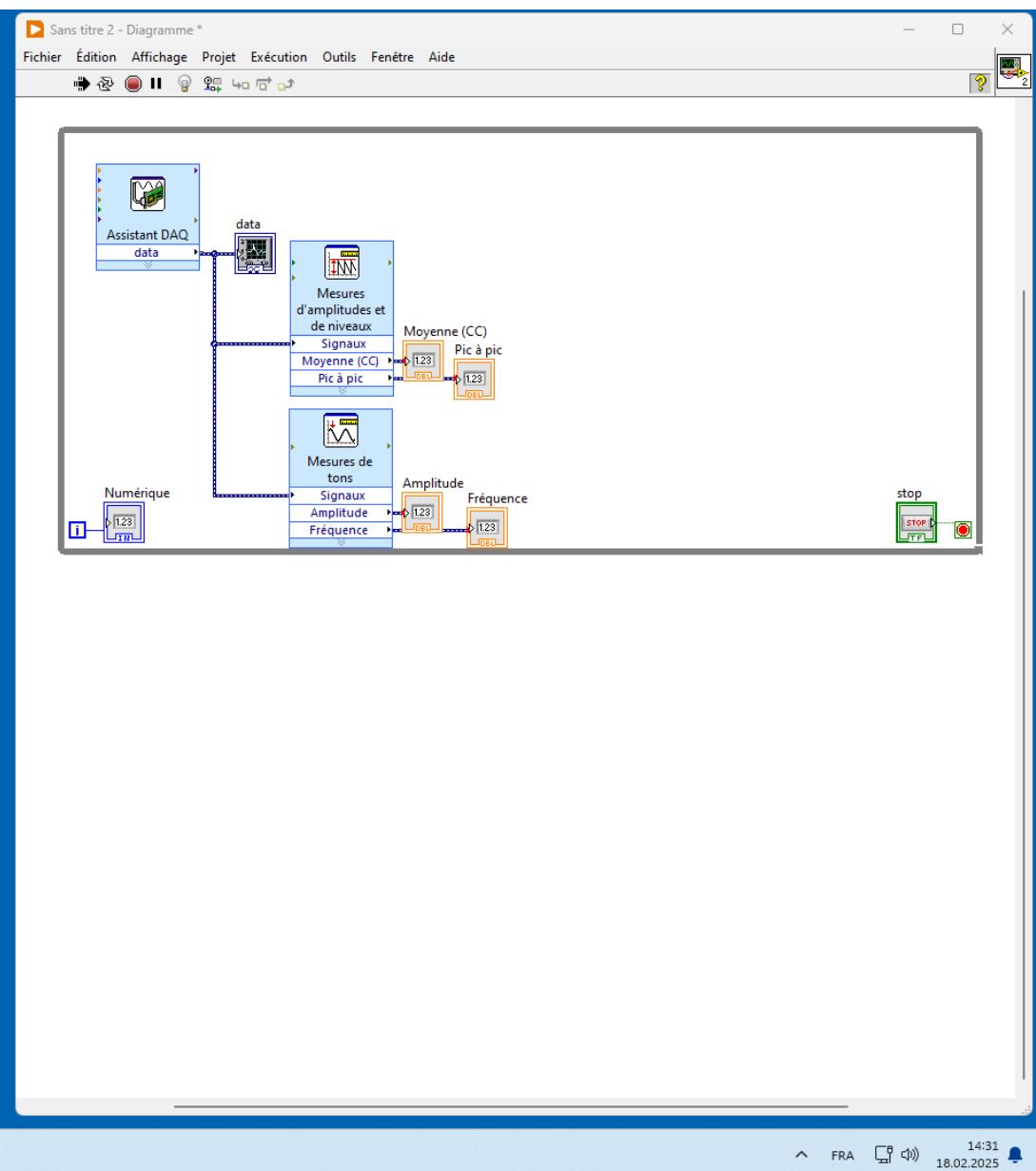
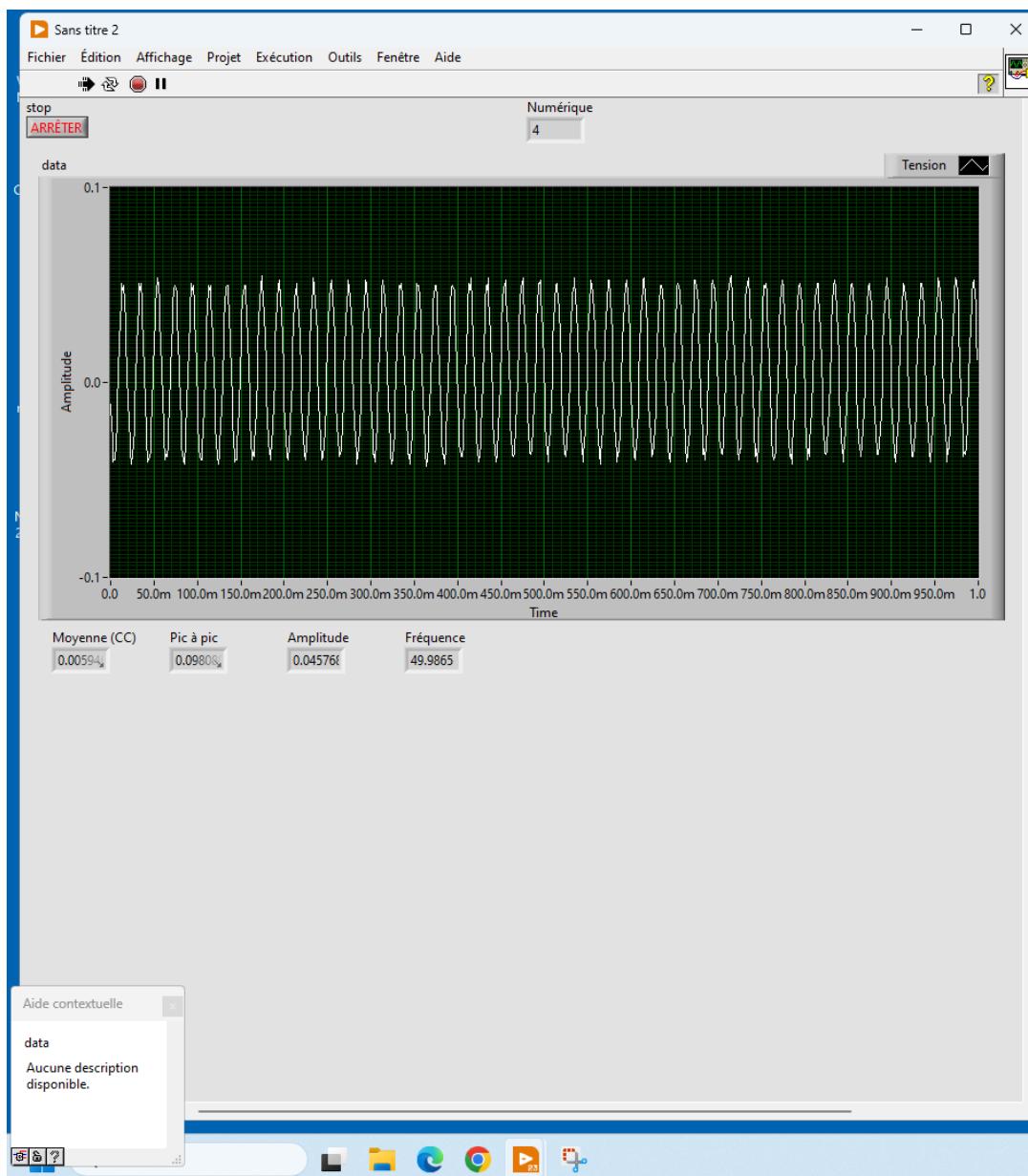


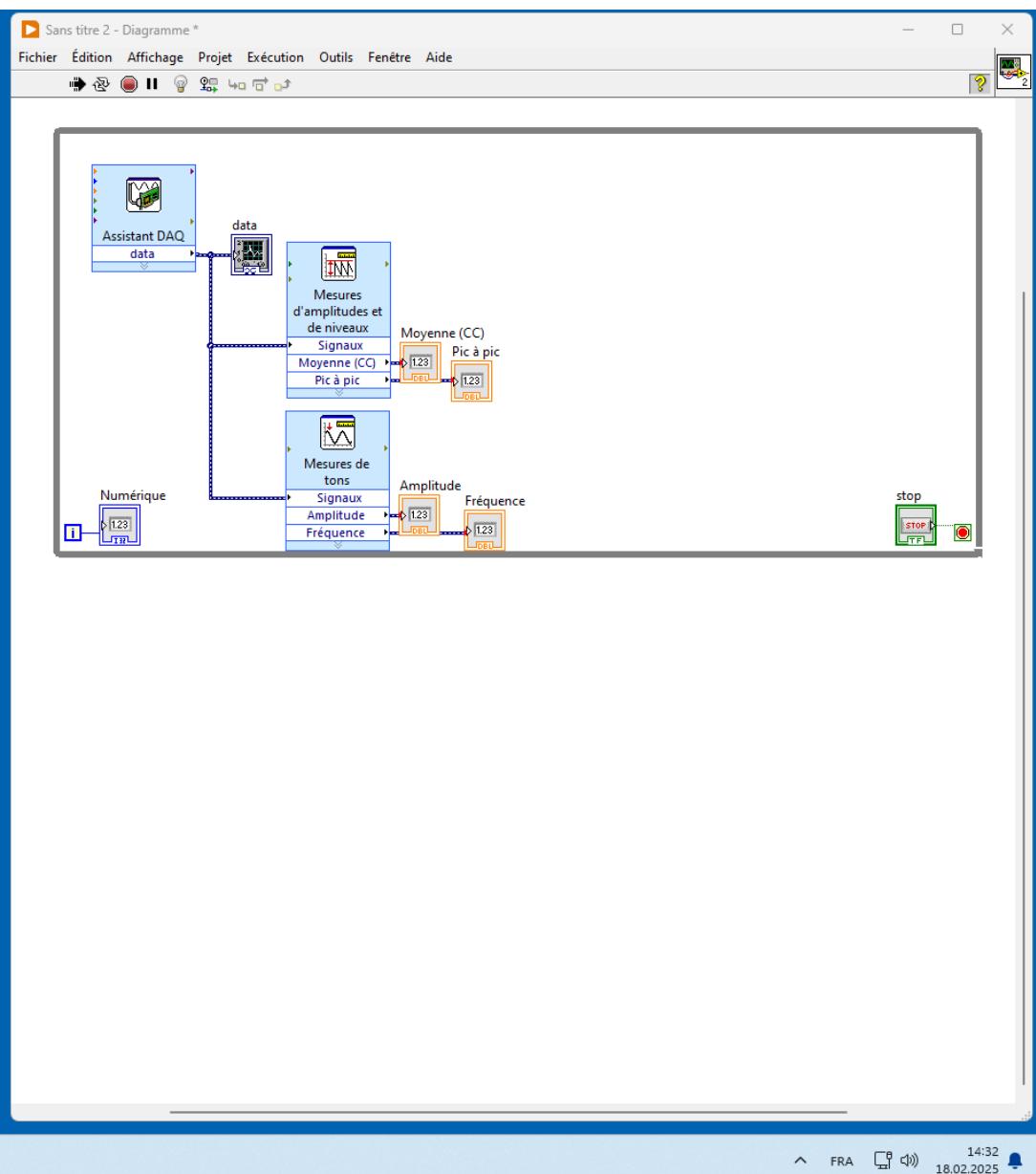
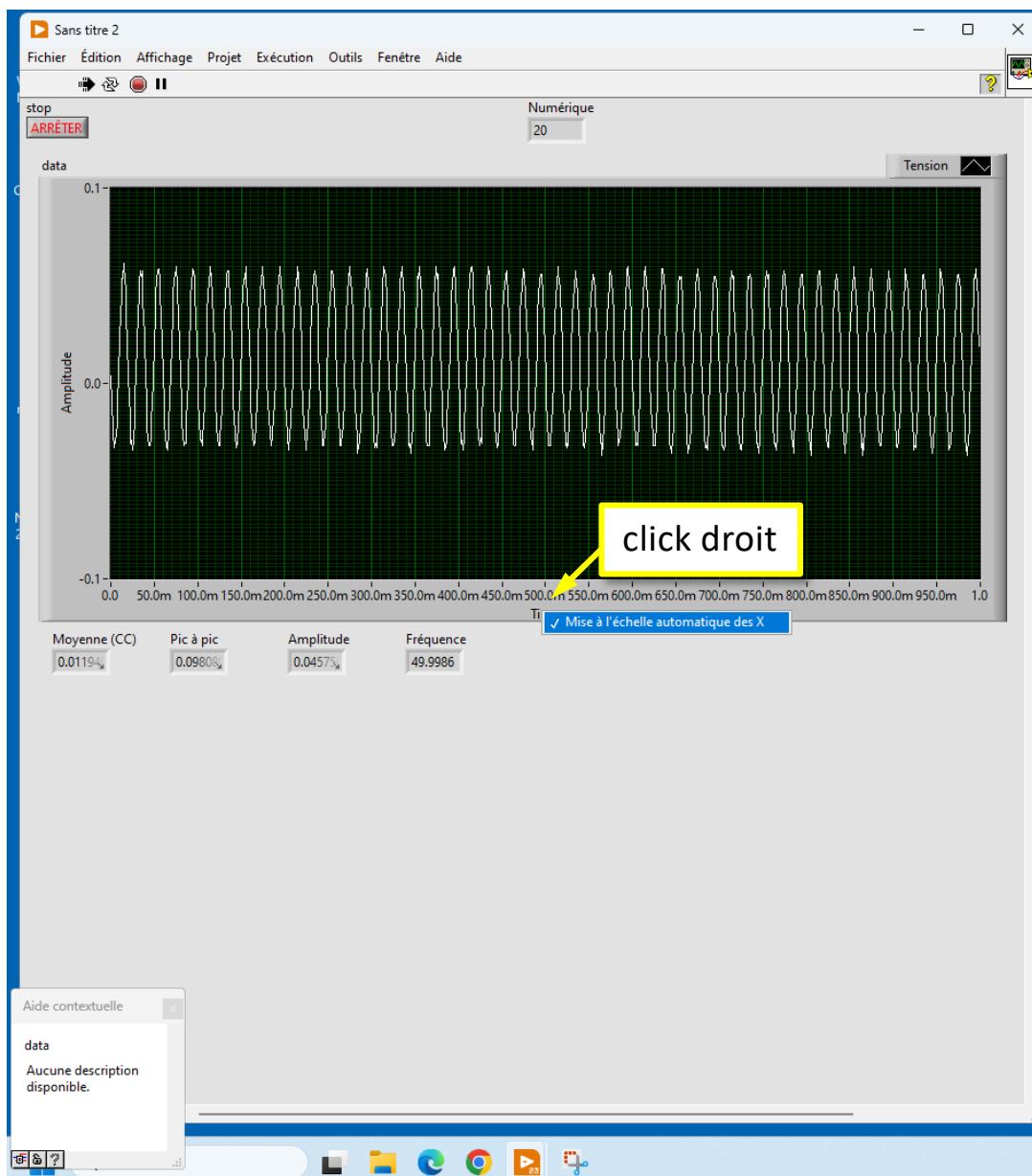


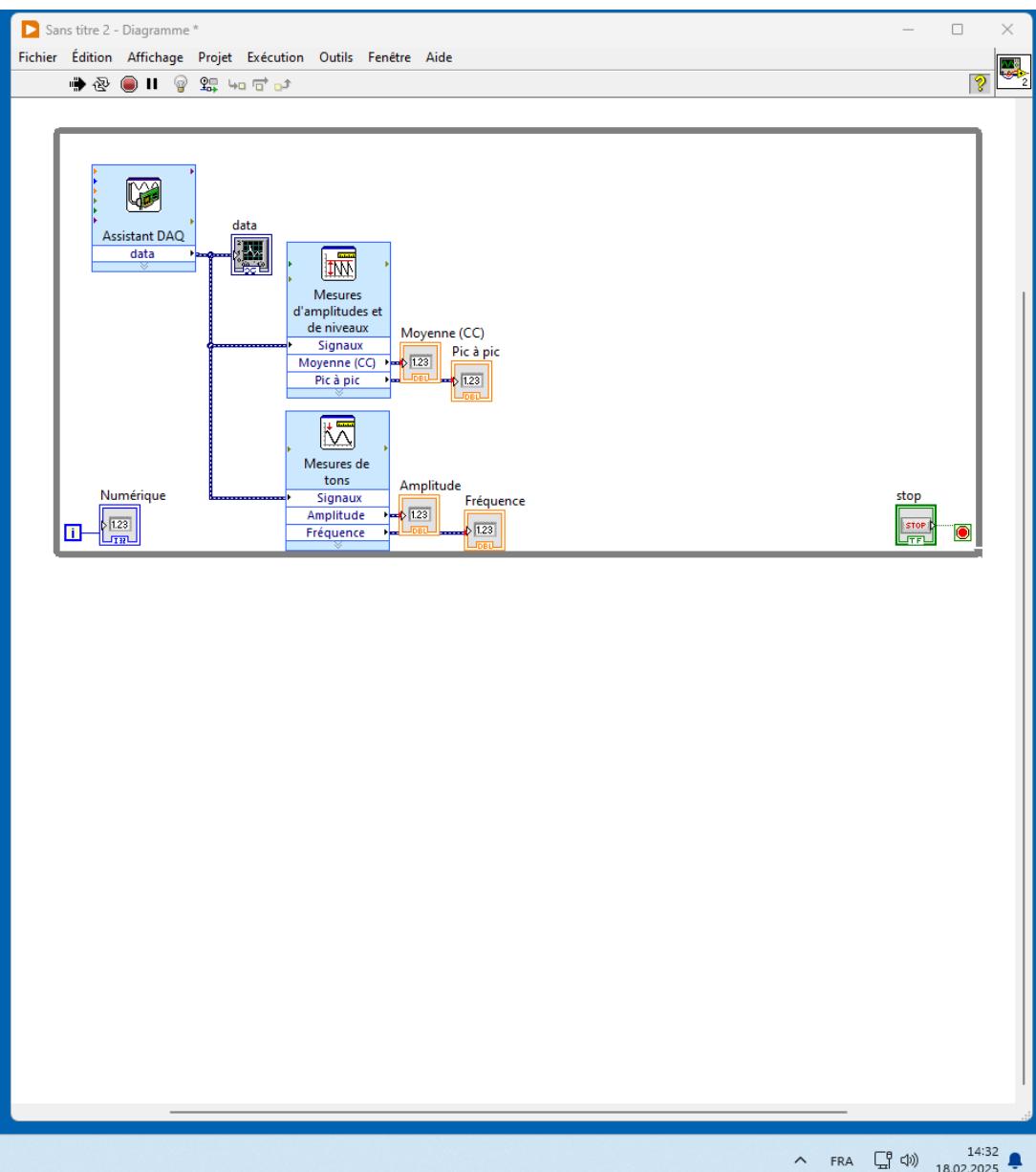
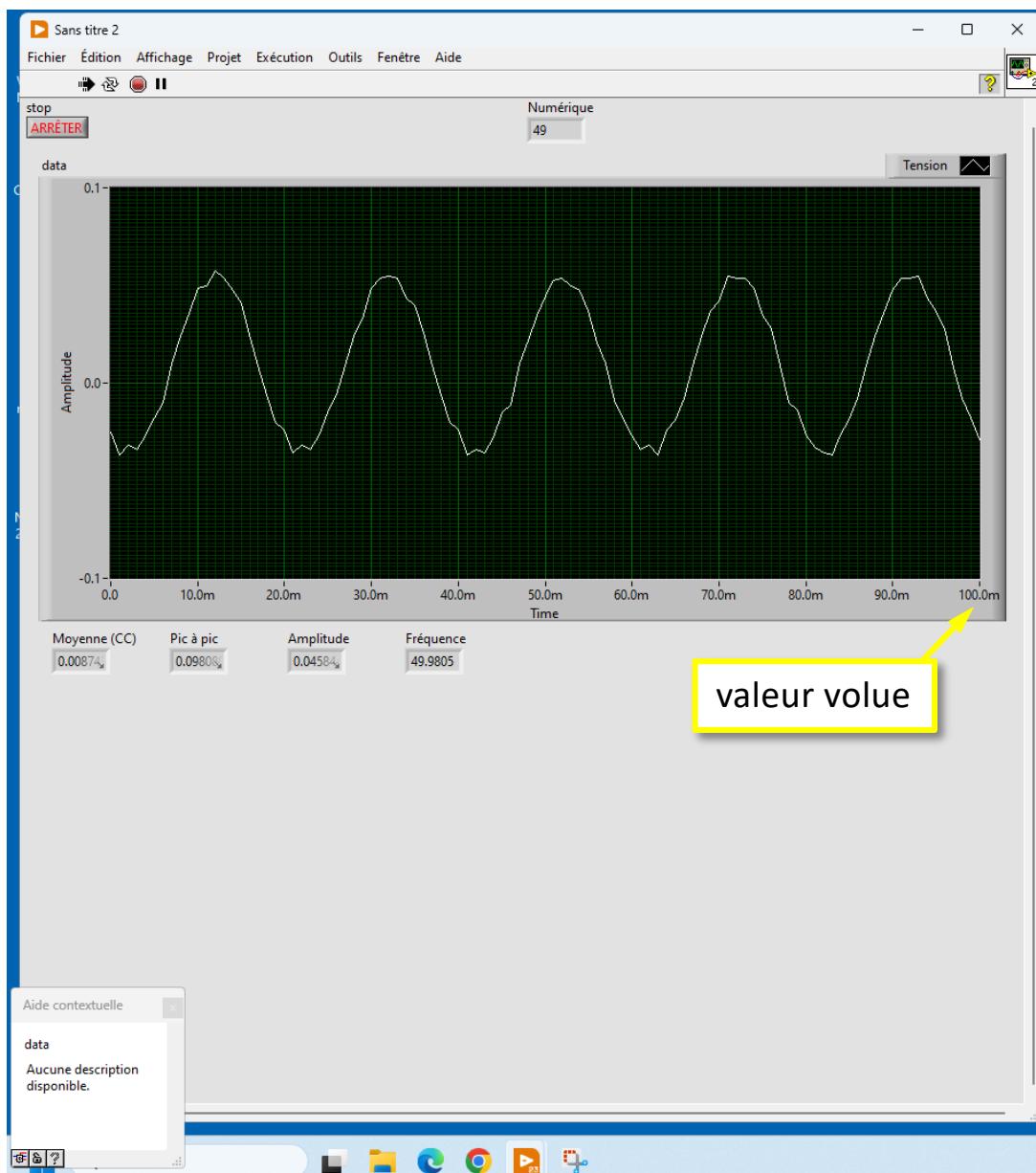


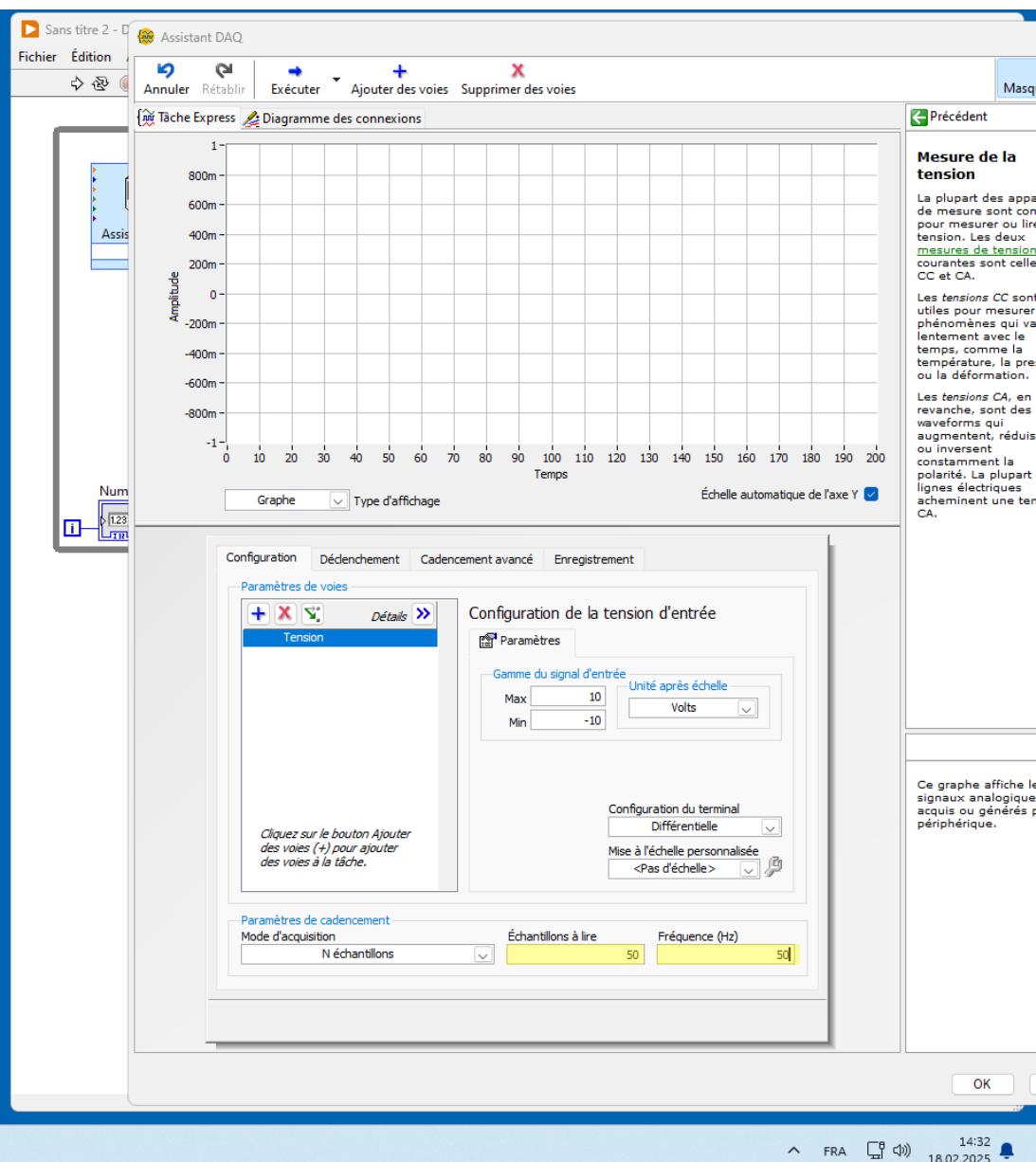
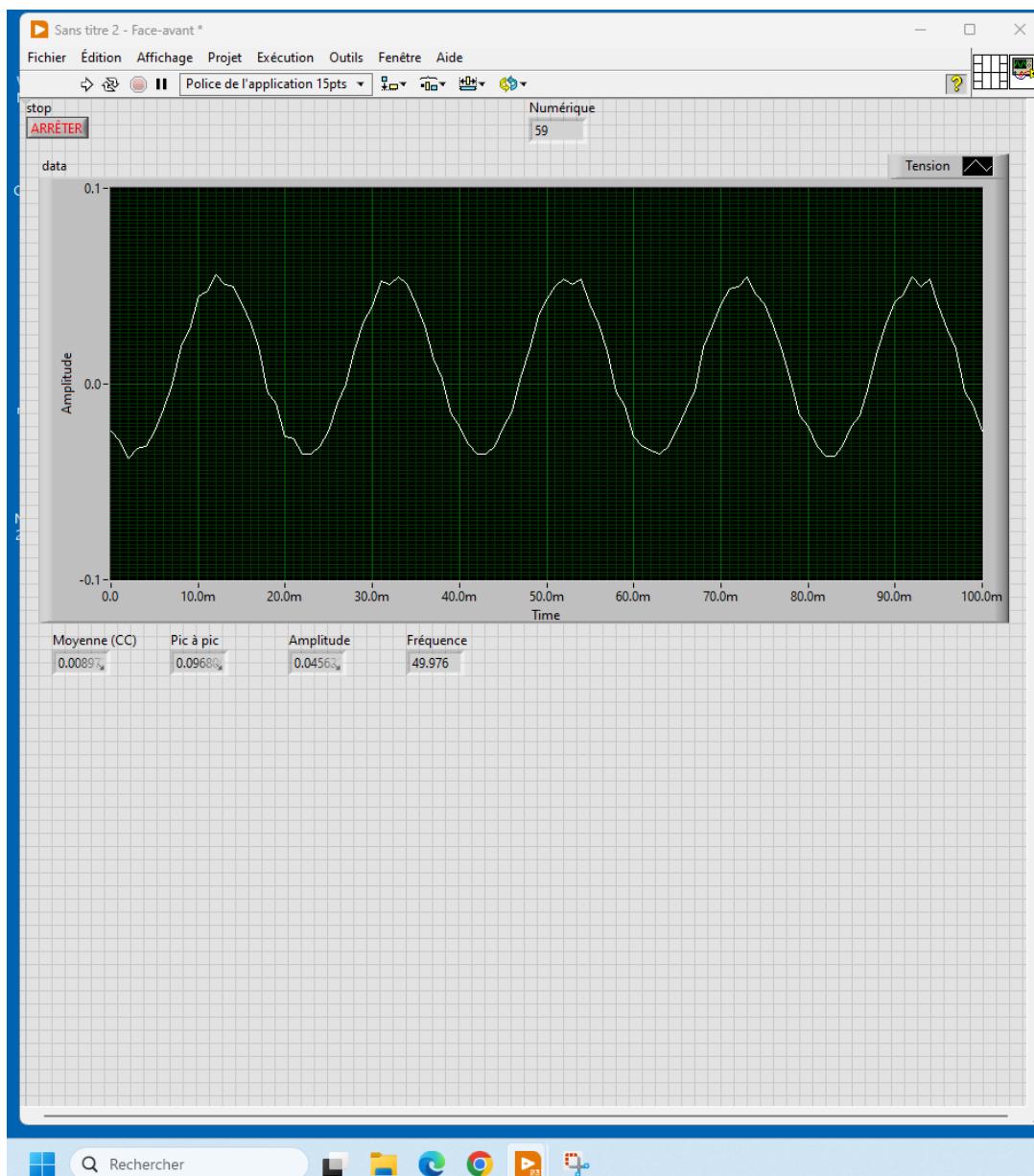


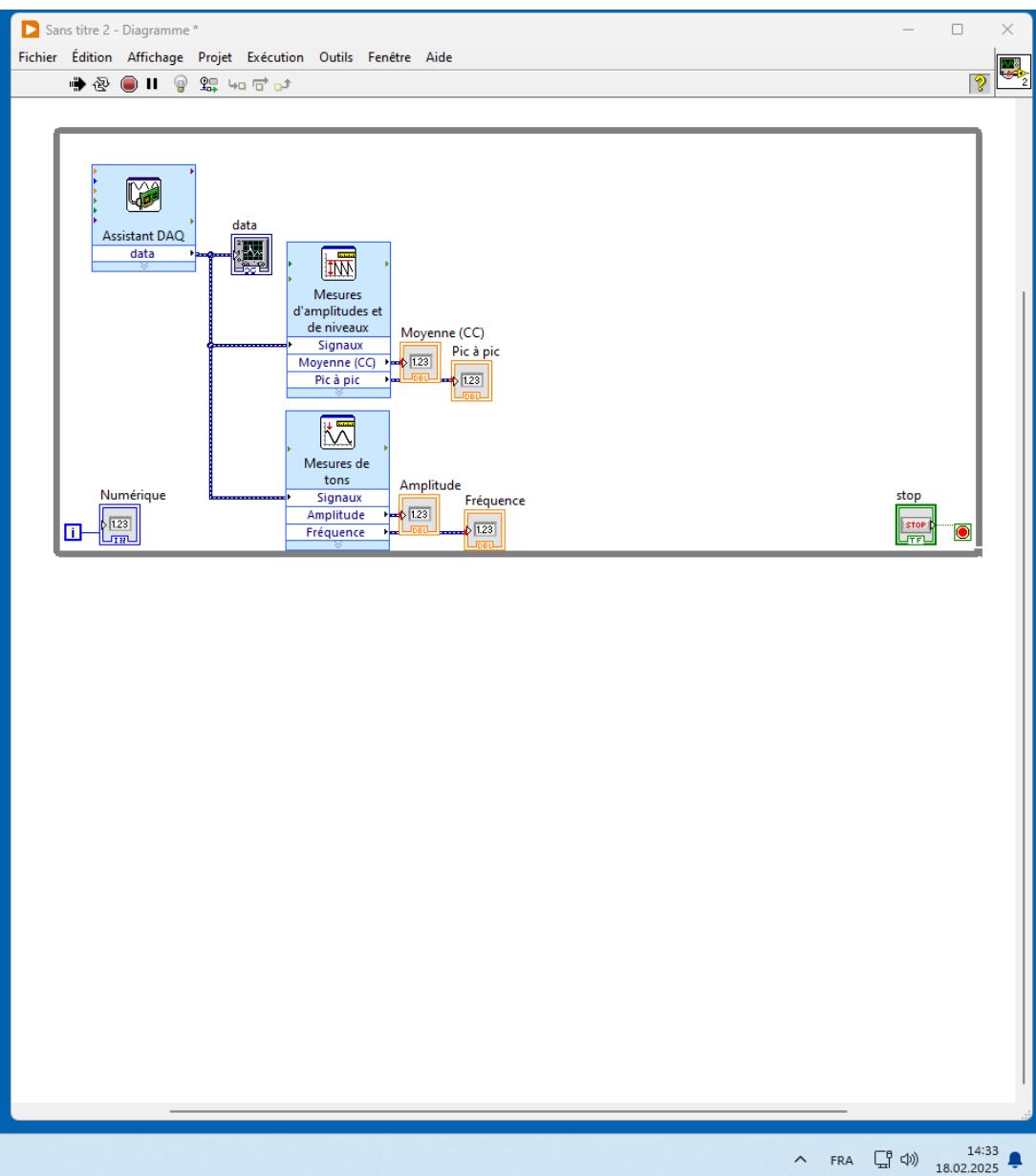
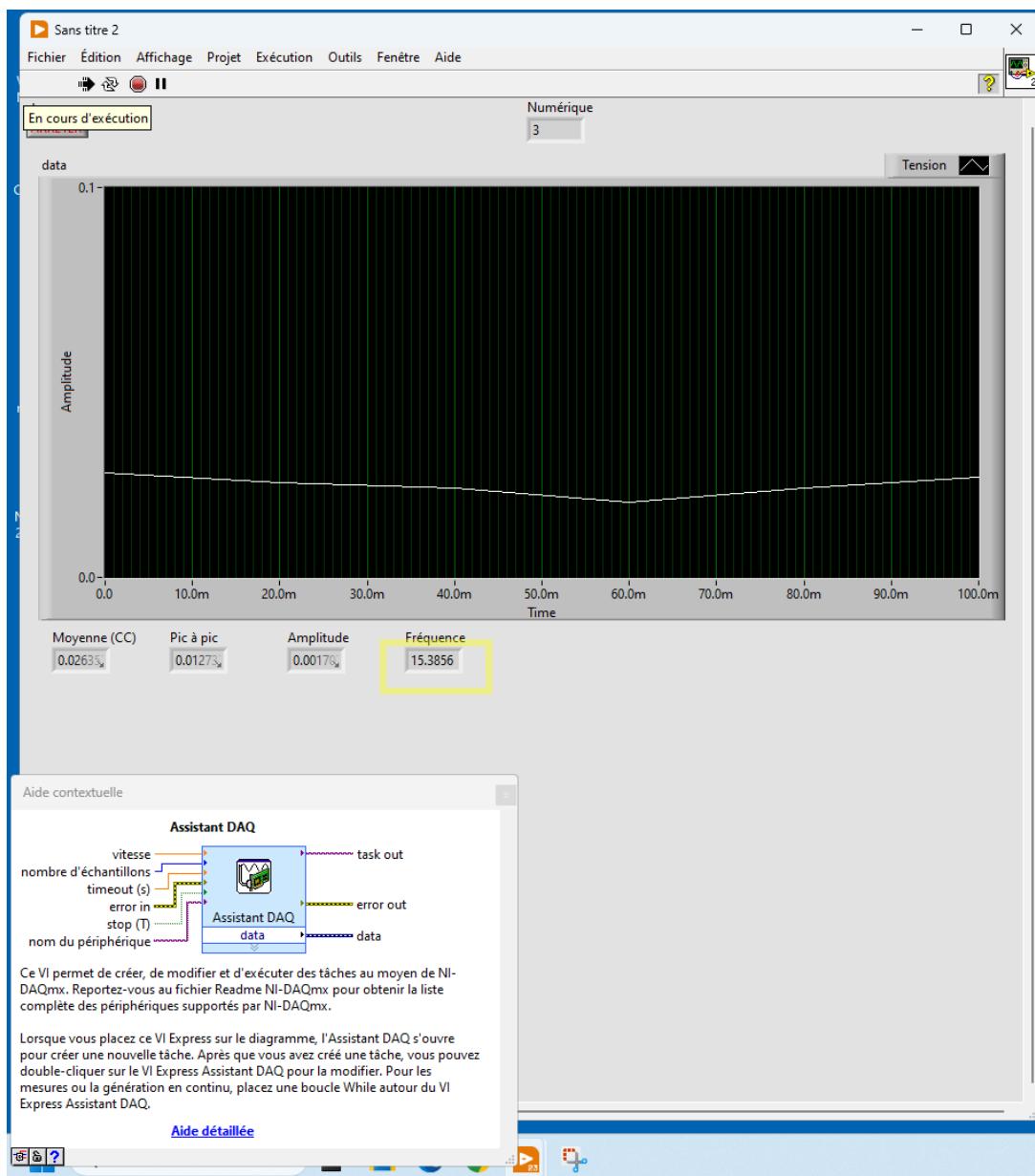


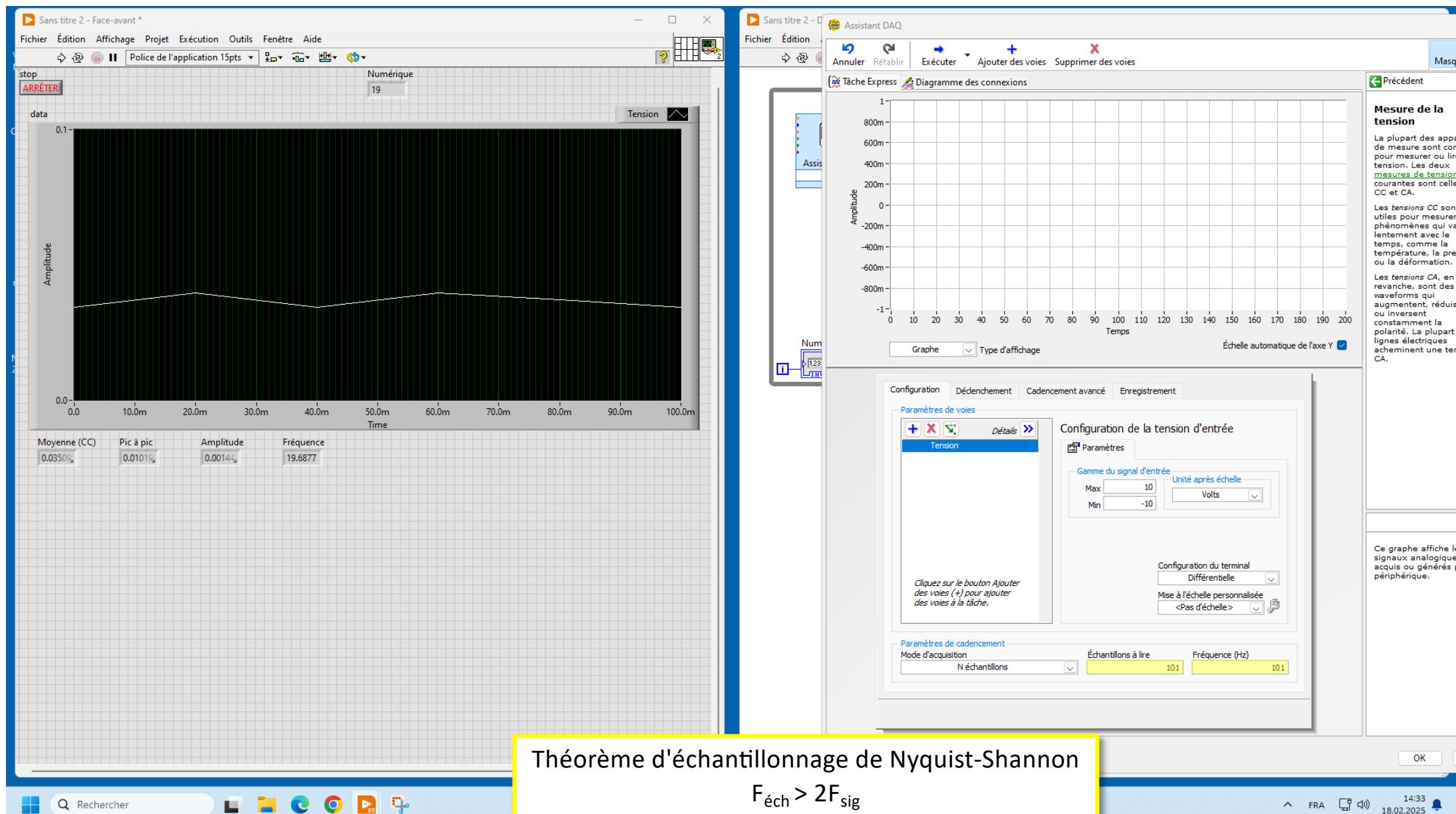


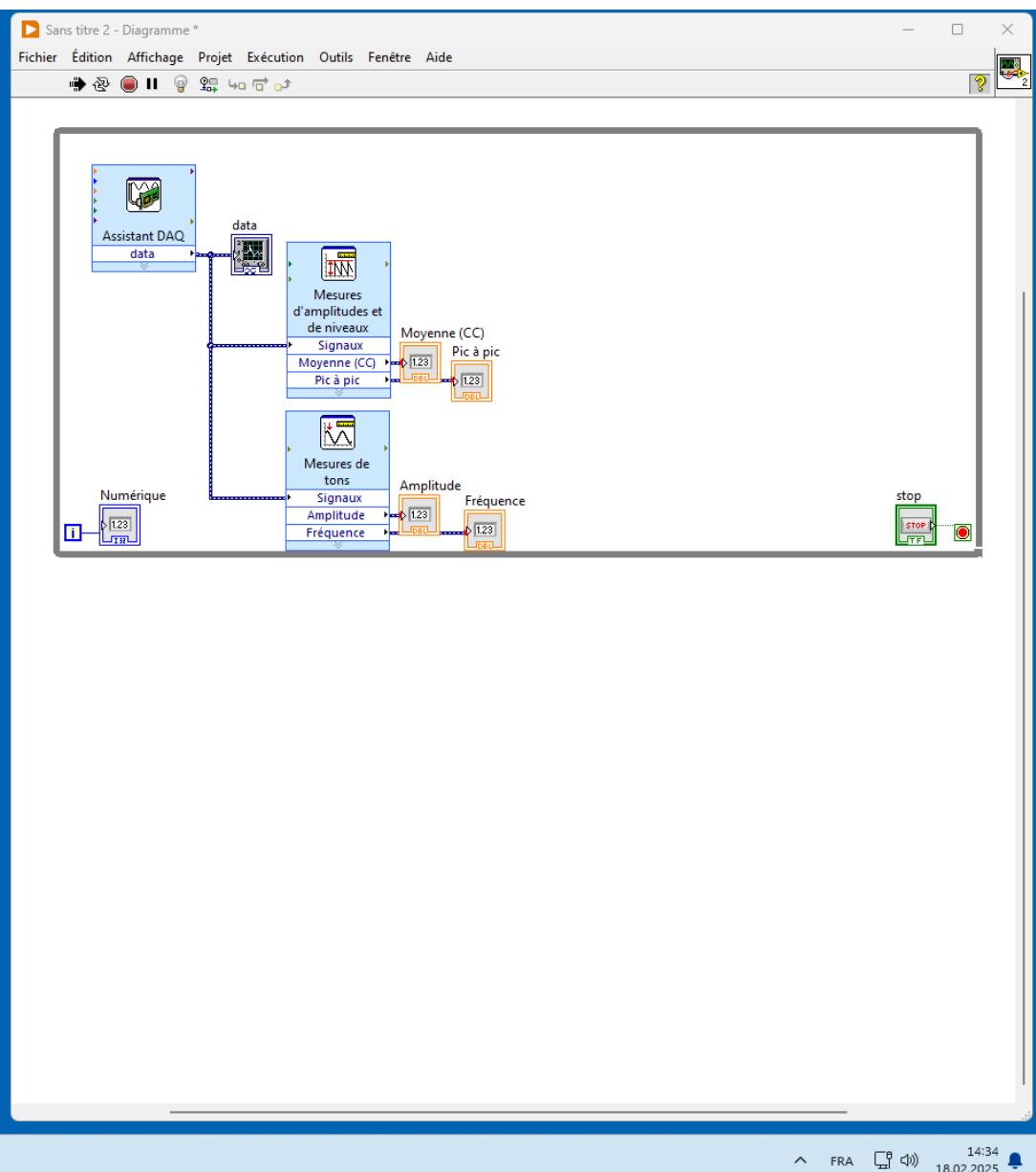
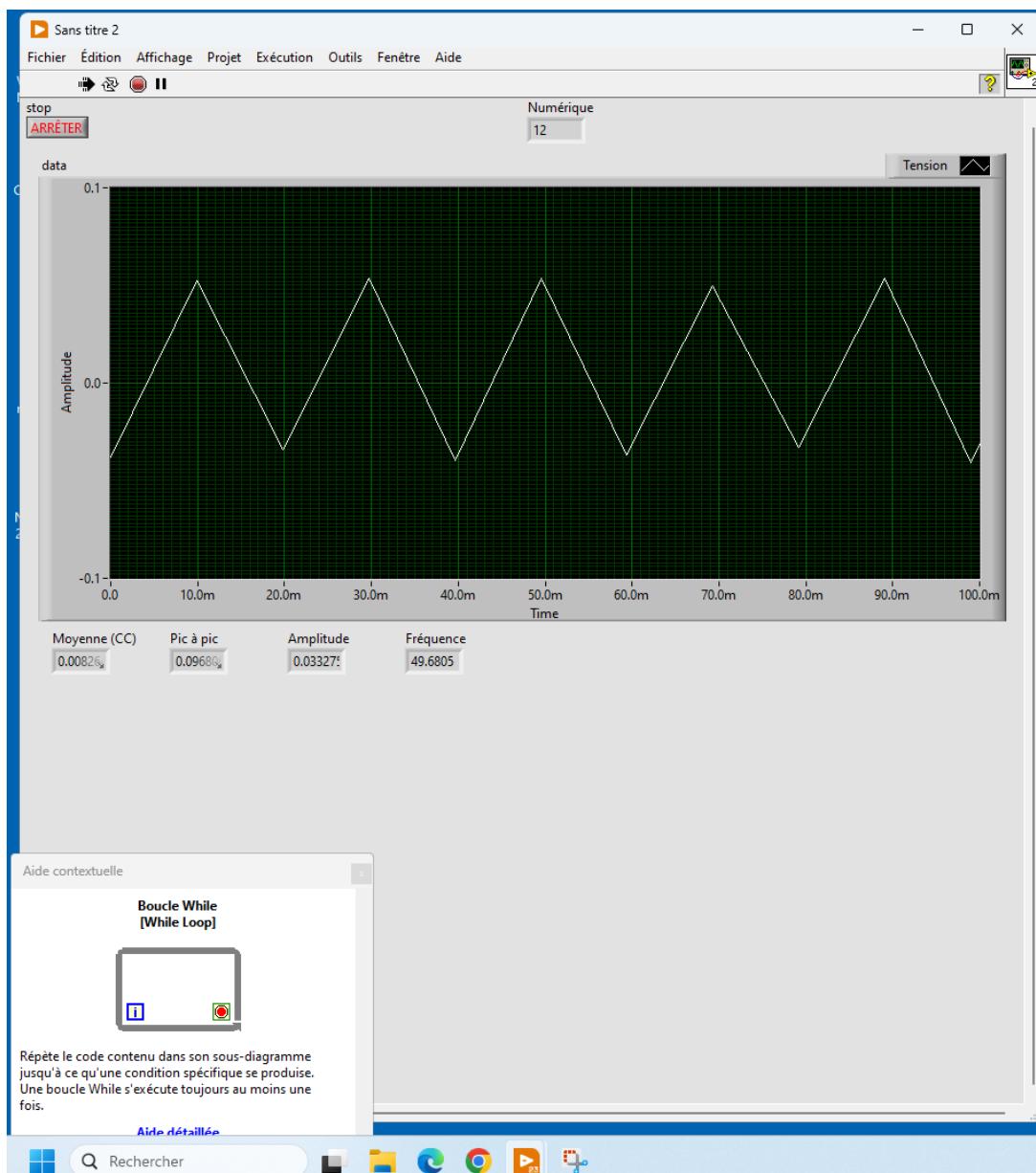


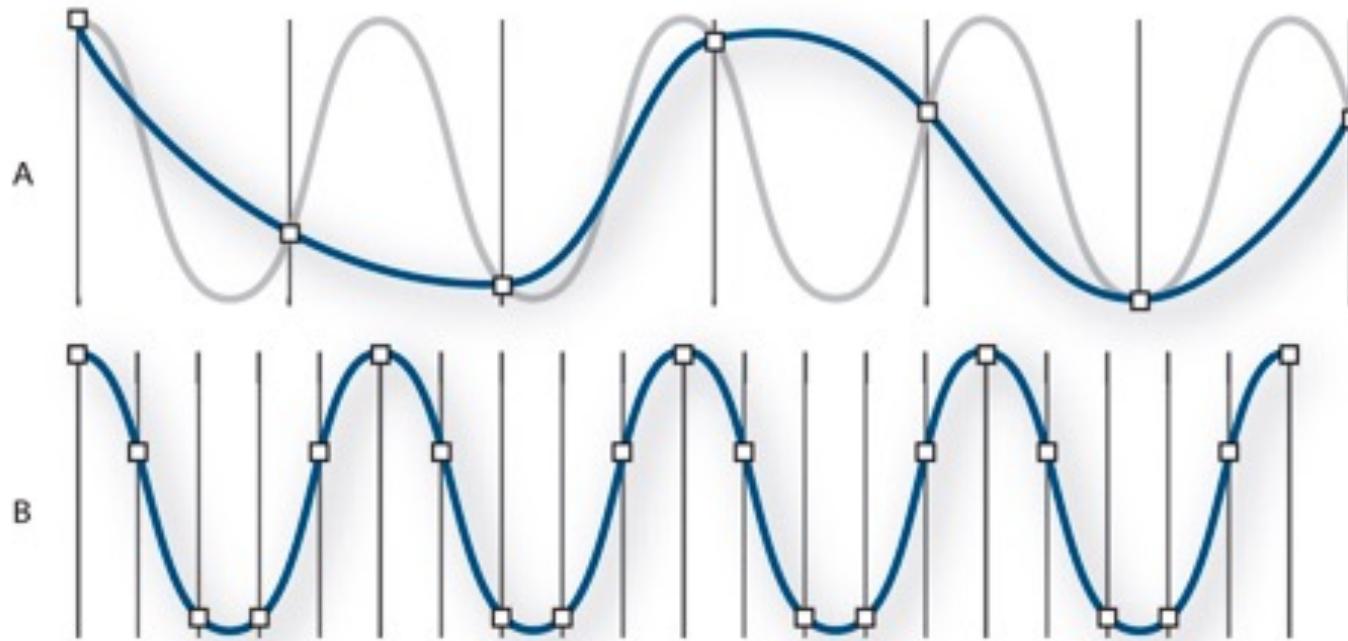












Théorème d'échantillonnage de Nyquist-Shannon

$$F_{\text{éch}} > 2F_{\text{sig}}$$



