

## Application Area: Fundamental

# Automated Sample Handling and Analysis With NOVA: Autolab in Combination With Metrohm Liquid Handling

### Keywords

Automatic burette, Automatic sample handling, Metrohm Autolab, Sample processor, Dosing Interface, Dosino, Magnetic Stirrer, Remote Interface

### Summary

Automatic sample handling and analysis is very convenient for routine measurements on large number of samples. Beyond the obvious time benefit, automatic sample handling solutions also reduce the risk of errors and contamination and reduces exposure to the chemical environment.

Metrohm offers a wide range of high performance liquid handling devices that can be combined with the Autolab product range and can be directly controlled by the NOVA software. This allows for an easy integration of Metrohm devices with electrochemical measurements using Autolab instruments, Figure 1.



Figure 1 – Example of a Metrohm liquid handling setup controlled by NOVA

This application note provides information on the combination of supported Metrohm devices with the NOVA software.

### Supported Metrohm devices

NOVA provides direct control, through USB, for the following type of Metrohm devices:

- 814, 815 and 858 Sample Processors
- 846 Dosing Interface

These devices can be connected to the host computer using the provided control cable (Article code: 6.2151.000).

Moreover, additional Metrohm devices can be connected through a dedicated MSB port to these USB controlled devices. The following MSB devices can be used:

- 800 Dosino (1 MSB port required)
- 801 Magnetic stirrer
- 6.2148.010 Remote interface, which provides control of additional Metrohm devices, like the 849 Level Control for bottles or canisters

### Metrohm 814, 815 and 858 Sample Processors

The Metrohm 814, 815 and 858 Sample Processors provide three MSB ports on the backplane of the instrument, as shown in Figure 2, which can be used to connect additional Metrohm devices.

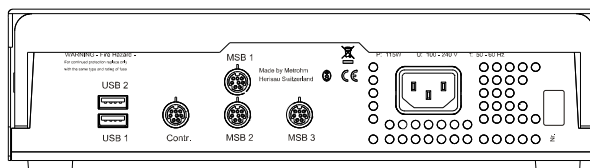


Figure 2 – The MSB ports (MSB 1 – 3) located on the backplane of the Metrohm sample processor

The Metrohm Sample Processors can also accommodate the following additional devices:

- 786 Swing head
- 802 Stirrer
- 823 Membrane pump
- 772 Peristaltic pump
- 843 Pump station (membrane or peristaltic)

### Metrohm 846 Dosing Interface

The Metrohm 846 dosing interface provides four MSB ports on the backplane of the instrument, as shown in Figure 3, which can be used to connect additional Metrohm MSB devices.

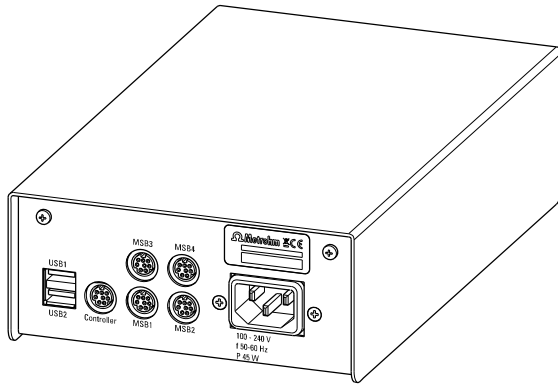


Figure 3 – The MSB ports (MSB 1 – 4) located on the backplane of the Metrohm 846 Dosing Interface

### Software control

The settings of all the supported Metrohm devices can be defined and stored in the NOVA software. Each Metrohm device connected to NOVA is shown in the Instruments section of the NOVA home page (see Figure 6).



Figure 4 – The Instruments section of the NOVA home page.

By double clicking the Metrohm device of interest, the properties of that device are shown. In the example of Figure 5, the properties of the Metrohm 858 Professional Sample Processor are shown.

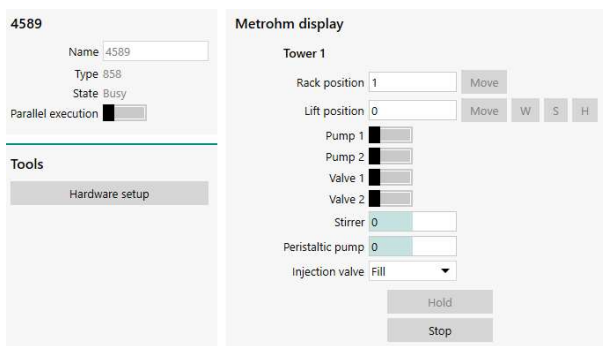


Figure 5 – The properties of the Metrohm 858 Professional Sample Processor.

By clicking the Hardware setup button, the settings of the Metrohm device can be adjusted, the settings will be stored in the NOVA software. In the example of Figure 6, the setting of the Metrohm 858 Professional Sample Processor are shown.

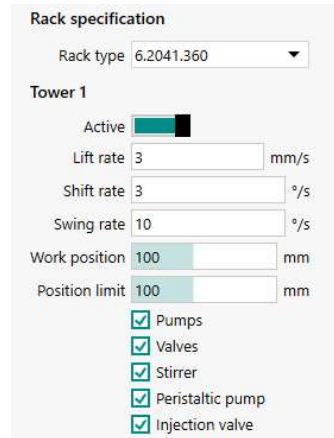


Figure 6 – The settings of the Metrohm 858 Professional Sample Processor are defined and stored in the NOVA software

Manual control is provided by a dedicated control panel accessible by double clicking on the Metrohm device in the Instrument section of NOVA home page, Figure 7.

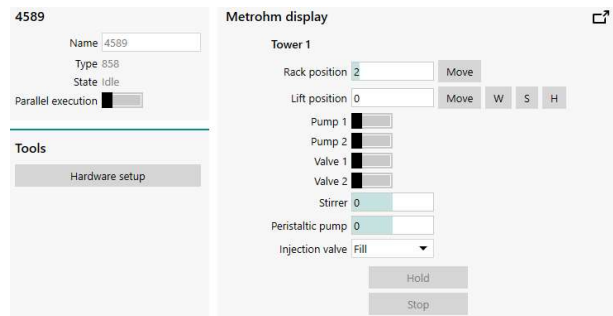


Figure 7 – Manual control of connected Metrohm device

The devices can also be controlled during any NOVA procedure, by adding the provided commands (see Figure 8).



Figure 8 – Metrohm devices are directly controlled by the NOVA software

### Conclusions

The combination of the Autolab potentiostat with Metrohm liquid handling systems is straightforward in NOVA. Suitable Metrohm devices can be directly connected to the USB ports of the computer and the commands related to the control of

these devices can be embedded into any Autolab measurement procedure.

This convenient combination can be employed to automate sample handling and preparation. Experiment duration can be drastically reduced and user-related sample handling errors can be eliminated.

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**For more information**

Additional information about this application note and the associated NOVA software procedure is available from your local [Metrohm distributor](#). Additional instrument specification information can be found at [www.metrohm.com/electrochemistry](http://www.metrohm.com/electrochemistry)