

PA 800 Plus Driver

Quick Start Guide

Software Version 1.1

thermoscientific

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Table of Contents

| 1 | Abo | out t | he Documentation | 2 |
|---|------|-------|---|-----|
| | 1.1 | Abo | out this Document | .2 |
| | 1.2 | Do | cument Conventions | 2 |
| | 1.3 | Rel | ated Documents | 2 |
| 2 | Abl | brev | iations / Glossary | 3 |
| 3 | Inti | rodu | ction | .4 |
| | 3.1 | Sco | pe | .4 |
| | 3.2 | Oth | ner Resources | .4 |
| 4 | Но | w Tc |) | 5 |
| | 4.1 | Inst | trument Configuration in PA 800 Plus Driver | .5 |
| | 4.1 | L.1 | Connect SCIEX PA 800 Plus Systems | .5 |
| | 4.1 | L.2 | Starting the Chromeleon Instrument Controller | .7 |
| | 4.1 | L.3 | Creating an instrument for a SCIEX PA 800 Plus System | 8 |
| | 4.1 | L.4 | Add and Configure Instruments and Modules | 8 |
| | 4.1 | L.5 | Creating Custom Variables | 10 |
| | 4.1 | L.6 | Using Custom Variables | .13 |

1 About the Documentation

1.1 About this Document

The PA 800 Plus Driver provides an interface for controlling the SCIEX PA 800 Plus Capillary Electrophoresis system with the Chromeleon software.

This guide provides a quick reference to prepare for using the PA 800 Plus Driver.

1.2 Document Conventions

The following formatting is used throughout this document to indicate text with special importance.

Caution: Indicates text that must be followed carefully to avoid potential problems.

Note: Indicates information of special interest.

1 Tip: Indicates information that will help you to use the software more efficiently.

1.3 Related Documents

In addition to this quick start guide, the following documentation is available:

- PA 800 Plus Driver Release Notes
- PA 800 Plus Driver Installation Guide

The PA 800 Plus Driver PDF documents are provided on the PA 800 Plus Driver installation disk in the folder **Documents**, and also from the Windows start menu via **Start** > **SCIEX PA 800 Plus Driver** > **Documents**.

The following Chromeleon 7 documentation is available via **Start > Thermo Chromeleon 7** > **Documents**:

- Chromeleon 7 Installation Guide
- Chromeleon 7 Quick Start Guide
- Chromeleon 7 Online Help

2 Abbreviations / Glossary

The following abbreviations and terms are used throughout this document.

| Chromeleon™ (CM) | Thermo Scientific Dionex Chromeleon Chromatography Data System. |
|--|---|
| Chromeleon ePanels | A collection of controls to show the most important parameters for a given combination of chromatography modules in Chromeleon. |
| Chromeleon Instrument Controller | This is the portion of Chromeleon that handles the data acquisition and communication with the connected chromatography modules. |
| Chromeleon Instrument Configuration Manager | This is the portion of Chromelon where the Instrument can be configured. |
| Instrument Method | A file that contains instrument commands – also referred to as <i>Method</i> . |
| Sequence (SEQ) | A set of samples to be analyzed. |

3 Introduction

3.1 Scope

The Quick Start Guide explains how to get the PA 800 Plus Driver ready for usage.

3.2 Other Resources

Tip: For consulting, training, and implementation services, contact your local Thermo Fisher Scientific support and service center.

4 **How To...**

The sections below provide a step by step instruction how to prepare the PA 800 Plus Driver for usage after PA 800 Plus Driver was installed successfully (also see the PA 800 Plus Driver Installation Guide for details).

The following steps, described in detail in the following sections, must be performed to run an injection:

- 1. Initiate the connection between the instrument and the National Instruments driver (4.1.1)
- 2. Create a SCIEX PA 800 Plus system in the Chromeleon Instrument Configuration Manager (4.1.2)
- 3. Create Custom Variables (4.1.3)

4.1 Instrument Configuration in PA 800 Plus Driver

4.1.1 Connect SCIEX PA 800 Plus Systems

After successful installation of PA 800 Plus Driver, connect all instruments and related interface adapters to your PC as described in the Operating Instructions of the instrument(s). Ensure all modules are properly installed.

Caution: Do not connect new instruments/modules via USB to your PC until the PA 800 Plus Driver installation has finished, and the Installation Qualification (Station IQ) has completed and passed.

1. Start NI MAX:



2. Expand "Devices and Interfaces"

3. Select node GPBI-USB-HS+ "GPIBO"

| My System | 🖬 Save 💦 Refresh 👆 Rese | et 😰 Self-Tes <mark>t 💐 Scan for Instrument</mark> | s 🛃 Interactive Control 👋 📌 Hide Hel |
|--|---------------------------|--|--------------------------------------|
| ASRL1::INSTR "COM1" | 6 | | A Back |
| COM2" | Settings | | CDVD Interfere |
| NI GPIB-USB-HS+ "GPIB0" Network Devices | GPIB Interface ID | GPIB0 v | Basics |
| > 🗔 Software | Vandor | National Instruments | Use the drop-down lists, |
| Remote Systems | Model | | boxes to change the |
| | Seciel Number | 01004545 | Select Save when the |
| | Serial Number | Descrit | Revert to go back to the |
| | Status | Present | can also click Reset to |
| | | | settings to a standard |
| | GPIB Settings | | Set of values. Changes to board |
| | | | settings do not affect |
| | Primary Address | 0 ~ | interface. You must |
| | Secondary Address | None Y | handles to this interface |
| | I/O Timeout | 13 (10 sec) × | applied to new handles. |
| | System Controller | 2 | Settings Help |
| | Enable Autopolling | | Settings |
| | chubic Hatopoling | | GPIB Interface ID |
| | | | Number |
| | Termination Settings | | IP Address |
| | Send FOI at End of Write | V | GPIB Settings |
| | Set FOL with FOS on Write | | Secondary Address |
| | Terminate Read on FOS | | I/O Timeout |
| | Use 8-bit EOS Comparison | | System Controller |
| | EOS Bute | 0 (0 to 255) | Enable Autopolling |
| | cosbyte | 0 0 0 0 255) | Termination Settings |
| | | | Write |
| | Advanced Settings | | Set EOI with EOS on |

4. Click "Scan for Instruments":

| My System | 🕞 Save 🛛 Refresh 🛛 📶 Open VISA Test Panel 🛛 🖶 Communicate with Ir | istrument 🤲 💦 Hide He | lp |
|--|--|---|----|
| Pevices and Interfaces | Settings Name Model Instrument 0 Status Present Primary Address 1 Identification VISA Resource Name GPIB0::1:INSTR | Back What do you want to do? Rename my resource Communicate with my resource View and edit properties for my resource | |
| | | | |

- 5. Connected instrument(s) are displayed under interface. If two instruments are displayed on the same interface while only one instrument is connected, select the first instrument (**Instrument 0**).
- Note the GPIB address from the VISA Resource Name.
 The GPIB-address is the number in the middle of the name. So GPIB0::1::INSTR means that the GPIB address is 1.
- 7. Close NI MAX

4.1.2 Starting the Chromeleon Instrument Controller

The Instrument Controller Service controls the exchange of data between Chromeleon and the analytical system.

TO START THE INSTRUMENT CONTROLLER SERVICE

Right-click the Chromeleon tray icon **I** in the notification area of the Windows taskbar

and click Start Chromeleon Instrument Controller. The icon changes to gold 🐝 to

indicate that the service is starting, and then to gray when the service is running (idle).

-OR-

If the Chromeleon tray icon is not on the Windows taskbar, click **Start > Thermo Chromeleon 7 > Services Manager** and then click **Start Instrument Controller**.

4.1.3 Creating an instrument for a SCIEX PA 800 Plus System

To create an instrument for a SCIEX PA 800 Plus System:

- Open the Chromeleon Services Manager (section 4.1.2).
- Ensure that Chromeleon Instrument Controller is running (section 4.1.2).
- Open the Chromeleon Instrument Configuration Manager (section 4.1.4)
- Create a new instrument by adding the corresponding SCIEX module (section 4.1.4).

4.1.4 Add and Configure Instruments and Modules

To install and configure modules in the Instrument Configuration Manager program proceed by following the instructions below.

To start the Chromeleon Instrument Configuration Manager

- 1. Start the Chromeleon Instrument Configuration Manager by choosing one of the following options:
 - Right-click the Chromeleon tray icon and click Configure Instruments.
 -OR-
 - Click **Configure Instruments** in the Services Manager.

Note: You can close the **Services Manager** window if it is open. If you close the window, the Instrument Controller Service is not stopped.

2. You can click the plus sign next to the PC name to display the items underneath (Figure 1A below).

To add a chromatography module to an instrument

- 1. Select the instrument to which the module will be assigned, or create a new instrument:
 - To create a new instrument, on the Edit menu, click Add instrument, or click the corresponding icon in the toolbar (Figure 1B).
- 2. Click **Add Module** on the **Edit** menu, or click the corresponding icon in the toolbar (Figure 1C).
- 3. On the **Manufacturers** list (Figure 1D), click **SCIEX.** On the **Modules** list (Figure 1E), click the module.
- Chromeleon connects to the module, transfers the settings from the module to Chromeleon, and automatically sets the options on the configuration dialog pages (Figure 1F) by clicking the "Get Configuration" button (Figure 1H). Confirm the related message with **OK**.

| FileGEdit View Controller He | elp | | |
|------------------------------|---|---|--|
| 🛎 🖻 X 🖻 🖻 📍 🖪 🛿 | 8 😥 🍠 🎎 🗸 🖻 🎼 | | |
| DVLS-INSTR-VM2 | B C | | Messages Instrument Controller DVLS-INSTR-VM2 [Expert] |
| DVLS-INSTR-VM2_1 | | 15:50:53 User em | power (from DVLS-INSTR-VM2) has connected Chromeleon Instrument Configuration Manager to this controller. |
| | 🍰 Ac | d module to instrumen | × × |
| | Instr | ument DVLS-INS1 | R-VM2_1 |
| | | ufacturers: | E Modules: |
| | AL A B D E E F G G H H I S K M M P, P, P R R R R R R R R R R R R R R R R R R R | ni Jilent Austrahan AC Aske Son Son Son Son Son Son Son Son Son Son | Image: PA 800 Plus Configuration F - × General Signals Device Name: PA800Plus Address: 1 H Get Configuration |
| | SI | iimadzu iodex ifTA | Simulation Mode: Filters (190nm - 600nm) |
| | Ťι | anscat (Martel) | 2: 254 nm 6: 0 nm |
| | | | Detector Type: UV 4 0 nm 7:0 nm |
| For Help, press F1 | | | Serial Nr: 0 5: 0 nm |
| | | | Firmware Version: 0 |

Figure 1: Using the Instrument Configuration Manager

- 5. On each configuration page, verify that the settings are correct and define additional settings if needed. For assistance, click **Help** (or press **F1**)
- 6. On the **File** menu, click **Save Instrument Configuration**, or click the corresponding icon in the toolbar, Figure 1G. Close the Instrument Configuration Manager.

| 🖷 PA 800 Plus Configuration | - 🗆 X |
|------------------------------|------------------------------|
| General Signals | |
| Device Name: PA800Plus | Address: 1 Get Configuration |
| Simulation Mode: | Filters (190nm - 600nm) |
| Pressure Unit: psi | 2: 200 nm 6: 0 nm |
| Instrument Type: PA 800 Plus | → 3: 214 nm 7: 0 nm |
| Detector Type: PDA | ✓ 4: 254 nm 8: 0 nm |
| Serial Nr: A7460300 | 5: 280 nm |
| Firmware Version: 10.2.5-R | |
| | |
| | OK Cancel |

Figure 2: PA 800 Plus System Configuration

4.1.5 Creating Custom Variables

Custom Sequence variables can be used to set the Injection Outlet Position and Injection Duration in a sequence line.

To create custom variables in Chromeleon proceed by following the instructions below.

- 1. Open Chromeleon 7.
- 2. Open the **Data** panel.



3. Right-click the **ChromeleonLocal** node and click **"Custom Variables Editor".** The **Custom Variables Editor** will open:

| Custom Vari | ables Editor f | ior Data Vault Chro | meleonLocal - 0 ltem(s) | | | ? | × |
|-------------|----------------|---------------------|-------------------------|--|--------------------------|------|-------|
| Name | Context | Value Type | Description | Context: Name: Description: Center cust Type: Text I Allow empty values Default: Max. length: 255 | om variable description> | | |
| Add | Delete | ł | | | | ОК С | ancel |

4. Click Add...

| custom Variables Wizard | | 0 > |
|---|------|--------|
| Custom Variable Create or import a custom variable | | |
| Create a new custom variable | | |
| O Import a custom variable from a data vault | | |
| O Import a custom sequence variable from a sequence | | |
| Import a custom injection variable from a sequence | | |
| O Import a custom component variable from a processing method | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | Next | Canaal |

5. Select "Create a new custom variable" and click Next>>:

| Custom Variat | oles Wizard | @ x | | | | |
|----------------------------|---|---------------|--|--|--|--|
| New Custom Create a new | New Custom Variable Create a new custom variable | | | | | |
| Context: | Injection ~ | | | | | |
| Name: | Outlet_Position | | | | | |
| Description: | cifies the target outlet position for a subsequent injection. | | | | | |
| Type: | Text ~ | | | | | |
| Allow empty | values | | | | | |
| Default: | SO:A1 | | | | | |
| Max. length: | 6 | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | << Back | Finish Cancel | | | | |

6. Define the new custom variables exactly as displayed in the figure above and click **Finish.**

| Create a new custom variable Context: Inject_Duration Name: Inject_Duration Description: Time in seconds for the subsequent injection. Type: Numeric ✓ Allow empty vues Default: 1.0 Unit: s Minimum: 1.0 Precision: 1 Maximum: 99,9 | | | | Variable | New Custom |
|--|--|---------|---------------|-------------------------|--------------|
| Context: Injection Name: Inject_Duration Description: Time in seconds for the subsequent injection. Type: Numeric ✓ Allow empty vlues Default: 1.0 I.0 Precision: 1.0 Precision: 1.0 • | | | | custom variable | Create a new |
| Name: Inject_Duration Description: Time in seconds for the subsequent injection. Type: Numeric Allow empty values Default: 1.0 I.0 Precision: Minimum: 1.0 99.9 | | | | Injection | Context: |
| Description: Time in seconds for the subsequent injection. Type: Numeric ✓ Allow empty values Default: 1.0 ♀ Unit: s Minimum: 1.0 ♀ Precision: 1 ♀ Maximum: 99,9 ♀ | | | | Inject_Duration | Name: |
| Type: Numeric ✓ Allow empty values Default: 1.0 Inimum: 1.0 Precision: 1 Maximum: 99,9 | | ection. | subsequent ir | Time in seconds for the | Description: |
| Allow empty values Default: 1.0 Inimum: 1.0 Precision: 1 Maximum: 99,9 | | | | Numeric | Type: |
| Default: 1.0 Minimum: 1.0 99.9 | | | | values | Allow empty |
| Minimum: 1,0 + Precision: 1 + Maximum: 99,9 + | | s | Unit: | 1,0 | Default: |
| Maximum: 99,9 | | 1 | Precision: | 1,0 | Minimum: |
| | | | | 99.9 | Maximum: |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

7. Now repeat step 4 to 6 for the custom variable displayed in the figure above.

4.1.6 Using Custom Variables

The Custom Sequence variables created in the previous paragraph can be used to set the Injection Outlet Position and Injection Duration in a sequence line. Here's how you add the custom variables as columns to a sequence:

- 1. Create a sequence as described in the Chromeleon help.
- 2. Right-click a column of the sequence:

| | | | | | TestSec | uence | | | | | |
|---|-----------------|--------------------|---------------------|-------------|-------------------|--------|-----------------------------------|----|-------------|----------------|---------|
| | New | ▶ Start ▼ | | | | | | | | B DVE-FRIDO | D-VM11_ |
| | Save 🧿 Studio | 🛃 Print 🝷 📩 Up 🛛 🗦 | Insert Row 🔻 👥 Fill | Down 🔒 Lock | V Filtering | Groupi | ng f_x Custom Columns \bullet | | | 🕶 🏨 Find Nex | ct 🕶 |
| # | Voltage_Channel | Name | Туре | Level | Position | Vq | Table Columns | BS | sing Method | Status | Inje |
| 1 | None | 2 | Unknown | | SI:A1 | | Gusters Columns | | | Idla | |
| | | | | Clic | k here to add a r | ew ini | Custom Columns | • | Insert Re | sult Formula | |
| - | | | | | | | Optimize Column Widths | | Insert Cu | ustom Variable | |
| | | | | | | | Optimize Row Heights | | Edit | | |
| | | | | | | | Grouping | 5 | P Delete | | Inser |

3. Select Custom Columns, Insert Custom Variable:

| Custom Variables Wizard | @ × |
|--|----------------|
| Custom Variable | |
| Create or import a custom injection variable | |
| ○ Create a new custom variable | |
| Import a custom injection variable from a data vault | |
| Import a custom injection variable from a sequence | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | Next >> Cancel |

4. Select "Import a custom injection variable from a data vault" and click Next >>:

| Data Vau | lt 🎯 Chr | romeleonLocal | | • |
|----------|-------------|---------------|---|---|
| | Name | Value Type | Description | |
| Inje | ct_Duration | Numeric | Time in seconds for the subsequent injection. | |

- 5. Select both custom variable by click one custom variable, holding the Shift-key and clicking the other custom variable.
- 6. Click **Finish.** The custom variables are now available in the sequence:

| | | | | | TestS | equence | | | |
|---|-------------------------|----------------|---|---------------|-----------------|------------------------|---|-------------|------------------|
| | New | 🕨 Start 🔻 |] | | | | | | DVE-FRID |
| | Save 🧿 Studio | 🛃 Print 👻 📩 Up | ≟•¤ Insert Row → 🔛 Fill | Down Y Filter | ring 冒 Grou | ping $ f_x$ Custom Co | lumns 👻 | - 88 | Find Next 👻 |
| # | Voltage_Channel | Name | Туре | Level | Position | *Outlet_Position | *Inject_Duration [s] | Volume [µL] | Instrument Metho |
| 1 | None | 2 | Unknown | | SI:A1 | SO:A1 | 1,0 | 1.0 | |
| _ | | | | CI | ick here to add | a new injection | 200000000000000000000000000000000000000 | | |
| | *********************** | ****** | *************************************** | ****** | | ***** | ******* | ****** | |

Caution: There's no validation on column "Outlet_Position", so take care to enter a position in range SO:A1 – BO:F6, depending on the outlet tray types.

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