Union Biometrica BioSorter

Device Driver Quick Reference

Original Instructions

Agilent Technologies

Notices

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Union Biometrica BioSorter Device Driver Quick Reference

This document contains the following topics:

About this document

What this guide covers

The Union Biometrica BioSorter is a large-particle flow cytometer that can be integrated into a lab automation system that is controlled by the VWorks software.

This document provides a quick reference of the commands, selections, and parameters in the following:

- Union Biometrica BioSorter Diagnostics
- BioSorter protocol tasks
- BioSorter XML RPC Server

Assumptions

This document assumes that you are familiar with the VWorks software and that you know how to:

- Add a device to a device file.
- Open the device diagnostics software.
- Create and manage profiles.
- Create a protocol and add protocol tasks.

Software version

This document describes the functions that are available in the following software:

- VWorks Automation Control 11.4 or later
- Union Biometrica FlowPilot 1.5.091
- BioSorter XML RPC Server 1.0

The FlowPilot software is installed on the BioSorter computer, which is connected to the BioSorter device. The BioSorter XML RPC Server is also installed on the BioSorter computer and manages requests from the FlowPilot software and the VWorks software.

Related documents

Use this document in conjunction with the following:

- *VWorks Automation Control Setup Guide*
- *VWorks Automation Control User Guide*
- Lab automation system user guide, such as the *BioCel System User Guide*
- User documentation for the Union Biometrica BioSorter device and the FlowPilot software

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Union Biometrica BioSorter Diagnostics

About Union Biometrica BioSorter Diagnostics

You use Union Biometrica BioSorter Diagnostics to:

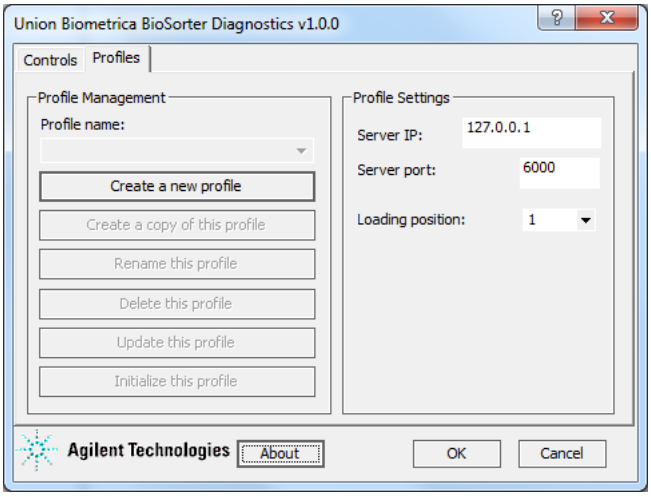
- *Create and manage profiles*. A profile allows you to set up communication between the BioSorter device and the controlling computer.
- *Acquire data*. Using the available commands, you can select an experiment, select the sample file, and start data acquisition.

This topic provides a quick reference of the commands, selections, and parameters in the following Union Biometrica BioSorter Diagnostics tabs:

- Profiles tab
- Controls tab

For instructions on adding the BioSorter device to your device file and opening Union Biometrica BioSorter Diagnostics, see the lab automation system user guide, such as the *BioCel System User Guide*.

Profiles tab



Profile Management area

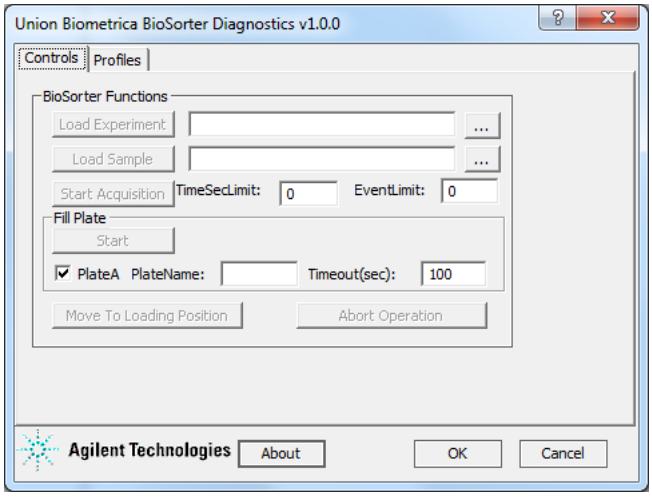
Command	Description
Profile name	Displays the selected profile. Also allows you to select from the list of available profiles.
Create a new profile	Creates a new profile.
Create a copy of this profile	Creates a duplicate copy of the selected profile.
Rename this profile	Renames the selected profile.
Delete this profile	Deletes the selected profile.

Command	Description
Update this profile	Saves changes to the selected profile.
Initialize this profile	Initiates communication with the device using the selected profile.

Profile Settings area

Setting or option	Description
Server IP	The IP address of the BioSorter computer, which is running the BioSorter XML RPC Server and the FlowPilot software.
Server port	The IP Port number on the BioSorter computer on which the BioSorter XML RPC Server will be receiving VWorks software commands.
Loading position	The position of the BioSorter stage when receiving labware from the system robot. Select position 1 or 2 from the list.

Controls tab



BioSorter Functions area

Command or specification	Description
Load Experiment	Loads the selected experiment file that contains the BioSorter device settings. Click the browser button to locate and select the desired experiment file. Experiment files are created in the FlowPilot software and stored on the BioSorter computer. For instructions on creating the experiment files, see the FlowPilot user documentation.
Load Sample	Loads the sample file that contains the data processing parameters. Click the browser button to locate and select the desired sample file. Sample files are created in the FlowPilot software and stored on the BioSorter computer. For instructions on creating the experiment files, see the FlowPilot user documentation.
Start Acquisition	Starts the data acquisition. Specify the following to determine when to end the data acquisition: • **TimeSecLimit**. The maximum length of time, in seconds, to acquire data before stopping. • **EventLimit**. The maximum number of events to report before ending the acquisition. The data acquisition will end when the first of the two values is reached. The TimeSecLimit and EventLimit values override the equivalent values in the experiment file. To use the values in the experiment file, specify 0.

Fill Plate area

Selection or command	Description
Start	The command to start dispensing samples in the microplate, using parameter values in the experiment and sample files.
Plate A	The option to dispense in the microplate that is in the primary position.
PlateName	The microplate name that will be stored with the data in the text file.
Timeout (s)	The maximum length of the time, in seconds, to allow the BioSorter device to dispense into the microplate.

Command buttons

Command	Description
Move to Loading Position	Moves the stage to the position that allows the system robot to place the microplate on the stage.
Abort Operation	Stops the current operation in the BioSorter device.

BioSorter protocol tasks

About the task

You can add the following protocol tasks to operate the BioSorter device:

- Load Experiment
- Load Sample
- Fill Plate
- Start Acquisition

The tasks are associated with the BioSorter device only. This topic describes the device-specific tasks.

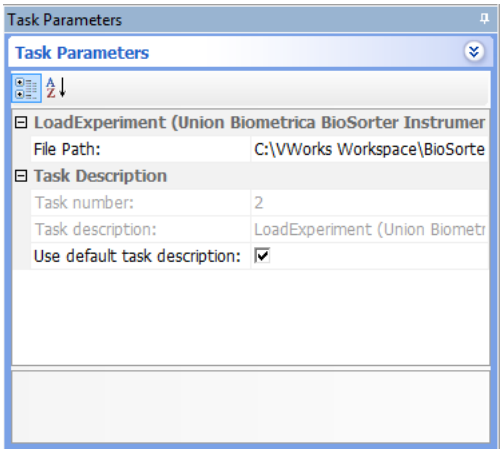
Load Experiment

Description

The Load Experiment ( LoadExperiment (Union Biometrica BioSorter Instrument)) task loads the selected experiment file in preparation for data acquisition.

Note: Add this task only if you intend to load a different experiment file each time you run the protocol. If you will use the same experiment file for all acquisitions, you can load the experiment file from the BioSorter XML RPC Server. See BioSorter XML RPC Server for instructions.

Task parameters



Parameter	Description
File path	The location and name of the experiment file you want to use. Click the **File path** field, and then click the browser button to locate and select the desired experiment file. Experiment files are created in the FlowPilot software and stored on the BioSorter computer. For instructions on creating the experiment files, see the FlowPilot user documentation.
Task number	The number that indicates the position of the task in the protocol.
Task description	The description of the task.
Use default task description	The option to use the default task description or provide your own description for the task. Select the check box to use the default description. Clear the check box to provide your own description.

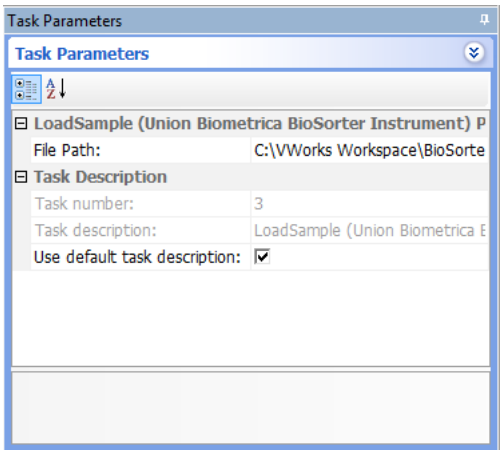
Load Sample

Description

The Load Sample ( LoadSample (Union Biometrica BioSorter Instrument)) task loads the selected sample file in preparation for data acquisition.

Note: Add this task only if you intend to load a different sample file each time you run the protocol. If you will use the same sample file for all acquisitions, you can load the sample file from the BioSorter XML RPC Server. See BioSorter XML RPC Server for instructions.

Task parameters



Parameter	Description
File path	The location and name of the sample file you want to use. Click the **File path** field, and then click the browser button to locate and select the desired sample file. Sample files are created in the FlowPilot software and stored on the BioSorter computer. For instructions on creating the sample files, see the FlowPilot user documentation.
Task number	The number that indicates the position of the task in the protocol.
Task description	The description of the task.
Use default task description	The option to use the default task description or provide your own description for the task. Select the check box to use the default description. Clear the check box to provide your own description.

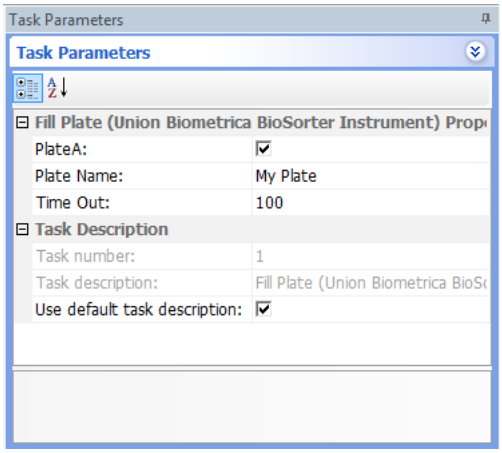
Fill Plate

Description

The Fill Plate ( Fill Plate (Union Biometrica BioSorter Instrument)) task starts dispensing samples in the microplate, using parameter values in the experiment and sample files.

Note: The Fill Plate task is only available in the Main Protocol.

Task parameters



Parameter	Description
Plate A	The option to dispense in the microplate that is in the primary position.
PlateName	The microplate name to be stored with the data in the text file.
Timeout (s)	The maximum length of the time, in seconds, to allow the BioSorter device to dispense into the microplate.
Task number	The number that indicates the position of the task in the protocol.
Task description	The description of the task.
Use default task description	The option to use the default task description or provide your own description for the task. Select the check box to use the default description. Clear the check box to provide your own description.

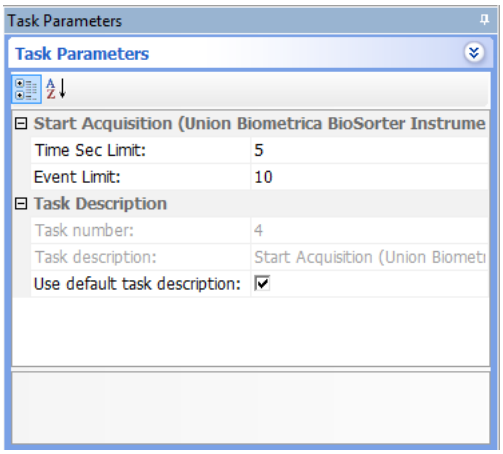
Start Acquisition

Description

The Start Acquisition ( Start Acquisition (Union Biometrica BioSorter Instrument)) task starts the data acquisition process in the BioSorter device.

Note: The Start Acquisition task is only available in the Startup Protocol and Main Protocol.

Task parameters



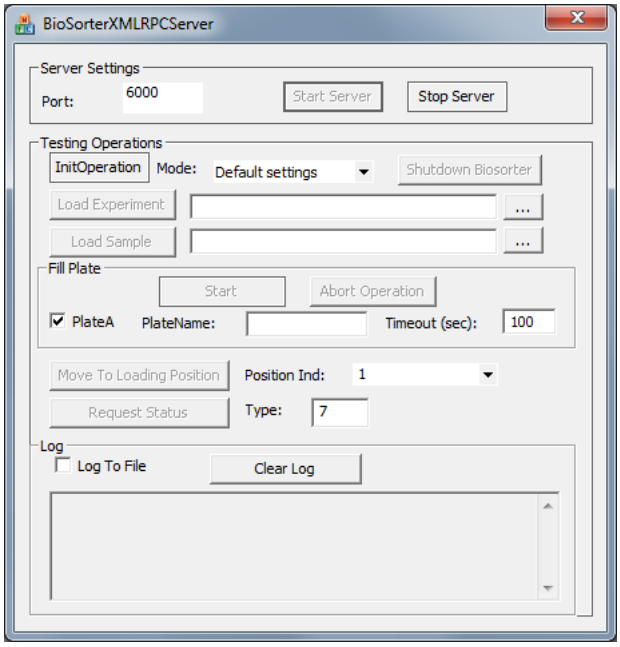
Parameter	Description
Time Sec Limit	The length of time, in seconds, to acquire data before stopping.
Event Limit	The maximum number of events to report before ending the acquisition.
Task number	The number that indicates the position of the task in the protocol.
Task description	The description of the task.
Use default task description	The option to use the default task description or provide your own description for the task. Select the check box to use the default description. Clear the check box to provide your own description.

BioSorter XML RPC Server

About the BioSorter XML RPC Server

The BioSorter XML RPC Server is a software that is installed on the BioSorter computer and manages the communication between the FlowPilot software and the VWorks software. You also use the software to load the experiment file and sample file you want to use whenever acquiring data using the BioSorter device.

This topic provides a quick reference of the commands, selections, and parameters in the BioSorter XML RPC Server.



Server Settings area

Setting or command	Description
Port	The IP port number that the VWorks software uses to communicate with the FlowPilot software. *Note:* The IP port number is also specified in the Union Biometrica BioSorter Diagnostics Profiles tab. Make sure they match.
Start Server	The command to start serving the requests from the VWorks software.
Stop Server	The command to stop serving the requests from the VWorks software.

Testing Operations area

Selection or command	Description
InitOperation	The command to initialize the BioSorter device and the FlowPilot software using the specified **Mode**. You must always initialize the BioSorter device and the FlowPilot software before operating the device.

Selection or command	Description
Mode	The mode to use when initializing the BioSorter device and the FlowPilot software. Select one of the following modes: • **Default settings**. Initializes the BioSorter device, and starts the FlowPilot software with default settings. The process does not open the last opened experiment and sample files. • **Full Control**. Initializes the BioSorter device and permits full control of the device. • **Offline**. Starts the FlowPilot software without initializing the BioSorter device. This mode permits software debugging. • **USB connection**. Initializes the USB connection and acquisition board without initializing the BioSorter device. This mode allows you to test the communication without actually running the BioSorter device.
Shutdown BioSorter	The command that performs the following steps to shut down the BioSorter device: **1** Stops the acquisition in progress. **2** Turns off the lasers. **3** Turns off the fluids. **4** Stops the motors. **5** Turns off USB communication. **6** Closes temporary files.
Load Experiment	Loads the selected experiment file that contains the BioSorter device settings. Click the browser button to locate and select the desired experiment file. Experiment files are created in the FlowPilot software and stored on the BioSorter computer. For instructions on creating the experiment files, see the FlowPilot user documentation.
Load Sample	Loads the sample file that contains the data processing parameters. Click the browser button to locate and select the desired sample file. Sample files are created in the FlowPilot software and stored on the BioSorter computer. For instructions on creating the experiment files, see the FlowPilot user documentation.

Fill Plate area

Selection or command	Description
Plate A	The option to dispense in the microplate that is in the primary position.
PlateName	The microplate name to be stored with the data in the text file.
Timeout (s)	The maximum length of the time, in seconds, to allow the BioSorter device to dispense into the microplate.
Start	The command to start dispensing samples in the microplate, using parameter values in the experiment and sample files.
Abort Operation	Stops the current operation in the BioSorter device.

Command buttons

Command	Description
Move to Loading Position	Moves the stage to the specified load position. The load position can be specified using the position index (**Position Ind.** parameter).
Position Ind.	Specifies the load position, which is either 1 or 2. The selected position is the position at which the microplate is placed on the stage.
Request Status	Retrieves the BioSorter device status and error code. The **Type** parameter defines the type of status to retrieve.
Type	Specifies the type of status or error code to be retrieved. Type one of the following values: 1– Sensor's state, pressure range, FOCA presence, and clog 2– Operation state (busy or not busy) 3– Stage states 7– All status and error codes

Log area

Option or command	Description
Log to File	The option to record the events to a file.
Clear Log	The command to remove the events that are currently displayed.

Operating the BioSorter device in the automation system

About this topic

Before you operate the BioSorter device using the Union Biometrica BioSorter Diagnostics or run a VWorks protocol, make sure you start up and prepare the computers using the following sequence:

1. BioSorter computer
2. VWorks computer

BioSorter computer

On the BioSorter computer:

1. Start the XML RPC Server.
2. In the XML RPC Server:
   a. Start the server.
   b. Initialize the BioSorter operation.
   c. Load Experiment file
   d. Load Sample file
3. Start the FlowPilot software.

   IMPORTANT Do not load a different experiment or sample file after starting the FlowPilot software. If you want to load a different file, you must restart the XML RPC Server and the FlowPilot software.

4. In the XML RPC Server:
   a. Specify the microplate name.
   b. Load the microplate.
   c. Start filling the microplates.

VWorks computer

On the VWorks computer:

1. Start the VWorks software and open Union Biometrica BioSorter Diagnostics.
2. Initialize the BioSorter device profile.
3. Start filling the microplates in diagnostics or run the protocol to fill the microplates.

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Quick Reference

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