[WATERS ACQUITY DIVERTER VALVE CONFIGURATION]

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This document explains how to configure the Waters® ACQUITY® Diverter Valve that is supplied as an optional accessory to the ACQUITY QDa® Detector.

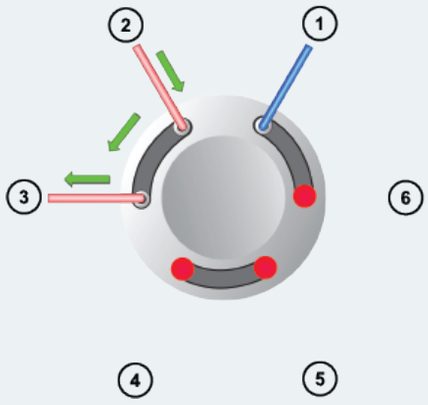
For information about the installation, operation and maintenance of the ACQUITY Diverter Valve, see the *Waters ACQUITY QDa Detector Overview and Maintenance Guide* (Part number 715003956).

CONFIGURING THE VALVE TO OPERATE IN DIVERT MODE

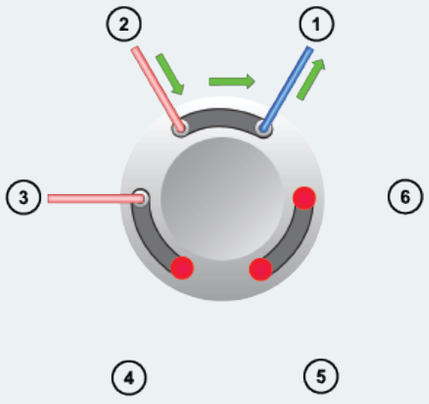
In the QDa Method Editor, the ON command represents position 1 where sample flows to the QDa, and the OFF command refers to position 2 where sample flows to waste.

Recommendation: To ensure that the sample flow direction is correct for each command, plumb the connections as shown in this document.

Valve position 1 – ON = Flow to QDa



Valve position 2 – OFF = Flow to waste



1. To waste (blue PEEK tubing, 0.01-inch internal diameter)
2. From LC (red PEEK tubing, 0.005-inch internal diameter)
3. To QDa (red probe assembly, 250 mm)
4. Not used (Plugged port)
5. Not used (Plugged port)
6. Not used (Plugged port)

QDA DIVERTER VALVE METHOD EVENTS FOR PROGRAMMED OPERATION

Command	Valve function
ON	Valve moves to, or stays in, position 1 (Flow to QDa).
OFF	Valve moves to, or stays in, position 2 (Flow to waste).
Toggle	Valve moves to the opposite of the current position.

Notes:

- The ON and OFF commands configured in Empower ICS 1.68 method events are labeled ON/Flow to QDa and OFF/Flow to waste.
- The Pulse command that appears in MassLynx method events is not active.

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IMPORTANT CONSIDERATIONS FOR PROGRAMMED OPERATION

You can actuate the valve by a combination of manual switching using the buttons on the front panel, and programmed operation using method events. You can configure any combination of ON/OFF method events.

Note: Configure the method events in the Events table of the QDa Method Events Editor.

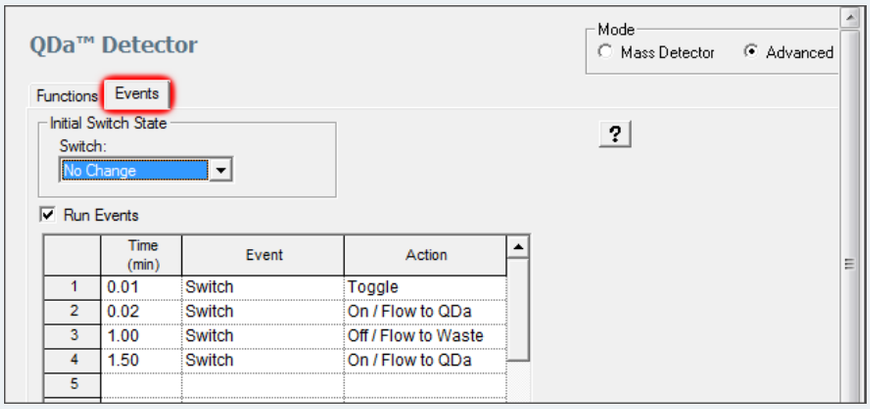
Tip: Add a toggle switch command to the first line in the method events table, immediately followed by the required valve starting position, to ensure that the flow switches automatically to the correct valve start position when resuming programmed operation after manual actuation.

Example configuration for operating the valve using programmed and manual actuation

Diverting flow to waste between 1 minute and 1.5 minutes.

Notes:

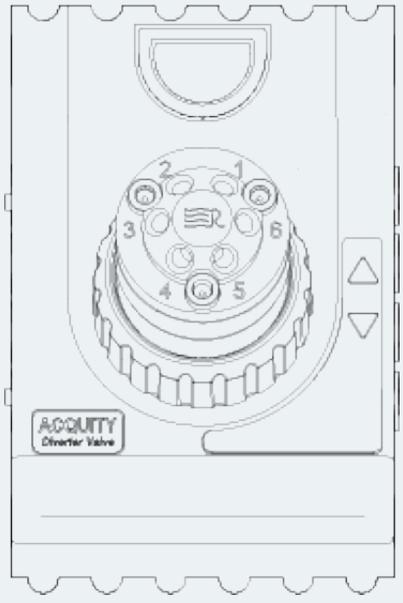
- The events can be configured according to your requirements.
- The example is taken from the ACQUITY QDa Detector ICS, version 1.68.



	Time (min)	Event	Action
1	0.01	Switch	Toggle
2	0.02	Switch	On / Flow to QDa
3	1.00	Switch	Off / Flow to Waste
4	1.50	Switch	On / Flow to QDa
5			

MANUALLY OPERATING THE DIVERTER VALVE

Diverter valve manual actuation buttons



Manually actuate the ACQUITY Diverter Valve by pressing the front-panel buttons.

Digital display – Shows the valve position number (1 or 2).

Up arrow – Valve moves to, or stays in, position 2.

Down arrow – Valve moves to, or stays in, position 1.

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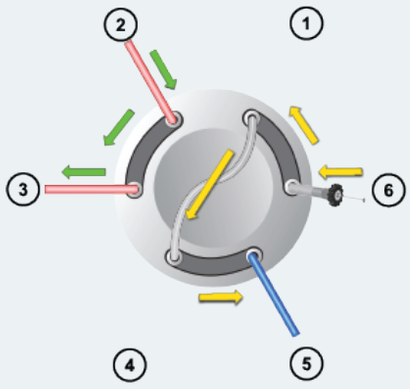
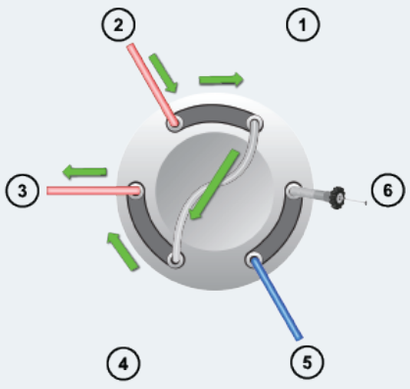
CONFIGURING THE VALVE TO OPERATE IN LOOP INJECTION MODE

Valve position 1 – Load sample



Valve position 2 – Inject sample



Loop

From LC (red PEEK tubing, 0.005-inch internal diameter)

To QDa (red probe assembly, 250 mm)

Excess sample to waste (blue PEEK tubing, 0.01-inch internal diameter)

Loop injection port

To inject sample and manually actuate the diverter valve:

1. Ensure that the QDa is on and mobile phase is flowing from the configured pump.
2. Ensure that the valve is in position 1.
   Note: If the valve is not in position 1, manually actuate the valve by pressing the down arrow button (▽) on the front panel to move the valve from position 2 to position 1.
3. Inject sample through the injection port (Waters part number 700000472) in valve port 6, using a syringe.
   Result: The loop fills with sample ready for introducing into the QDa for analysis.
   Recommendations:
   - To ensure reproducibility, overfill the loop by three times the loop volume. Overfilling flushes out excess solvent from previous infusions, and ensures that sample is introduced to the QDa consistently.
   - When loading samples, consider the miscibility of the sample solvent and the carrier solvent. Dilute the sample in the carrier solvent before filling the loop, if necessary.
4. Start the QDa acquisition using the QDa software.
   See also: The instrument software Help.
5. Manually actuate the valve by pressing the up arrow (△) on the front panel to move the valve from position 1 to position 2.
   Result: Sample is injected through the loop into the QDa.
6. To prepare for the next injection, manually actuate the valve by pressing the down arrow button (▽) on the front panel to move the valve from position 2 to position 1.

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