

# PRODUCT DATASHEET

## ARIA

VI | September 2019

### GENERAL DESCRIPTION

Aria is an integrated microfluidic system to automate the delivery of up to 10 different fluids to one chip or perfusion chamber. It can perform any perfusion protocol. The system is easy to use, compact, and can interact with TTL enabled microscopy systems. It also allows for “stop flow” conditions for studies requiring longer imaging times. Aria automates sequential injection operations that have typically been performed manually and provides more reproducible results with minimum cross contamination.

### BENEFITS AND FEATURES

- Save time with Automated injection protocols
- Enables performing long-term perfusion studies
- Intuitive and easy-to-use: Individual methods can be created, saved, and quickly recalled for a run
- Incubation steps and times are reproducible
- Reliable results: the number of manual operations is reduced and the software automates most steps from calibration to cleaning
- Fits any experimental design
- Designed for microscopy room experiments: “dark mode” provides visibility to monitor the study progress.



### TECHNOLOGY

Aria can perform any perfusion protocol. Each solution can have a different flow rate and can be delivered for a specific volume or time. Aria is a pressure-based perfusion system which integrates well developed Fluigent technology including pressure-based flow rate control

An internal on-off valve guarantees that the flow is stopped when a stop flow is desired for imaging or a zero-flow command is sent. An additional external valve is placed in the output line between Aria and the chip or chamber. It directs the fluid either to the chip or to a waste position. It is useful to flush the tubing between two successive injections and for automated calibration and priming. The dedicated software is user-friendly and provides unattended operation.

## PERFORMANCE

### STOP FLOW FUNCTION

An internal on-off valve prevents backflow during incubation steps. Rapid transition between injection and incubation steps is an advantage for microscopy studies.

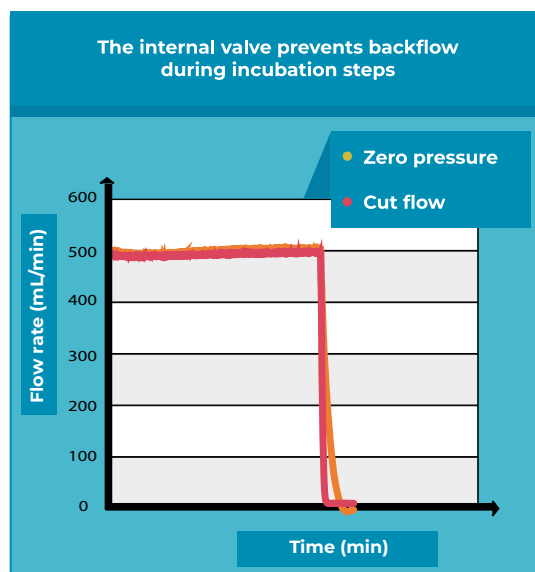
### LONG TERM EXPERIMENT

Flow rate is maintained constant for long term studies. Delivery of water over 2 days at 70  $\mu\text{L}/\text{min}$  is  $\pm 4\%$ .

### FLOW RATE ACCURACY AND PRECISION

The flow control of Aria has:

- accuracy of  $\pm 5\%$  of the measured values above 40  $\mu\text{L}/\text{min}$ .
- repeatability of  $\pm 0,5\%$  of the measured value.

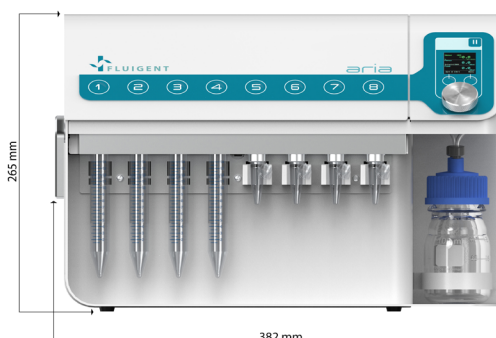
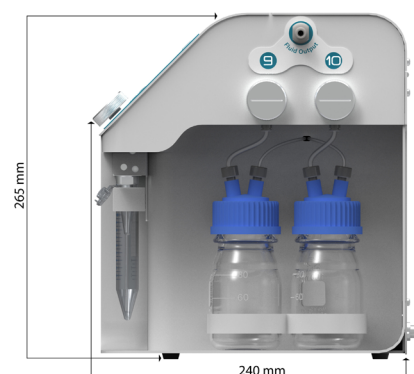


## SPECIFICATION DATA

|                                 |   |
|---------------------------------|---|
| Flow Rate Control               | Over the range of 40 $\mu\text{L}/\text{min}$ to 1 mL/min for water                         |
| Pressure Control of flow rate   | to a maximum of 2 bar   |
| Valves                          | Ten position switching valve<br>Two position switching valve (2)                            |
| Fluid Reservoirs (8)            | 15 mL standard, 2 mL available  |
| Flushing Solution Reservoir (2) | 100 mL  |
| Tubing                          | FEP with OD of 1/16 inch and ID of 250 $\mu\text{M}$  |
| Wetted Surfaces                 | Polypropylene, FEP, Glass, PEEK   |
| Compressed air source           | Requires non-corrosive compressed air (lab line, gas cylinder, compressor or Fluigent FLPG) |
| PC Specifications               | Windows 7 or higher   |

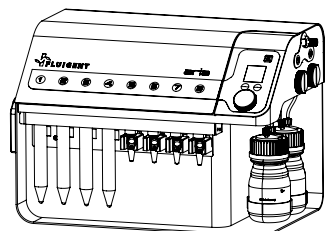
## TECHNICAL DATA

|                         |   |
|-------------------------|---|
| Dimensions (Lxdxh)      | 382 mm x 240 mm x 265 mm                            |
| Weight                  | 9 kg  |
| Power supply voltage    | 24V DC  |
| Max Energy consumption  | 160 W   |
| Max Current requirement | 6,67 A  |
| Operating temperature   | 10°C - 40°C   |
| Working fluid           | Aqueous solutions only                              |
| Cleaning                | With Tergazyme, Ethanol or Isopropnaol and DI water |

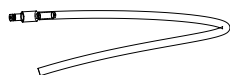


# DATASHEET

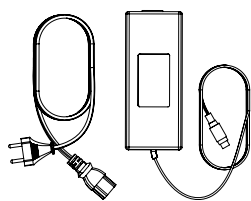
## DETAILED CONTENTS ARIA'S PACKAGE



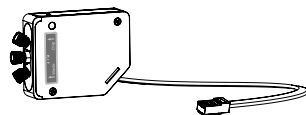
Aria unit



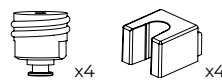
Inlet pressure tubing (2m)



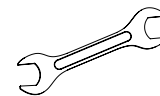
Power supply



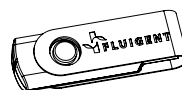
2-Switch



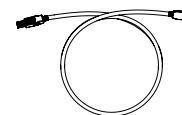
2 mL reservoir adaptor kit



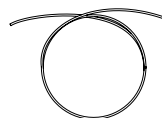
2mL adaptor wrench



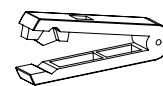
USB Key (contains Aria soft-



USB cable



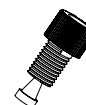
Fluidic outlet tubing (2m)



Tube cutter



F-120 connector



XP-235 connector and

## KITS

### KIT ADAPTOR FOR 2ML

P/N: ADP-KIT-AR

x4 2mL adaptor plastic : plastic and metal parts

### ARIA TUBING REPLACEMENT KIT :

P/N: CTQ-KIT-AR

x 10 reservoirs to selector valve

x1 selector valve to flow unit to Flow Unit

x1 Flow Unit to Stop Flow valve

x1 Stop Flow to fluid Output