

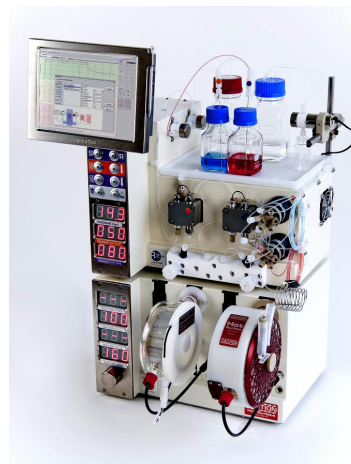
## The new Open Access Vapourtec R Series

### Power and Flexibility

Since 2008 the Vapourtec R Series system with FlowCommander™ software has offered unrivalled power and flexibility, especially for automated reaction optimisation. Users are able to schedule an unlimited number of reactions for automated execution, with total control over how much is collected in how many fraction collector vials for each individual reaction.

However, in an open access environment, an occasional user with little experience of using the system needs to be able to literally walk up and run a reaction with minimal input of data and with little or no training.

Arguably it is impossible for a single interface to completely satisfy the requirements of both occasional users and experienced “power users”.

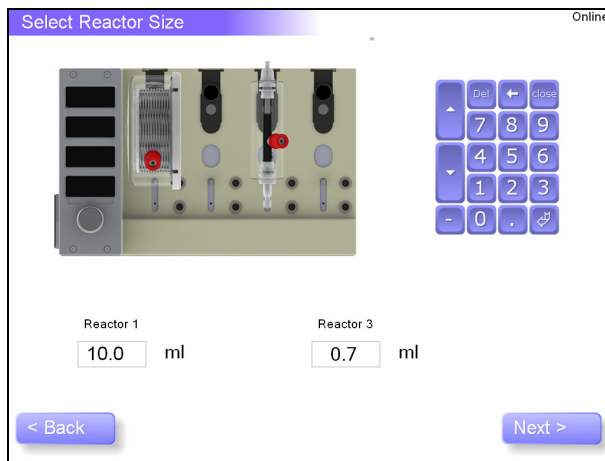


### Enter “Flow Wizard”

For this reason Vapourtec are pleased to announce a new interface designed specifically for walk up use. It enables a user with little or no knowledge of the system to start and run a single reaction with a few simple touch screen button presses.

Using the large, clear touch screen, the user follows a simple step by step “wizard”, specifying the reactor layout and the parameters of the desired reaction in a few seconds.

He or she then starts the reaction and the system automatically moves to the requested temperature(s), runs the whole reaction (capturing the required product), and then flushes the system with system solvent before shutting down.



Meanwhile, detailed setup parameters such as installed pipe lengths are pre-set using the conventional FlowCommander interface, so the walk up user need not deal with these at all.

## Defining the experimental setup

First, the user chooses how the reagents will be supplied (fed from bottles or injected into sample loops).

Any permutation is possible.

Select Reagent Feed Online

Two Bottles  
Load the reagents directly from two bottles

Two Sample Loops  
Load the reagents from two sample loops

Bottle and Loop  
Load one reagent from a bottle and one from a sample loop

Single Bottle  
Load one reagent directly from a reagent bottle

Single Loop  
Load one reagent from a sample loop

Exit

Next >

Select Reactor Configuration Online

Up Up Up Up

Tube 150C Not Used Column 150C Not Used

Down Down Down Down

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To make it even simpler, reactor configuration is illustrated with onscreen pictures, and the system even reports which reactor types are currently installed.

Users can choose from columns, or tube reactors, and between cooled, standard or high temperature reactors.

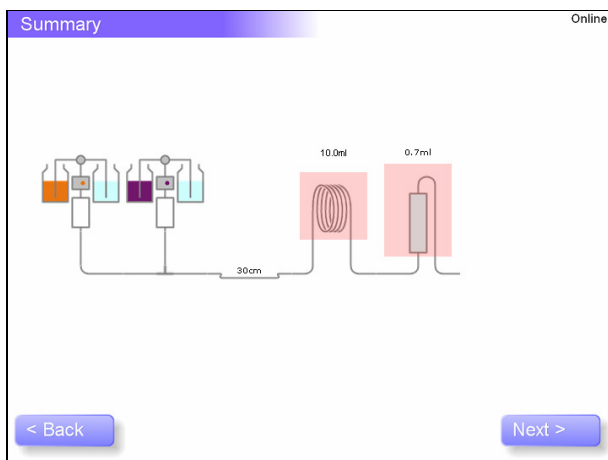
The working size of each reactor is specified

Select Reactor Size Online

Reactor 1: 10.0 ml

Reactor 3: 0.7 ml

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Finally, the reactor layout is shown as a schematic diagram to ensure it is as required

## Specifying reaction parameters

The key parameters of temperature and flow now need to be set.

First temperature is set...

Select Reactor Temperature Online

Reactor 1 130 °C Reactor 3 90 °C

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Select Reagent Flow Online

Flow Ratio Manual

Reagent A 0.50 ml/min + -

Reagent B 0.75 ml/min + -

Residence Time

Reactor 1 8.0 mins Reactor 3 0.56 mins

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... and then flow rate.

This can be done two ways:

By manually specifying the individual flow rates ...

... or by setting the volumetric flow rate and then changing the overall flow to achieve a target residence time in the reactor of interest.

Select Reagent Flow Online

Flow Ratio Manual Reagent A

Volumetric Ratio A:B 1: 2.0

Flow Rates  
Reagent A: 1.01 ml/min  
Reagent B: 2.02 ml/min

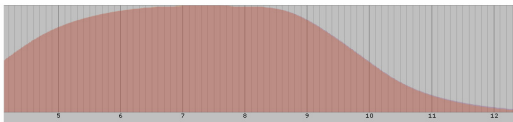
Residence Time

Reactor 1 3.3 mins Reactor 3 0.23 mins

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## Setting the Reaction Scale

Select Reaction Scale Online



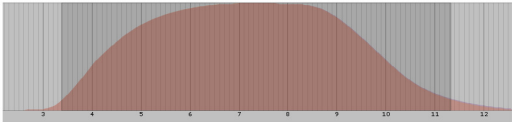
Reagent A: 2.9 ml  
Reagent B: 4.3 ml

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Next, the scale of the reaction is specified in terms of the amount of reagents to be used

## Defining how product is to be collected

Select Collection Online

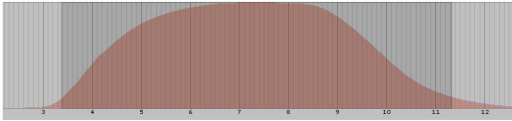


Waste: 4.2ml Collect: 9.9ml

The existing tried and tested Vapourtec dispersion model from Flow Commander is used to determine collection timings so the user can simply specify whether to collect the whole peak or just the steady state part of the peak.

Alternatively, the user can define the collection volume manually.

Select Collection Online



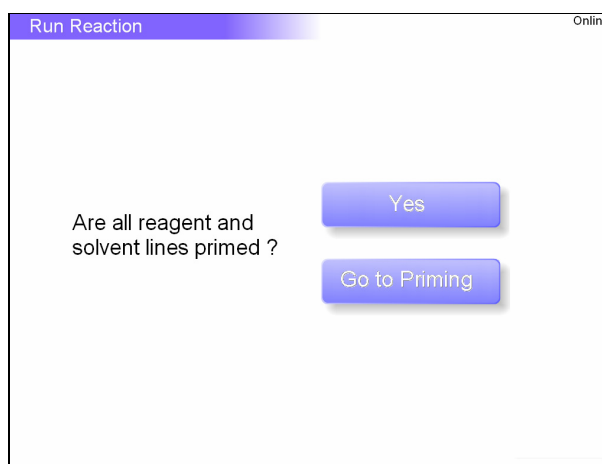
Waste: 4.2ml Collect: 9.9ml

## Starting and running the reaction



Once the collection has been specified, the reaction can be started.

Before commencing, the system checks that the user has primed the system. If not, the priming screen is presented



Once the reaction has commenced, the user sees a progress bar and a list of the different steps required to complete the reaction



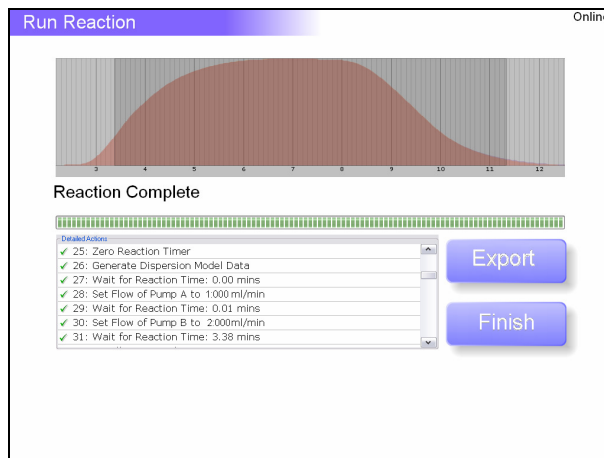
Note that parameters such as flow rate, pressure and temperature are displayed on the large bright main instrument display at all times.

## Saving reaction data

When the reaction is complete, the user then has the option to export the data from the reaction. A report can also be generated.

Otherwise, this reaction is over and the user can then choose to:

- run this same reaction again
- use different parameters but the same experimental setup
- change the experimental setup (ie use different reactors)



## FAQ

**Q Is this new software to be used instead of Flow Commander ?**

**A** No, This is an extension of the existing Flow Commander, offering an alternative interface to the same underlying and proven control software.

**Q I already have an R Series with Flow Commander. Will this be available as an upgrade ?**

**A** Yes, if you have a touch screen.

**Q When will Flow Wizard be available ?**

**A** Any R Series system with a touch screen purchased from now going forwards will have Flow Wizard included.

**Q When will the upgrade be available for existing users ?**

**A** Upgrades will be available starting January 2011

**Q What is involved in the upgrade ?**

**A** Vapourtec send out an upgrade file by email, which is transferred to the touch screen controller on a USB memory device.

**Q What does the upgrade cost ?**

**A** It is free of charge.

**Q Is this new interface only for touch screen use or is it available for those running Flow Commander on a PC ?**

**A** Flow Wizard is only available for the systems with a touch screen interface.

**Q Can I have both Flow Commander and Flow Wizard on the same instrument ?**

**A** They are all the same piece of software. The updated version of Flow Commander includes both interfaces, and the user chooses which interface to use from the start-up screen.

**Q What complexity of flow system does Flow Wizard enable me to set up ?**

**A** The system can include

- 1 or 2 pumps
- Reagents can be bottle fed or injected into sample loops (in any combination)
- Up to 4 reactors (column / tube & cooled / standard / high temperature in any combination)
- Any topology (so  $A + B \rightarrow \text{product}$  or  $A \rightarrow \text{intermediate} + B \rightarrow \text{product}$  etc)

**Q What will Flow Wizard *not* control ?**

**A** The original Flow Commander is more appropriate for the following scenarios

- 3 or 4 pumps
- Multiple unattended reactions with results captured in a fraction collector
- Use of an autosampler to load the sample loops
- Use of a UV sensor



**Q Will data be recorded from the reaction for viewing later ?**

**A** At the end of the reaction the user has the option of saving the reaction data in a report file onto a USB memory device.

**Q Will this interface be available on rental systems ?**

**A** Yes.

**Q If I start a reaction with the Flow Wizard interface can I remotely monitor it ?**

**A** This option is not currently available.

**Q Can I start a reaction with Flow Wizard then switch to Flow Commander**

**A** No, you'd have to stop the reaction before exiting the Flow Wizard interface.