Introducing the R-Series software and API packages

Multiple reagents

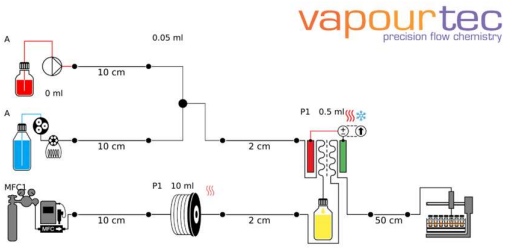
The Vapourtec R-Series software is an intuitive flow chemistry control interface that enables the chemist to get accurate data and rapid results from using the graphs, tools and apps included in the package.

Key Features of the R-Series software

- Compatible with R-Series
- Up to 8 pump channels delivering both liquids and gases
- 10 reactor types available
- 6 pump types available including syringe
- Manual control and logging
- Automate multiple reactions
- API package with OPC-UA
- Powerful tools accessed via apps
- Optimised for touchscreen or PC
- Schematic tool with export function
- Integrated concentration tool

Use R-Series software with lab equipment

The R-Series software can integrate with UV-Vis, FTIR, Raman, syringe pumps, piston pumps, V3 peristaltic pumps, Re-circulating chillers, mass flow controllers.



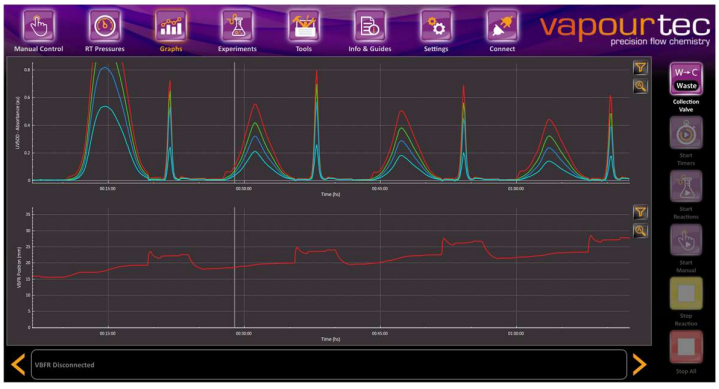
Automate reactions and run unattended

The R-Series software is designed for both manual and automated reactions. Use simple tools to create reaction lists or integrate with algorithm based technology to drive reaction modifications real time.

- Optimise reactions automatically
- Change residence time or stoichiometry
- Select multiple reagents
- Autosampler integration for library synthesis
- Integrate with AI and algorithms or machine learning
- Designed with Industry standards

Experiment editor and schematic tool

The R-Series software has a state-of-the-art schematic configuration tool, enabling each element of the reactor setup to be defined and calculated down to the finest detail. Once the elements are defined, a reaction can be programmed with all the necessary variables. A concentration model is presented for review and timing adjustment. The R-Series software will run selected reactions in turn.



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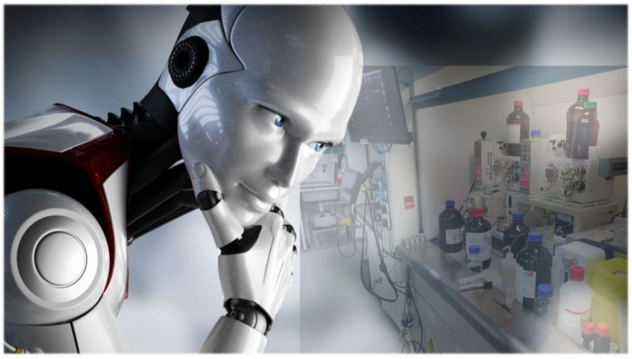
OPC-UA server built in

R-Series software application programming interface (API) includes an OPC-UA server enabling connectivity to high level and low level command sets

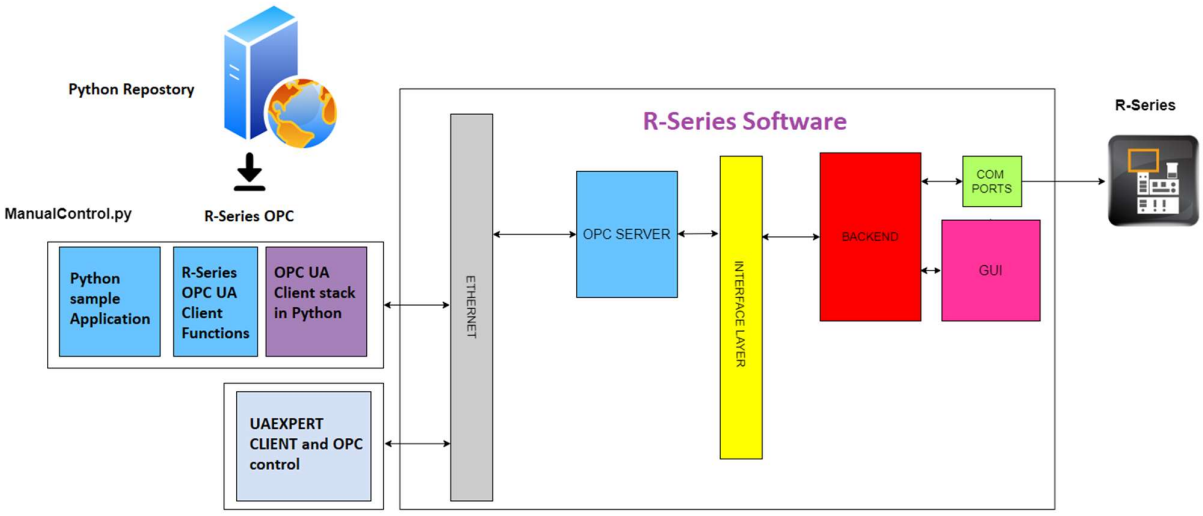


Integrate with HPLC

Easily connect to other laboratory instrument such as HPLC systems using the OPC-UA

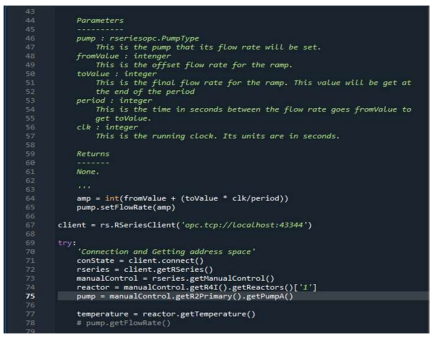
Python script examples

The R-Series API includes python script examples for a range of different control methods. We show examples for automated control, such as flow rate ramping and temperature ramping. We also provide scripts for OPC client connectivity, ability to edit reactions and other useful control scenarios.



High and low level commands

The python script examples offer high and low level command options for controlling at system or component level. Examples provided included manual control, edit reactions, connections to OPC-UA services and reaction routines. Real time data is accessed from the OPC-UA server, such as pressures, temperatures, status etc.



```
    Parameters
    --------
    pump : rseriesopc.PumpType
        This is the pump that its flow rate will be set.
    fromValue : integer
        This is the offset flow rate for the ramp.
    toValue : integer
        This is the final flow rate for the ramp. This value will be get at
        the end of the period
    period : integer
        This is the time in seconds between the flow rate goes fromValue to
        get toValue.
    clk : integer
        This is the running clock. Its units are in seconds.

    Returns
    -------
    None.
    '''
    amp = int(fromValue + (toValue * clk/period))
    pump.setFlowRate(amp)

client = rs.RSeriesClient('opc.tcp://localhost:43344')

try:
    'Connection and Getting address space'
    conState = client.connect()
    rseries = client.getRSeries()
    manualControl = rseries.getManualControl()
    reactor = manualControl.getR4I().getReactors()['1']
    pump = manualControl.getR2Primary().getPumpA()

    temperature = reactor.getTemperature()
    # pump.getFlowRate()
```

Finally – Flow chemistry software with full API and lab integration

Connect the R-Series software with modules, pumps, reactors and have the latest technology available for basic reaction screening through to advanced integration into closed loop machine learning (AI). The R-Series software is available in various license levels depending on connectivity, please contact your local representative or call the UK head office for further information.

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