



elementar

EXCELLENCE IN ELEMENTS

High performance stable isotope ratio mass spectrometer isoprime precisIOn

isoprime precisIOn

isoprime precisIOn is a high performance stable isotope ratio mass spectrometer, offering market-leading gas ionization and mass resolution performance in the most compact footprint possible. This benchtop instrument combines exceptional analytical power and unrivalled flexibility to meet the needs of virtually any application.



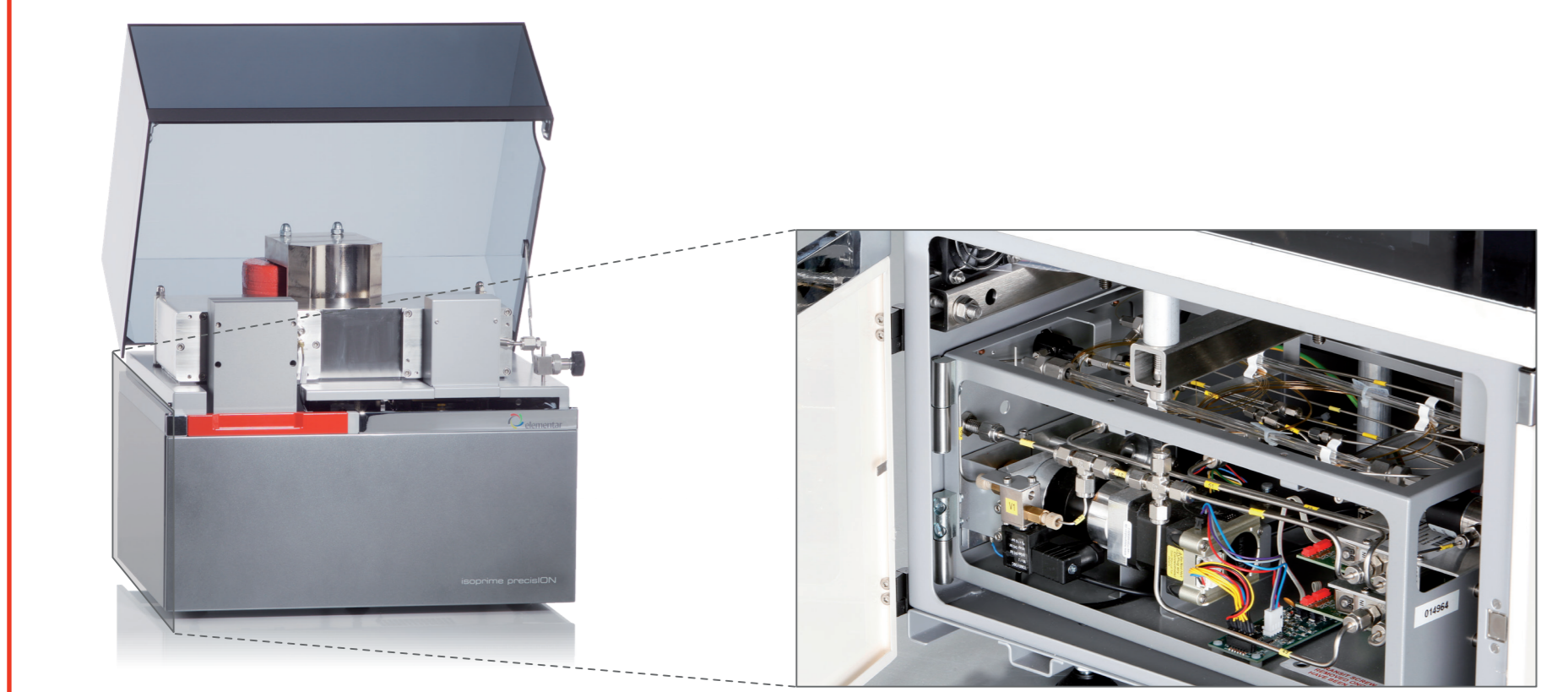
Key features

- 100 V amplification for large dynamic range samples, with auto-resistor switching for enriched isotope analysis
- Simultaneous measurement of up to 10 ion beams across a $\pm 25\%$ mass range for novel multi-collector experiments
- Improved gas ionization performance of 1,100 molecules CO_2/ion (CF mode) and 800 molecules CO_2/ion (DI mode)
- Improved mass resolution of 110 m/Dm (@ 10 % valley separation)
- ionOS® Method Workflow Designer graphical user interface for advanced instrument control
- Handle up to six monitoring gases and five inlets with **centrION** continuous flow interface system
- Vacuum-grade stainless steel analyzer construction for the highest vacuum performance, using a single turbomolecular pump and optional bakeout
- Automatic control of every aspect of the hardware with ionOS
- Bespoke DAC dual resistor configurations for non-standard isotopomer distributions
- Instant instrument status recognition with color LED warnings

centrION

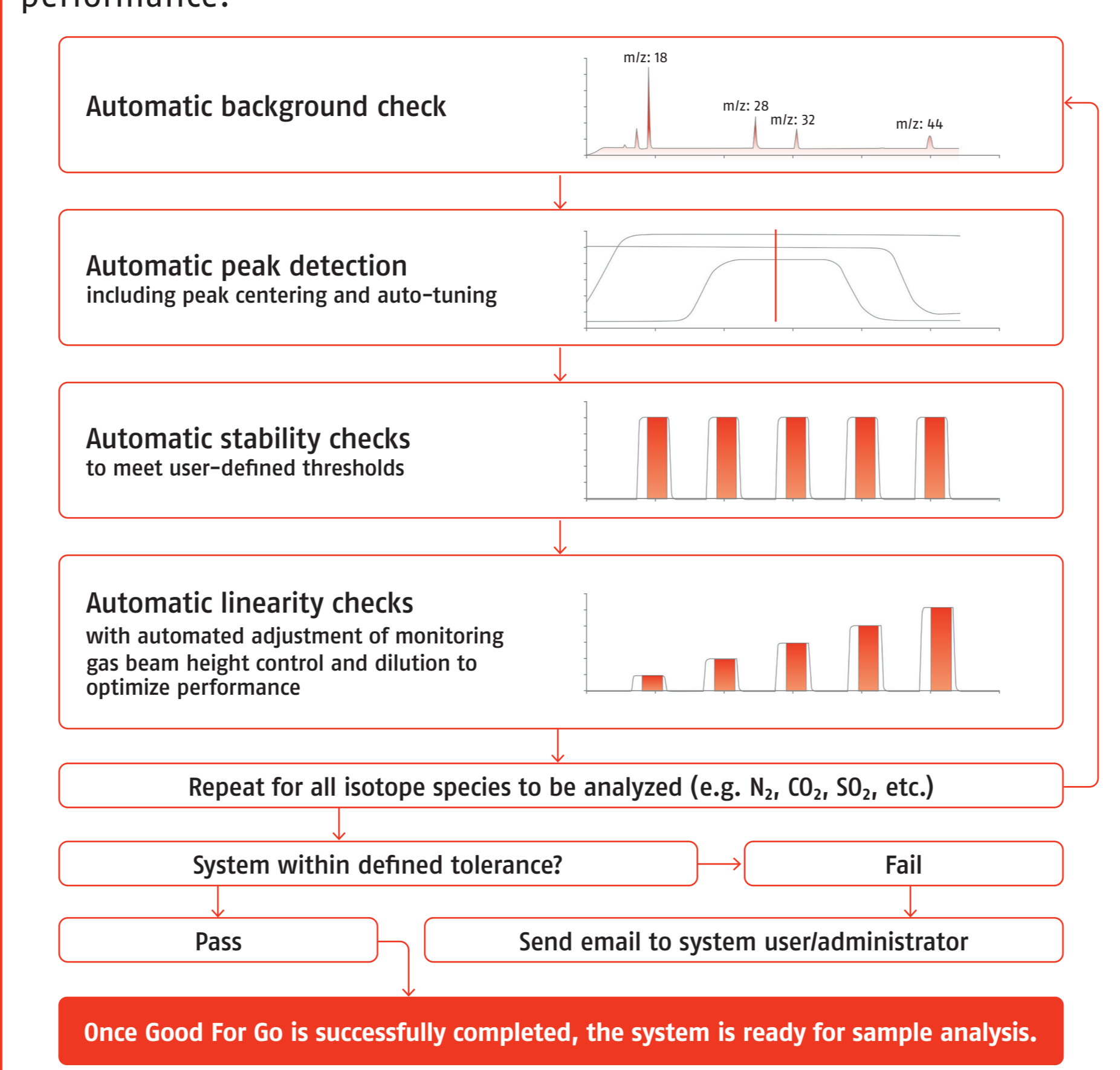
centrION is the interface between **isoprime precisIOn** and the rest of the world. This continuous flow (CF) interface system offers completely automated, intelligent control of sample, carrier and monitoring gases to maximize measurement flexibility. It provides fully automated system testing and optimization using pure monitoring gases, and offering seamless, software-controlled switching between all connected CF inlet systems.

- **Automated dilutions:** Automatically and variably dilute sample gases with helium, offering a large dynamic range without causing isotopic fractionation.
- **Rapid inlet switching:** seamlessly switch between up to 5 peripheral inlet systems without manual intervention.
- **Choice of monitoring gases:** up to six monitoring gases can be connected to the system.
- **Sleep/wake-up mode:** significantly reduces consumption of precious laboratory resources, such as helium, gas and electricity.



isoprime precisIOn and ionOS software have been developed to work in harmony and includes a number of workflow-oriented features which ensure that your instrument always runs in optimal conditions.

isoprime precisIOn's unique **Good For Go** functionality enables complete automation of peak tuning, stability and linearity checks for multiple gases, saving user time and ensuring optimal instrument performance.



Stable isotope inlet portfolio

isoprime precisIOn can be combined with a broad portfolio of peripheral inlet systems. Control and automation of both the inlet system and IRMS by ionOS allows walk-away sample processing, ensuring dynamic and flexible stable isotope analysis to match your workflow.

- **Elemental analysis:** vario ISOTOPE select, vario ISOTOPE cube, vario PYRO cube®, iso **TOC**® cube
- **Gas and liquid chromatography:** GC5, LiquiFace
- **Gas and headspace analysis:** iso **FLOW**, iso **FLOW GHG**
- **Dual inlet:** iso **DUAL INLET**, iso **AQUA PREP**, iso **CARB PREP**



Unlock the power of your IRMS with ionOS

ionOS software has been developed exclusively for stable isotope analysis, offering a range of advanced features. Designed to work in concert with our range of IRMS instruments and inlets, it offers complete control, method development and data processing, simplifying day-to-day activities and streamlining laboratory workflows.

ionOS is designed to be simple to use, with an intuitive user interface. Its clear iconography and structure offers a wide range of powerful features to match the everyday needs of IRMS users. Intelligent automation – from pre-run instrument checks to data processing – ensures optimal results while minimizing the need for user intervention.

This helps to standardize analytical protocols and data processing, providing greater insights from every experiment.

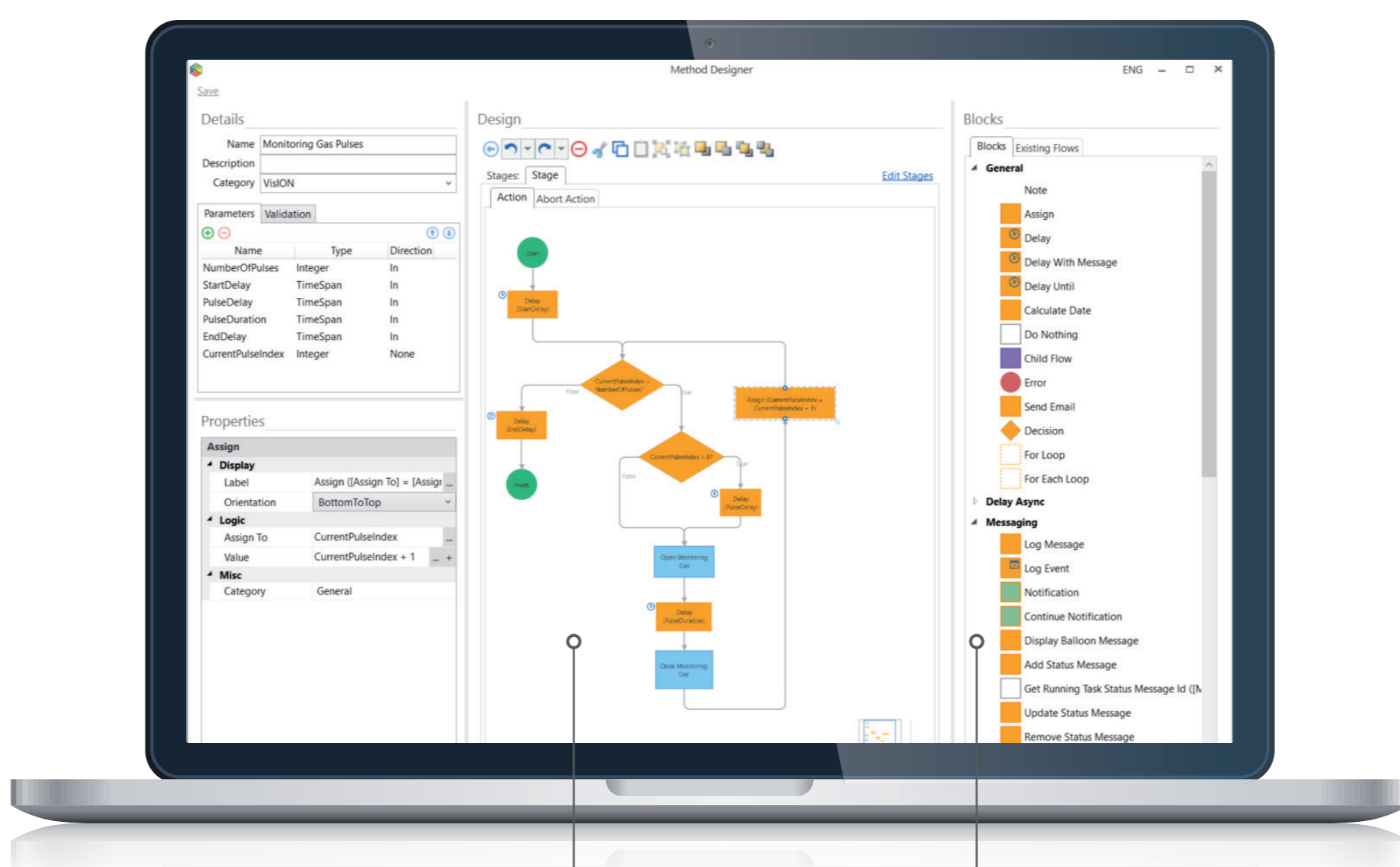
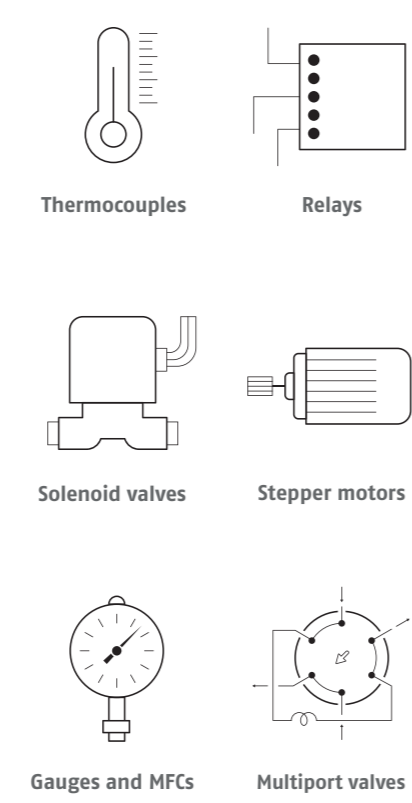
- **User access and permissions:** fully customizable user access and permissions functions to provide comprehensive process security.
- **Quick tasks:** allows pre-defined templates containing one or more tasks that can be run at the push of a button.
- **Sample loss prevention:** Intelligent automatic performance monitoring ensure the instrument does not analyze precious samples in non-ideal conditions.

Novel Inlet Control Module (NICM)

The Novel Inlet Control Module (NICM) is an optional hardware device offering a revolutionary approach to interfacing custom experimental set-ups with **isoprime precisIOn**. NICM provides all the development tools needed to create a full control solution of your custom inlet, without the need for specialist knowledge or programming skills.

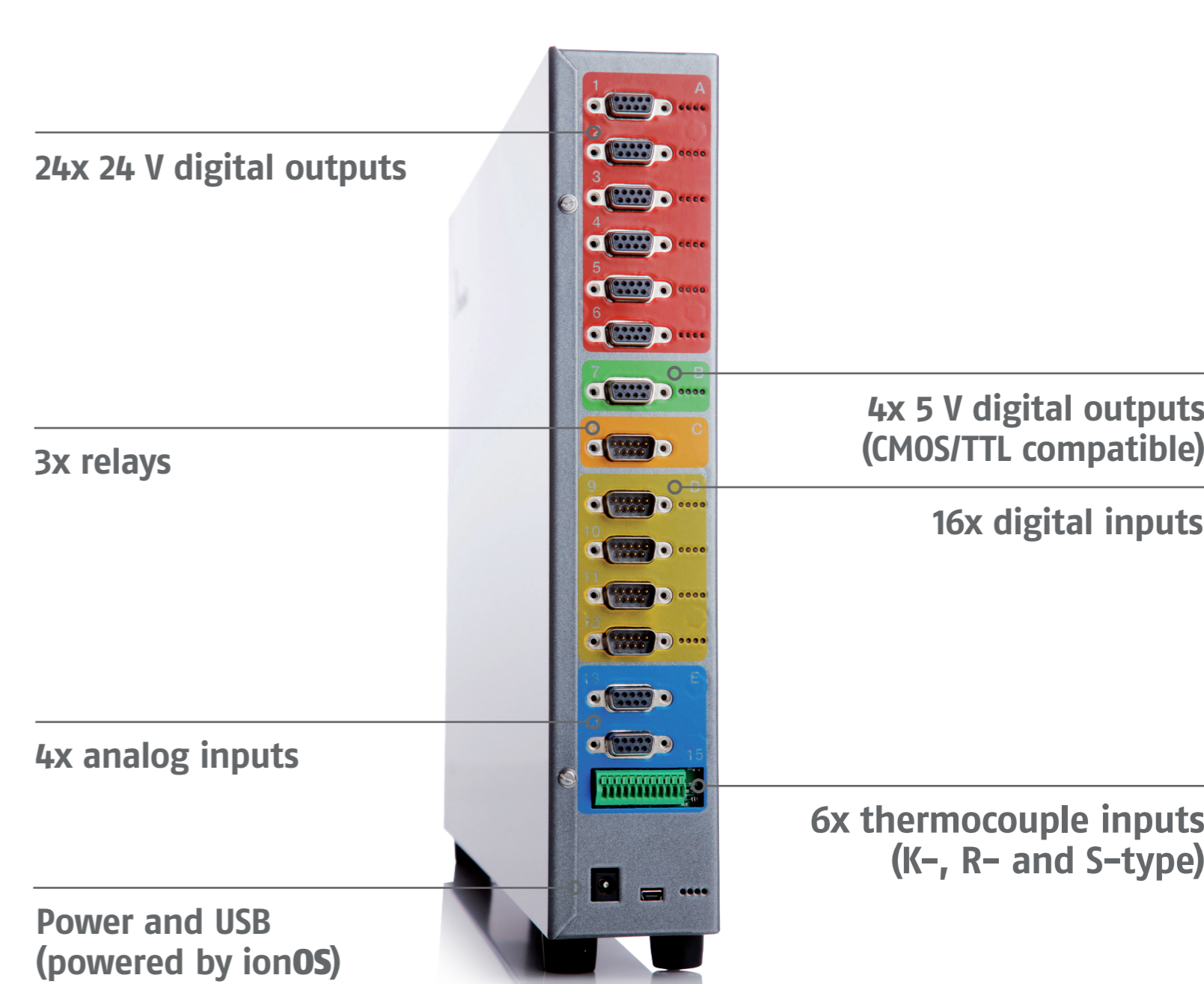
Example uses of NICM:

- Add additional sample loops and gas flows to an existing inlet system
- Develop a laser ablation system for tree rings or mineral cross-sections
- Build your own carbonate digestion system for "clumped isotopes"
- Automate control of an offline preparation system



Graphical logical methods makes method development quick and simple

Drag and drop common controls, devices and sub-methods from the toolbox



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