



Spectrophotometer **CINTRA** UV/VIS Spectrometry

Technology, Operation and Performance

We offer the high performance **Cintra** family of Double Beam UV/VIS spectrometers from GBC.

Cintra 1010: *for powerful performance at entry level price*

It is a true double beam spectrometer with low stray light and noise specifications. The **Cintra 1010** accepts all non motorised accessories plus the standard sipper or water thermostatted sipper.

Cintra 2020: *allows automation and has better specifications than the 1010*

This true double beam spectrometer will suit routine lab work or more advanced applications reaching into the NIR regions with its wavelength range of 190 to 1200nm and very low stray light and noise specifications. Accepts the full range of GBC accessories (non motorised accessories, motorised accessories, Peltier accessories and autosamplers) plus a unique reflectance sphere capable of measurement up to 1150nm, this low cost instrument provides maximum flexibility and power for all applications.

Cintra 3030: *research grade instrument with variable slit width and enhanced UV performance*

A research grade spectrometer with enhanced sensitivity in the UV range. It has a variable slit width from 0.2 to 5.0nm is deal for high resolution work right through to reflectance measurements. Its sensitivity, resolution, stray light, noise, and drift specifications are also exceptional. Accepts the full range of GBC accessories (non motorised accessories, motorised accessories, Peltier accessories and autosamplers) for it's wavelength range of 190 to 900nm making it the perfect instrument for specialised and research applications.

Cintra 4040: *true double monochromator with outstanding specifications for best performance.*

The Cintra 4040 is a true double beam, double monochromator spectrometer which offers the ultimate in resolution and sensitivity. Using a variable slit width from 0.1 to 2.0nm, and dual Littrow monochromators in a Czerny Turner arrangement to achieve the highest resolution with extremely low stray light. Photometric linearity is now better than 1.2% at 5 Abs!. The wide dynamic range and best resolution, stray light, noise and drift specifications make the **Cintra 4040** the best performing UV instruments in it's price range allowing for the most demanding applications. Accepts the full range of GBC accessories (non motorised accessories, motorised accessories, Peltier accessories and autosamplers) for it's wavelength range of 190 to 900nm making it the perfect instrument for specialised and research applications.





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CINTRAL Software

All models and as well the optional accessories like sample changers are controlled completely by the software.

CINTRAL includes many functions:

- Applications: General, Quantify, Kinetics, DNA Melt, Colour, Scripting
- System Validation Application for performance verification and IQ/OQ requirements.
- Fixed wavelength measurement (Single or multiple wavelengths)
- Wavelength and Time scanning
- Standard curve fitting
- Spectrum Transformation such as derivatives, sine, negating scans etc
- Peak and Valley find feature.
- Scan Calculator allowing calculations such as addition and subtractions of scans, as well as derivatives, sine, etc.
- Full Quality Control parameters
- Report Generation and printing of results to any printer supported by Windows®.
- Data export to text format for importing to Excel or other data analysis packages or .xml format.
- Auto recognition of accessories when connected.
- Control of automatic cell changers – 6x1, 6x6, 7x7.
- Control of Sipper and auto samplers – SDS-720, and FS3000.





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Accessories

A wide range of accessories like cell holders are available:

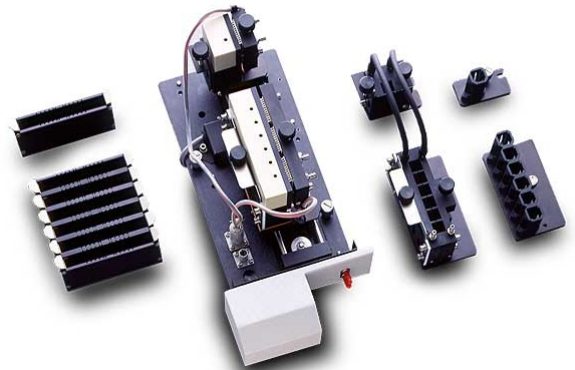
- Micro-cell holder with fine-position controls for optimising light throughput.
- Variable path length holder for rectangular cells with path lengths of 5 to 100 mm.
- Cylindrical cell holder with a simple spring clip action holds cells up to 100 mm path length.
- Slide/solid sample holder accepts solid samples up to 10 mm thick.

Sample Changers

Two kinds of sample changers are available, to provide speed and precision in positioning your samples for fast and accurate measurements of sample batches.

In-line (6 x 1)

The 6 x 1 or Linear Movement Module allows up to six samples to be measured in batch mode against a single reference solution. The sample changer can be fitted with a range of 6 x 1 cell holders, including standard (10 x 10 mm), variable path length, water thermostatted and peltier-effect thermocell versions. Sample selection is automated by the software.



Dual Carousel (6 x 6 or 7 x 7)

The 7 x 7 sample changer is available in standard and water thermostatted versions. All sample changers are fully computer controlled, providing random access to all positions. It takes less than one second to move between adjacent cells. Two measurement modes are available: 7 x 7 mode for measuring 7 samples against up to seven references or 12 x 2 mode for measuring up to 12 samples against one or two references.



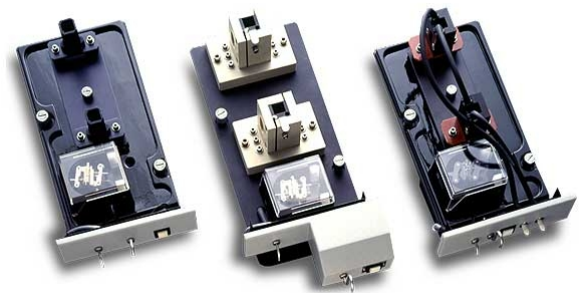


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Sippers and Autosamplers

The auto sipper removes the need for cell handling. Used with a flow cell (various types available), sample introduction is reduced to a key press. It features computer-controlled pump times, and can be used with temperature controlled cells.

For high speed automated analysis, the SDS-720 autosampler, used with a sipper, provides automated sample selection of up to 720 samples. A built-in diaphragm pump provides a continuous stream of clean rinse solution to prevent inter-sample contamination.



Temperature controlled cell holders

Water-thermostatable cell holders are available in single cell or sample changer (linear or carousel) configurations. When connected to a constant-temperature circulating water bath, these cell holders ensure constant sample temperature.

For precise and rapid temperature control, a range of Peltier-effect thermocells is available in single cell or sample changer (linear or carousel) versions. Peltier-effect controllers are useful in applications where an accurate constant temperature or an accurate controlled temperature ramp is required. Optional sample immersion probes are available for accurate monitoring of the true sample temperature.





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The following equipment components are available:

Spectrophotometer CINTRA	Part No.
Cintra 1010 (former 101) UV-Visible Spectrometer	99-0553-01
Cintra 2020 (former 202) UV-Visible Spectrometer	99-0554-81
Cintra 3030 (former 303) UV-Visible Spectrometer	99-0555-81
Cintra 4040 (former 404) UV-Visible Spectrometer	99-0556-81

Autosamplers	
SDS720 Sample Delivery System	99-0582-00
FS3000 Autosample changer	99-0345-00

Peltier Thermocells	
6x1 Peltier Effect Thermocell	99-0185-11
1x1 Peltier Effect Thermocell	99-0191-11
1x1 Peltier Effect Thermocell with Sipper	99-0205-11
6x6 Peltier Effect Thermocell	99-0343-11

Sample Changers	
7x7 dual carousel drive with two 7-cell carousels	99-0178-00
Water thermostatable 7x7 dual carousel drive	99-0179-00
Linear Movement Module	99-0181-00
6x1 Standard cell holder for linear movement module	99-0183-00
6x1 Water thermostatable standard cell holder for linear movement module	99-0184-00
6x1 Variable pathlength cell holder for linear movement module	99-0208-00

Slippers	
Auto-Sipper	99-0189-00
1x1 Peltier Effect Thermocell with Sipper	99-0205-11
1x1 Water thermostatable cell holder with sipper	99-0214-00

More components like reflectance accessories, sample holders, temperature probe, water recirculators and consumables like lamps and cuvettes are also available.

Technical Specifications:

Luminous source: D2 and W, auto. switch
Control: PC over CINTRAL software

Cintra 1010 (former Cintra 101)
Diffused light: <0.02 %T @ 220 nm
Detector: Photodiode
Wavelengths: 190 - 1100 nm
Gap width: 1,5 nm
Scan rate: 60 - 3.200 nm/min.

Cintra 2020 (former Cintra 202)
Diffused light: <0.0001 %T @ 220 nm
Detector: Photodiode
Wavelengths: 190 - 1200 nm
Gap width: 1,5 nm
Scan rate: 5 - 10.000 nm/min.

Cintra 3030 (former Cintra 303)
Diffused light: <0.0008 %T @ 220 nm
Detector: Photomultiplier
Wavelengths: 190 - 900 nm
Var. slit width: 0,2 - 5,0 nm (per 0,1 nm)
Scan rate: 5 - 10.000 nm/min.

Cintra 4040 (former Cintra 404)
Diffused light: <0.00003 %T @ 220 nm
Detector: Photomultiplier
Wavelengths: 190 - 900 nm
Var. slit width: 0,1 - 2,0 nm (per 0,1 nm)
Scan rate: 5 - 10.000 nm/min.
Linearity: better than 1,2% at 5 Abs.