

UV-Vis Spectrophotometer  
 Specific functionality for Life Science applications

# V-630Bio



The V-630Bio is a specifically designed instrument dedicated to Life Science applications. This model consists of the V-630, an intelligent Remote Module (iRM) designed for biological and clinical analysis, and a micro cell holder. The iRM conveniently guides the operator through routines encompassing data acquisition to data processing. Features for simplicity and ease-of-use include the IQ Accessory function for automatic accessory recognition and IQ Start for immediate start of registered data collection applications when conducting routine measurements. Built-in bio-analytical application programs include: protein/nucleic acid measurement; temperature ramping/DNA melting analysis; kinetics measurement/analysis; and a quantitative protein analysis program with six different calibration methods installed and ready for analysis.

● **Simplicity and Ease-of-Use**

The newly redesigned intelligent remote module (iRM) can be easily operated through a color LCD touch screen. The iRM incorporates a wide display and provides access to all functions necessary for routine applications.

● **High-Speed Scanning**

High-throughput optics and fast response detectors allow the V-630Bio to scan at speeds up to 8000 nm/min. without wavelength tracking errors.

● **Applicable to Micro Volume Sampling**

The standard cell holder includes a cell height adjustment function to accept micro cells.

● **Standard Application Programs**

- Wavelength scanning
- Quantitative Analysis with six types of calibration curves
- Time course measurement
- Fixed wavelength measurement

● **Dedicated Biological Application Programs**

- Protein/nucleic acid measurement
- Temperature ramping/DNA melting analysis
- Kinetics measurement and analysis

● **Data storage on PC-compatible flash memory card**

The obtained data can be automatically printed to USB printers, or saved to a compact flash memory card for further processing on a PC.

● **Wide Range of Sampling Accessories**

A full complement of sampling accessories including automatic cell changers, sippers, autosamplers, ultra-micro cell holder in addition to additional software packages are available to optimize the V-630Bio for specific applications.

● **Instrument Validation**

A USP, EP and JP compliant instrument validation package is standard.



## Hardware Specifications

Optical system	Single monochromator 1200 lines/mm concave grating Modified Rowland mount Double-beam
Light source	Deuterium lamp: 190 to 350 nm Halogen lamp: 330 to 1100 nm
Light source exchange wavelength	User-selectable within a range of 330 to 350 nm
Detector	Silicon photodiode (S1337)
Wavelength range	190 to 1100 nm
Wavelength accuracy	±0.2 nm (at 656.1 nm)
Scanning speed	10 - 8000 nm/min
Wavelength repeatability	±0.1 nm
Slew speed	12,000 nm/min
Spectral bandwidth	1.5 nm (fixed)
Photometric range	±10000 %T -2 to 3 Abs
Photometric accuracy	±0.002 Abs (0 to 0.5 Abs) ±0.003 Abs (0.5 to 1 Abs) ±0.3 %T (Tested with NIST SRM 930D)

Photometric repeatability	±0.001 Abs (0 to 0.5 Abs) ±0.001 Abs (0.5 to 1 Abs)
Stray light	1 % (198 nm KCL 12 g/L aqueous solution) 0.04 % (220 nm NaI 10 g/L aqueous solution) 0.02 % (340 nm NaNO <sub>2</sub> 50 g/L aqueous solution) 0.02 % (370 nm NaNO <sub>2</sub> 50 g/L aqueous solution) (10 mm cell)
Baseline stability	±0.0004 Abs/hour (Response: slow; wavelength: 250 nm; lamp on greater than two hours; stabilized room temperature)
Baseline flatness	±0.0006 Abs (Value obtained after instrument baseline correction with a temperature variation of less than 5°C; wavelength range: 200 to 1000 nm; response: medium; scanning speed: 400 nm/min [based on JAIMA Standard JAIMAS-0001])
RMS noise	0.00006 Abs (0 Abs; wavelength: 500 nm; measurement time: 60 sec; response: medium)
Power requirements	105 VA
Dimensions and weight	486(L) x 441(W) x 216(H) mm (excluding accessories) 15 kg

## iRM-700 BIO Intelligent Remote Module

Display	320 x 240 pixel color LCD touch sensitive screen	
Basic measurement modes	Quantitative analysis	1, 2 or 3 wavelength measurement method (peak maximum and baseline points) Calibration curves: Linear, Proportional, segment, quadratic, cubic Protein Analysis calibration curves: UV Absorption, BCA, Bradford, Lowry, WST, Biuret
	Wavelength scan	Measurement mode: Abs, %T, %R Data processing: Scale change, Zoom, Trace, Peak picking, Peak ratio, Ratio of 2 wavelengths, Derivatives, Smoothing, Calculation, Overlay
	Time scan	Measurement mode: Abs, %T, %R User-defined time period Enzyme activity calculation
	Fixed wavelength	Measurement mode: Abs, %T, %R Up to 8 selected wavelengths
	Abs/%T monitor	
Standard bio-analytical programs	Kinetics measurement and analysis	Calculation of the Michaelis-Menten constant ( $K_m$ ) and the maximum enzyme velocity ( $V_{max}$ ) (Michaelis-Menten plots, Lineweaver-Burk plots, Hofstee plots, Eadie plots) Automated multi-cell control
	Protein/nucleic acid measurement	Calculation of protein/Nucleic acid concentrations (260/280 Ratio, 230/280 Ratio, Warburg-Christian method, Abs ratio at user-defined wavelengths, user defined factors) Correction at 320 nm or user-defined wavelength
	Temperature ramping/DNA melting analysis	Determination of the theoretical thermal melting point ( $T_m$ ) Automated multi-cell control
Data handling	Data format	JASCO format (.jws), text format (ASCII.txt)
	Auto print (optional USB printer)	
	Auto save (to flash memory)	
Card slot	Compact flash memory card/flash ATA card	
Standard validation function	USP, EP, JP compliant	Wavelength accuracy, Wavelength repeatability, Photometric accuracy, Photometric repeatability, Resolution, Stray light, RMS Noise, Baseline stability, Baseline flatness

## Standard Composition

Description	Qty	Remarks
Intelligent remote module (iRM)	1	
iRM touch pen	1	
Compact flash memory card	1	
Card adapter	1	
Holmium glass	1	Bi-functional Holmium glass holder/shielding plate

Description	Qty	Remarks
Sample cell mask	1	Aperture height 3 mm
Time-delay fuse	2	
AC power cable	1	
Allen wrench	1	For adjustment of the light source mirror
Certificate of inspection	1	
Instruction manual	1 set	



● Specifications are subject to change without notice.

## JASCO INTERNATIONAL CO., LTD.

4-21, Sennin-cho 2-chome, Hachioji, Tokyo 193-0835, Japan  
Tel: +81-426-66-1322 Fax: +81-426-65-6512 Internet: <http://www.jascoint.co.jp/english/index.html>  
Australia, China, Hong Kong, India, Indonesia, Iran, Korea, Malaysia, New Zealand, Pakistan, Philippines, Russia, Singapore, South Africa, Taiwan, Thailand

## JASCO INCORPORATED

8649 Commerce Drive, Easton, Maryland 21601-9903, U.S.A  
Tel: +1-800-333-5272 Tel: +1-410-822-1220 Fax: +1-410-822-7526 Internet: <http://www.jascoinc.com>  
Canada, Costa Rica, Mexico, Puerto Rico, Argentina, Brazil, Chile, Colombia, Paraguay, Peru, Uruguay

## JASCO EUROPE s.r.l.

Via Confalonieri 25, 23894 Cremella (Lc), Italy  
Tel: +39-039-956439 Fax: +39-039-958642 [www.jasco-europe.com](http://www.jasco-europe.com)  
JASCO Deutschland [www.jasco.de](http://www.jasco.de), JASCO UK [www.jasco.co.uk](http://www.jasco.co.uk), JASCO France [www.jascofrance.fr](http://www.jascofrance.fr),  
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JASCO Corporation

2967-5, Bunkyo-cho, Hachioji, Tokyo 193-8537, Japan  
<http://www.jasco.co.jp>

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