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Specification Sheet

IRSpirit™-X Series

Fourier Transform Infrared Spectrophotometer



This portable, compact Fourier Transform Infrared (FTIR) spectrophotometer is equipped with a sample compartment designed for two-sided access, making it possible to install even in narrow spaces, while accommodating conventional accessories with the maximum width in its class.
It features 23 pre-packaged applications through the IR Pilot™ pre-built macro program and a Spectrum advisor function that assesses spectrum quality and suggests improvements, allowing anyone to easily conduct analysis.
Despite its compact size, it incorporates technology inherited from higher-end models, achieving a best-in-class S/N ratio of 37,000:1*2.
Furthermore, with the IRSpirit-X series, all components except consumables*3 are covered by a 10-year warranty*4.

*1: Quantitative analysis function cannot be used when using IR Pilot with LabSolutions™ DB/CS.
*2: This information pertains to the IRSpirit-TX model, which includes a DLATGS detector with temperature control, Ge-coated KBr beam splitter, and KBr window.
*3: Windows and optional dehumidifiers are consumable items.
*4: There is no cost for one year after installation due to product warranty, but there is an additional cost for replacement of parts after the first year.

Hardware

Interferometer	Michelson interferometer (30° incident angle) Equipped with advanced dynamic alignment system Sealed interferometer
Optical system	Single-beam optics
Beam splitter	IRSpirit-TX/LX : Germanium coated KBr IRSpirit-ZX : Germanium coated ZnSe
Light source	High-energy ceramic
Detector	IRSpirit-TX/ZX : DLATGS detector with temperature control IRSpirit-LX : Lithium tantalate detector
Wavenumber range	IRSpirit-TX/LX : 7,800 to 350 cm^{-1} IRSpirit-ZX : 6,000 to 550 cm^{-1}
Wavenumber repeatability	±0.0005cm^{-1} (@2,000 cm^{-1})
Wavenumber accuracy	±0.1 cm^{-1} (Wavenumber accuracy at wavenumber calibration position)
Resolution	0.9, 2, 4, 8, 16 cm^{-1}
SN ratio	37,000:1 or higher (IRSpirit-TX/KBr window) 30,000:1 or higher (IRSpirit-TX/KRS-5 window, IRSpirit-ZX/KRS-5 window) 13,000:1 or higher (IRSpirit-LX/KBr window) 10,000:1 or higher (IRSpirit-LX/KRS-5 window) (4 cm^{-1} resolution, 1 min scan, around 2,100 cm^{-1}, peak to peak)

Mirror speed	2.8 mm/sec
Data sampling	Temperature-controlled semiconductor laser
Sample compartment	Equipped with automatic accessory recognition mechanism W200 × D140 × H100 mm Center focus
Dimensions	W390 × D250 × H210 mm
Weight	8.5 kg
Installation site	Temperature: 10 °C to 35 °C* Humidity : KBr window: 20 to 70 % with no condensation KRS-5 window: 20 to 90 % with no condensation *15 °C to 30 °C for operation
Power supply voltage	AC 100 to 240 V, 50 to 60 Hz
Required power	75 VA
Power consumption	40 W (for operation), 7 W (for standby)

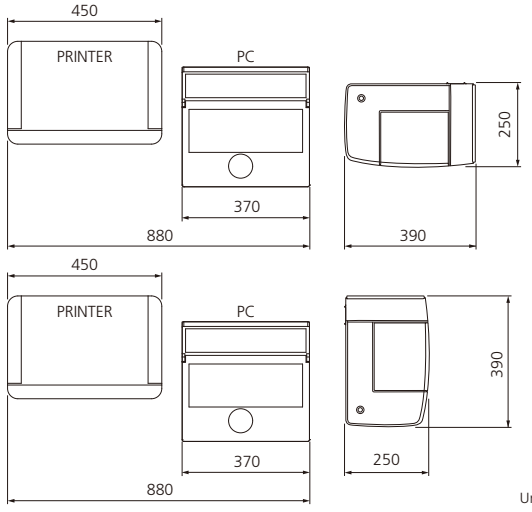
LabSolutions™ IR Software

OS	Windows® 10 Pro 64 bit edition Windows® 11 Pro
Interface	USB 2.0, USB 3.0
Programs	Postrun, Spectrum, Quantitation, Photometric, Time course (optional)
Measurement	Spectrum measurement, Continuous measurement, Atmospheric correction measurement, Simple measurement mode
Hardware monitor	Self-diagnosis function, Status monitor
Measurement support function	Spectrum advisor function
Manipulation functions	Four arithmetic operations, Normalization, Baseline correction, Smoothing, Derivative, X-axis range change, Data correction, Data points thinning/interpolation, Wavenumber-wavelength conversion, X adjust, Time-temperature conversion, Peak pick, Point pick, Film thickness calculation, Data calculation, Degree of coincidence, Deconvolution, Fourier transform, Kubelka-Munk conversion, ATR correction, Advanced ATR correction, Kramers-Kronig transformation, Atmosphere correction, Degree of coincidence calculation
Manipulation functions (optionals)	Peak split, 3D recalculation, Spectrum extraction from 3D data
Analysis support programs	Contaminant alalysis program, Identification test program, Purity calculation
Search functions	Spectrum search (based on similarity), Peak search, Text search, Combination search, Setting of search conditions, Search of user library and commercial library, Creation of user library, Library of approx. 1,500 spectra of organic compounds, polymers, pharmaceutical products, inorganic compounds, food additives, contaminants, etc.
Quantitative functions	Multi-point calibration curve method CLS quantitative method PLS quantitative method (option) Photometrics Recalculation function for quantitative and photometric results
Printing functions	Report template creation Printing using report templates Easy printing using the ViewPrint function

Validation program	Complies with Chinese, European and Japanese Pharmacopoeias, US Pharmacopeia and ASTM*5 (Please confirm the applicable version.)
GLP/GMP support	Tree-structured audit trail function Recording of operation logs and data logs (history) Saving by overwriting the same filename is prohibited
Security functions	Coordination with LabSolutions security functions User-group based privilege settings
Macro functions	IR Pilot pre-built macro program • 23 programs for supporting analysis related to contaminant analysis, identification test, quantitation and film thickness calculation are included as standard. Easy macro function • Collective execution of multiple operations by simply arranging operations in the order of the procedure • Execution possible from the PC Macro platform (optional)
Optional software	Time course, PLS quantitation, Peak split, 3D processing, Macro platform
Optional libraries	Contaminant library Thermal-damaged plastics library UV-damaged plastics library Sadtler library STJ library, etc.
File formats	Files of JCAMP-DX, ASCII, IRsolution and HYPER-IR can be loaded and saved.

*5: IRSpirit-ZX does not support ASTM-compliant validation program.

Dimensions (Laptop system)



Units: mm

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