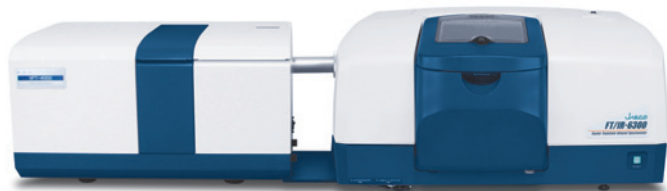


# New Accessories for Enhancing the FT/IR-4000, 6000 Series

## VFT-4000 vibrational Circular Dichroism (VCD) attachment



**Example of system configuration:  
VFT-4000 with the FT/IR-6300 FT-IR spectrometer**

### ● Wide band coverage

The VFT-4000 can cover a wide spectral range from 3200 ~ 850  $\text{cm}^{-1}$  as standard. Optional detectors and filters can extend the range to 4000 ~ 750  $\text{cm}^{-1}$ , enabling the measurement of OH and NH bands. Detectors can be easily exchanged with no manual alignment, and optical filters can be switched by a PC-controlled 6-position filter wheel.

### ● VCD auto alignment

An auto-alignment function optimizes the VCD optics to reduce linear anisotropy artifacts. No manual alignment is required when a detector and/or optical filters are exchanged.

### ● Narrow band mode

The narrow band mode allows measurements of small peaks at targeted absorption bands with high sensitivity by using optional band filters.

### ● Purge capability

The optics, sample chamber and detector housing are all purgeable to obtain high precision data free of environmental interference.

## Specifications

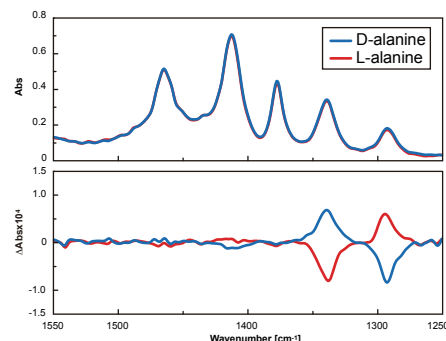
Measurement range	Standard: 3200 - 850 $\text{cm}^{-1}$ Option: 4000 - 750 $\text{cm}^{-1}$
Resolution	Depending on FT-IR model
Noise level	about $1 \times 10^{-5}$ $\Delta\text{Abs}$
Measurement condition	(4 $\text{cm}^{-1}$ , 20 min accumulation)
Detector	Standard: MCT-V (3200 - 850 $\text{cm}^{-1}$ ) Option: MCT-C (1000 - 750 $\text{cm}^{-1}$ ) InSb (4000 - 2000 $\text{cm}^{-1}$ )
Lock-in detection	DSP
Optical filter	Standard: 3200 - 2000 $\text{cm}^{-1}$ , 2000 - 850 $\text{cm}^{-1}$ Option: 4000 - 2700 $\text{cm}^{-1}$ , 1000 - 750 $\text{cm}^{-1}$ , 1850 - 1550 $\text{cm}^{-1}$ 6-position automatic switching (Standard)

The VFT-4000 is a VCD attachment for the FT/IR-4000/6000 FT-IR spectrometers, developed for measuring vibrational circular dichroism in the infrared region. The VFT-4000 can be used to obtain very useful information for the optical activity of carbohydrates and provide tertiary structure identification of chiral molecules. Since the CD signals in the infrared region are one or more orders of magnitude lower than ECD signals in the UV-Vis region, the VCD spectrometer needs high sensitivity and high stability. The VFT-4000 enables highly stable and sensitive measurement using lock-in detection by a DSP (digital signal processor) with a sophisticated algorithm optimized for VCD as well as thermal control of the PEM.

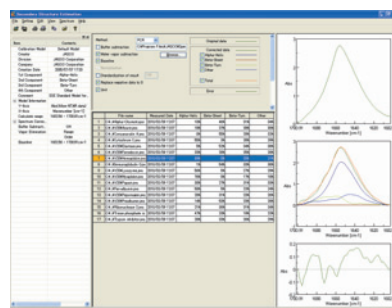
The VFT-4000 can be easily integrated with an installed FT/IR-4000/6000 in the field without any complicated adjustments.

### Both VCD and IR measurements in one system

The FT/IR-4000/6000 combined with the VFT-4000 allows you to perform both FT-IR and VCD measurements on one system. In FT-IR measurement mode, information for protein secondary structure analysis can be obtained, while in the VCD measurement mode, very useful information of optical activities and tertiary structure identification of molecules can be obtained. This system can be applied widely for the field of structural analysis of various optically active substances.



**VCD and IR spectra of amino acid**



**Secondary structure estimation of hemoglobin by IR measurement**