AI Infrared analysis of proteins

AI

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Factory visit summary

Instrument : FT-NIR spectrometer (lifetime more than 7 years)

Model : BRUKER MPA II

Software : OPUS Spectroscopic software V. 6.5

Frequency: NIR(2.5um - 800 nm)

Other Market available equipments

NIR

EZRAMAN-N SERIES AFFORDABLE RAMAN SPECTROMETER

SKU: EZ-N-7A2S-10-112

The EZRaman-N is a sensitive, reliable, and stable Raman spectrometer. It requires minimal sample preparation and its rugged, portable design allows for heavy use in multiple locations as needed. The EZRaman-N is the perfect teaching tool and has the best performance-to-price ratio in the market.

£25,000–£45,000 **price**

DRAWELL

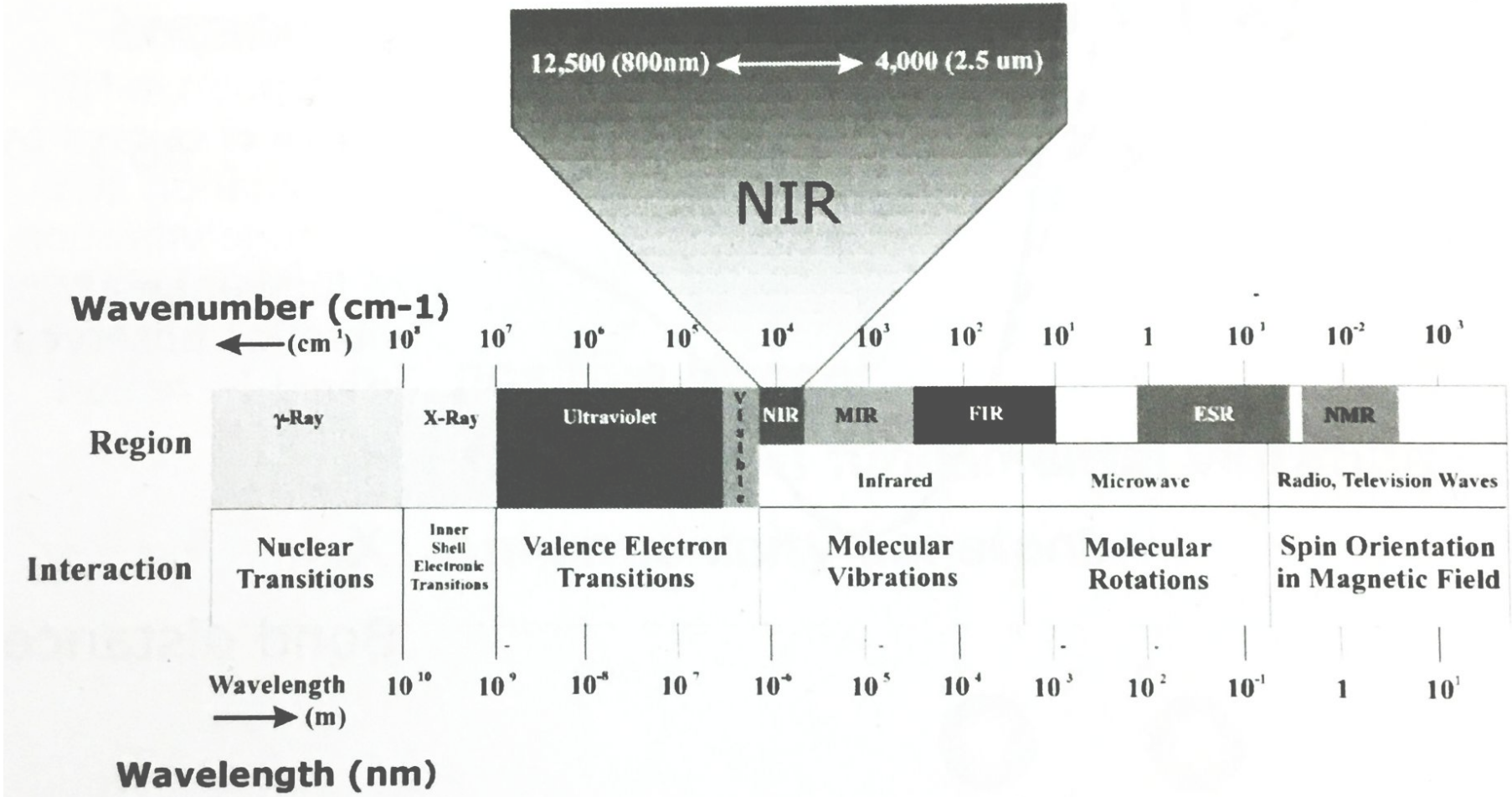
900-1700nm

MARCH Drawell lab nir spectrometer price

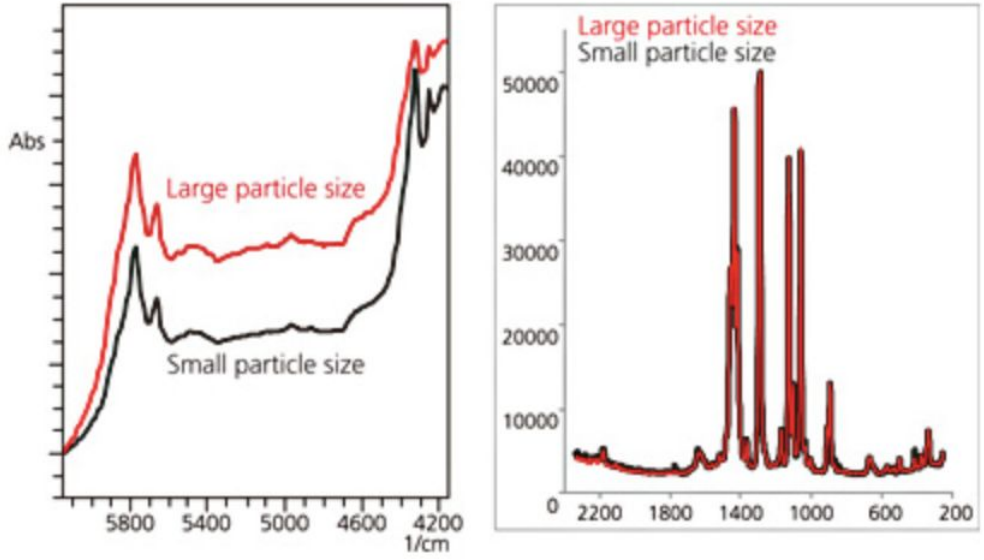
US $4800-13000 / Piece
1 Piece (Min. Order)

5 YRS Shanghai Drawell Scie...

90.6%


12,500 (800nm) ⟷ 4,000 (2.5 um)
NIR
Wavenumber (cm-1)
(cm⁻¹)
10⁸ 10⁷ 10⁶ 10⁵ 10⁴ 10³ 10² 10¹ 1 10⁻¹ 10⁻² 10⁻³
Region
γ-Ray
X-Ray
Ultraviolet
Visible
NIR
MIR
FIR
ESR
NMR
Infrared
Microwave
Radio, Television Waves
Interaction
Nuclear Transitions
Inner Shell Electronic Transitions
Valence Electron Transitions
Molecular Vibrations
Molecular Rotations
Spin Orientation in Magnetic Field
Wavelength (m)
10⁻¹⁰ 10⁻⁹ 10⁻⁸ 10⁻⁷ 10⁻⁶ 10⁻⁵ 10⁻⁴ 10⁻³ 10⁻² 10⁻¹ 1 10¹
Wavelength (nm)

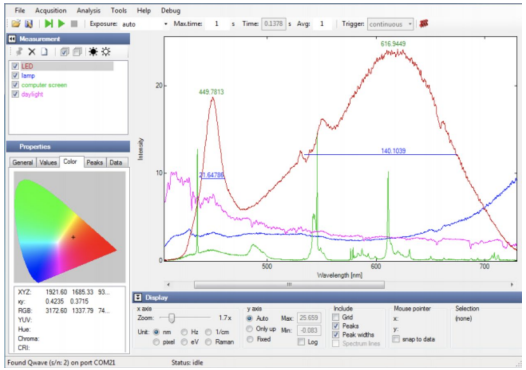
Possible sensors



Left → NIR sensor (current), Right→ Raman sensor with full IR spectrum

Introducing Near-Infrared Spectrometer(NIR)

Developed NIR Spectrometer



Software

Compact Performance

- A flexible design, small, light, ,**Fast, Accurate**

Results

- delivers precise, sensitive spectra that can easily be converted to results with AI analysor

Integrated Platform

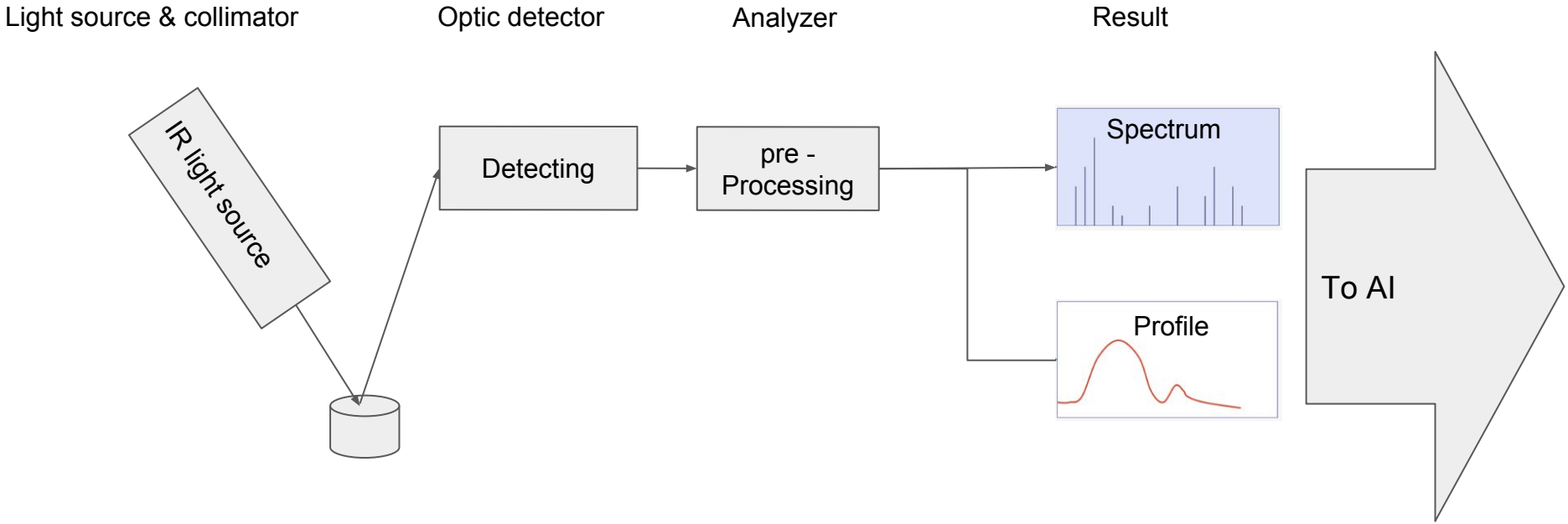
- Combine with Mid-IR, Particle Characterization, and Automated Chemistry Reactors for comprehensive understanding and control.

Artificial intelligence(AI)

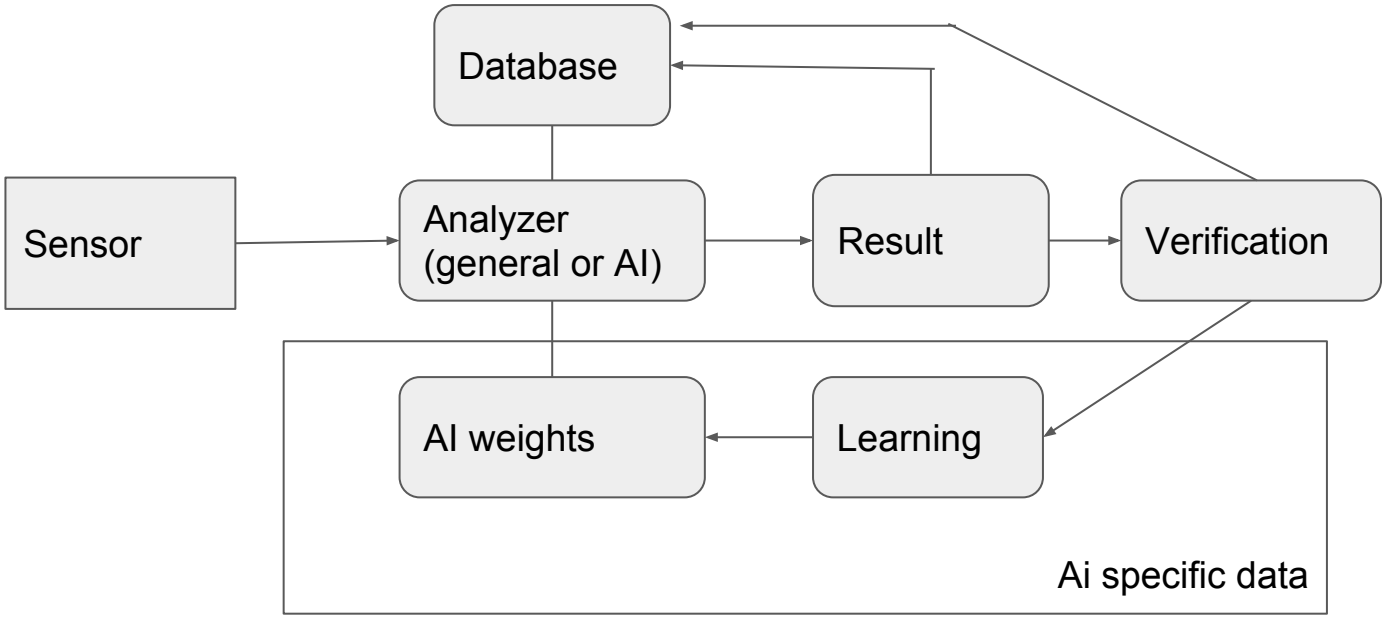
- a mechanism for pattern recognition
- identifies the specific components of an odor and analyzes its chemical makeup to identify it

DV system design

Sensor design



AI system design



COST

Cost comparison

Complete set spectrometer with Machine programming

Spectrometer	Brand	Type	Cost(THB)*
FT-NIR	Bruker	Benchtop	2,000,000
RAMAN	Bruker	Handheld	2,500,000
RAMAN	Bruker	Benchtop	5,000,000
FT-NIR	Buchi	Benchtop	1,500,000

Custom part list with in house Deep learning AI

Item	Cost(THB)
1. Equipment&tools - NIR Spectometer - Cosine collecting probe(Detector) - IR light source - Optic Collimator - Optical fiber with SMA to SMA connector	300,000
2. Development (equipments and salary for developers) - Hardware - Software	400,000
Total	**700,000**

Deployment schedule

Project Schedule

Key timeline

Delivery date → first week of June 2019
First set of chemical measured with reasonable accuracy (+-5%) → July 2019
Same accuracy and material list as existing system (Brucker) → Dec 2019
Extra material list that is not available by current system → March 2019

Funding plan

Investment

● $30,000	Seed	→	Start development of first prototype
● $100,000	Series A	→	Deliver first successful product
● $500,000	Series B	→	Beat competitor on performance