

Introduction

Process Analytical Techniques (PAT) have recently achieved great importance in pharmaceutical industries. The most important aims of PAT are to increase productivity, to improve safety as well as to learn about processes.

J&M Analytische Mess- und Regeltechnik provides individual PAT solutions based on optical spectroscopy in the UV-, Vis- and NIR-range (190 – 2500 nm).

Design

J&M spectrometer systems are designed to fit the demands of process analytics.

Due to the use of diode arrays high measurement speeds (up to 3 ms per spectrum) are easily attainable without loss of resolution or limitation of the wavelength range.

Optical fibers ensure the flexibility of the systems.

The systems can be operated with AC or DC (Mains adapter or battery).

All systems comply with the specifications of both USP and Eur. Ph.

J&M provides systems for different kinds of spectroscopy :

- > Absorption
- > Reflection
- > Fluorescence

Optical Spectroscopy can be applied to :

- > Liquids
- > Solids

Depending on the customer requirements the different spectrometry devices can either be realised as mobile or as affixed systems.

The following figure shows a selection of different system designs.



Fig. 1: Different Designs of Process Analyzers

Left : Detachable NIR Spectrometer mounted on a mobile rack

Top right : Mobile UV/Vis Spectrometer

Down right : Wall-mounted UV/Vis Spectrometer

Sample Interfaces

J&M provides different kinds of sample interfaces. The following figures show a selection.



Fig.2: Measurement head with light source for reflection spectroscopy



Fig.3: Flow cells with different diameters for absorption spectroscopy

Application possibilities

The fields of application for optical spectroscopy in process analytics are manifold, e.g. :

- > Blending
- > Drying
- > Cleaning Validation
- > Reaction monitoring

Software

For process applications J&M spectrometers are controlled by **NovaPAC**[™], a FDA compliant easy-to-use process software.

With **NovaMath**[™] evaluation and data modelling is carried out.

Both software applications are available in different languages :

- > English
- > Spanish
- > German

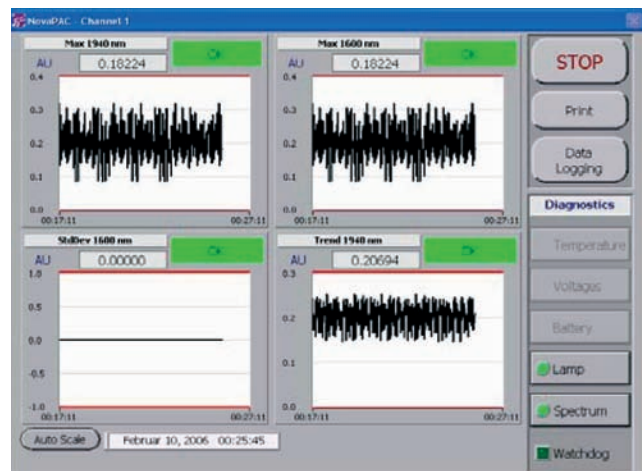


Fig.4: Process window of NovaPAC[™]

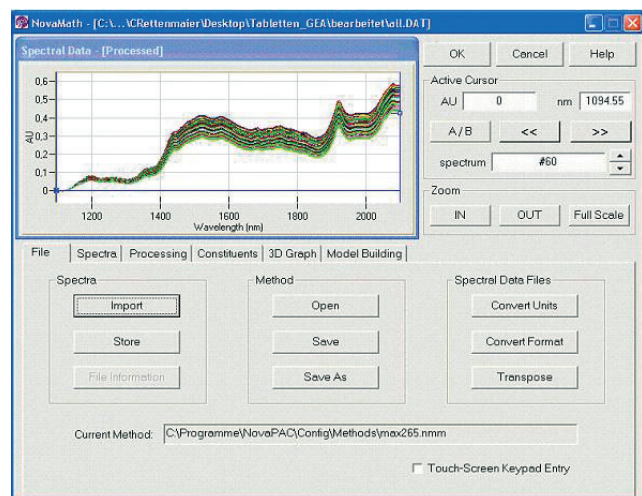


Fig.5: NovaMath[™]