

Applications Information

MCS 500

Colour Measurement

Process Monitoring on
Vacuum Coating Plants



Process description

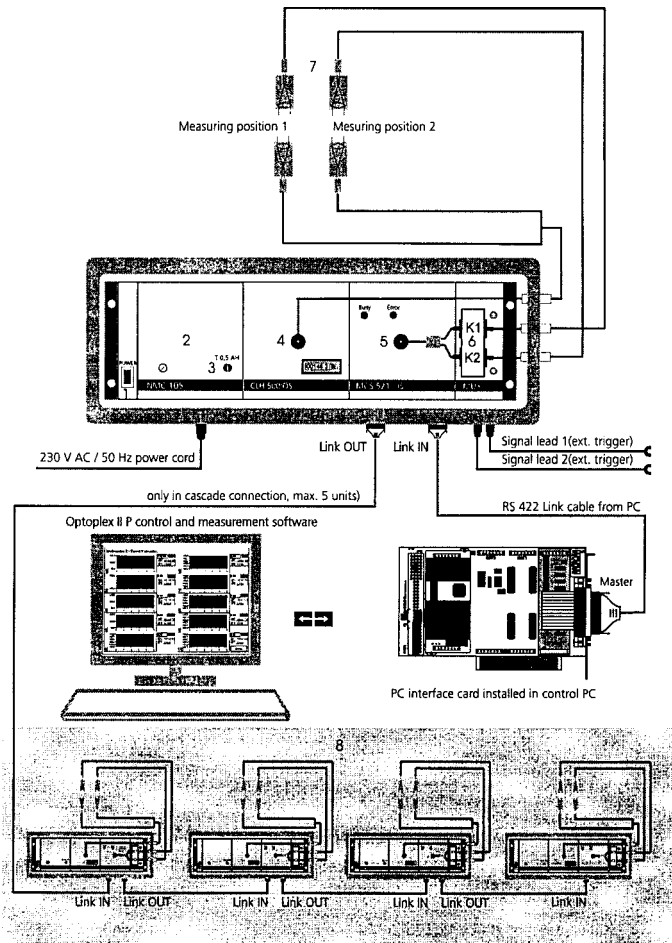
OPTOPLEX is a new measurement and analysis system for the use in vacuum coating plants. It allows non-contact and destruction-free measurement of spectral transmission and colour data both in and outside vacuum plants. Measurement and analytical results are suitable as proof of quality and serve for process optimisation. OPTOPLEX II P is customised for

transmission measurements in vacuum. Measurements are taken on architectural glass, but also on car window panes, displays, acrylic glass or plastic films. The system provides measurement of single and multi-layer coatings.

System description

The system serves for quality control in glass coating processes inside vacuum chambers. It collects the data of a transmission measurement carried out by the system itself in the running production process

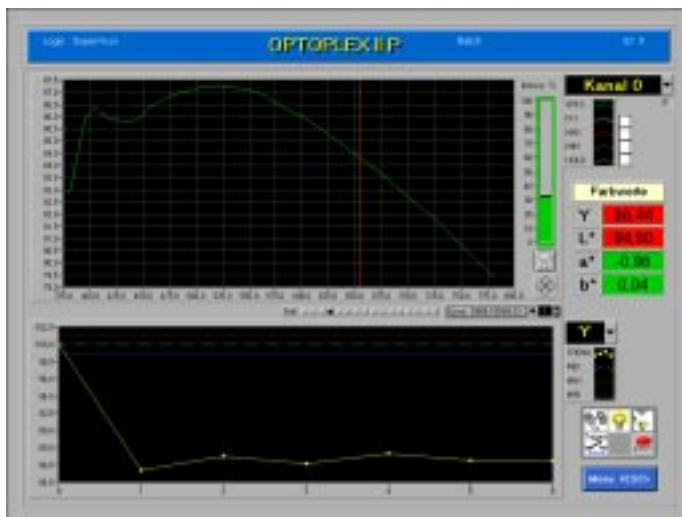
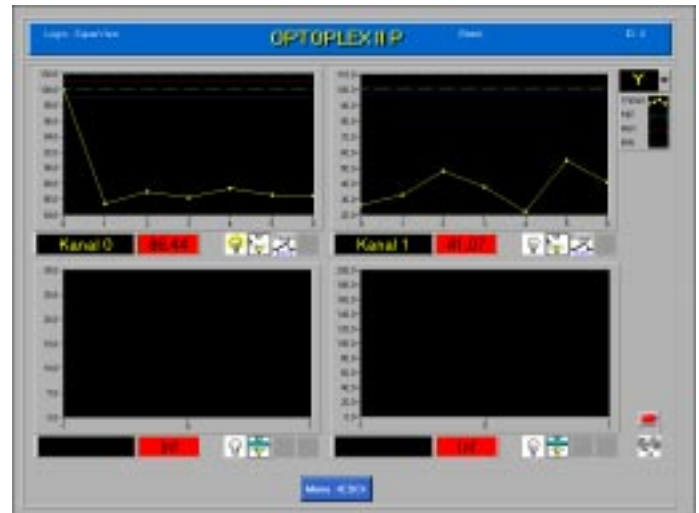
and displays the results graphically and numerically on the screen of the control computer.



- | | |
|--|--|
| 1 ON/OFF Switch | 5 Spectrometer cassette |
| 2 Power supply unit | 6 Multiplexer |
| 3 Fuse carrier | 7 Measurement optics |
| 4 CLH lamp cassette
(with elapsed-hour meter) | 8 Connection scheme for further units (max. 5) |

Software

The software allows display of spectra or of the trends of one or several measuring stations.
The system determines the transmission for different standard illuminants (A, C or D 65) and viewing angles (2° or 10°).



The program can handle up to 10 measuring stations. The measured spectral curves are converted into the corresponding CIELAB data considering the selectable standard illuminants and viewing angles.

Specification

Measuring range	380 ... 900 nm
Resolution acc. to Rayleigh	10 nm
Spectrometer	Diode array spectrometer
Source	Halogen lamp
Colour data	Y, L*, a*, b* (CIELAB)
Standard illuminants	A, C, D 65
Presentation	Spectral curves, different presentation modes for trend analysis

Subject to technical alteration

263259-7563.161



Carl Zeiss

OEM - Spektroskopik
D-07740 Jena

Phone +49 36 41/ 64 28 38

Fax +49 36 41/ 64 24 85

e-mail: mack@zeiss.de

Applications Information

MCS 500

Colour Measurement

Quality Control of

Coating Processes

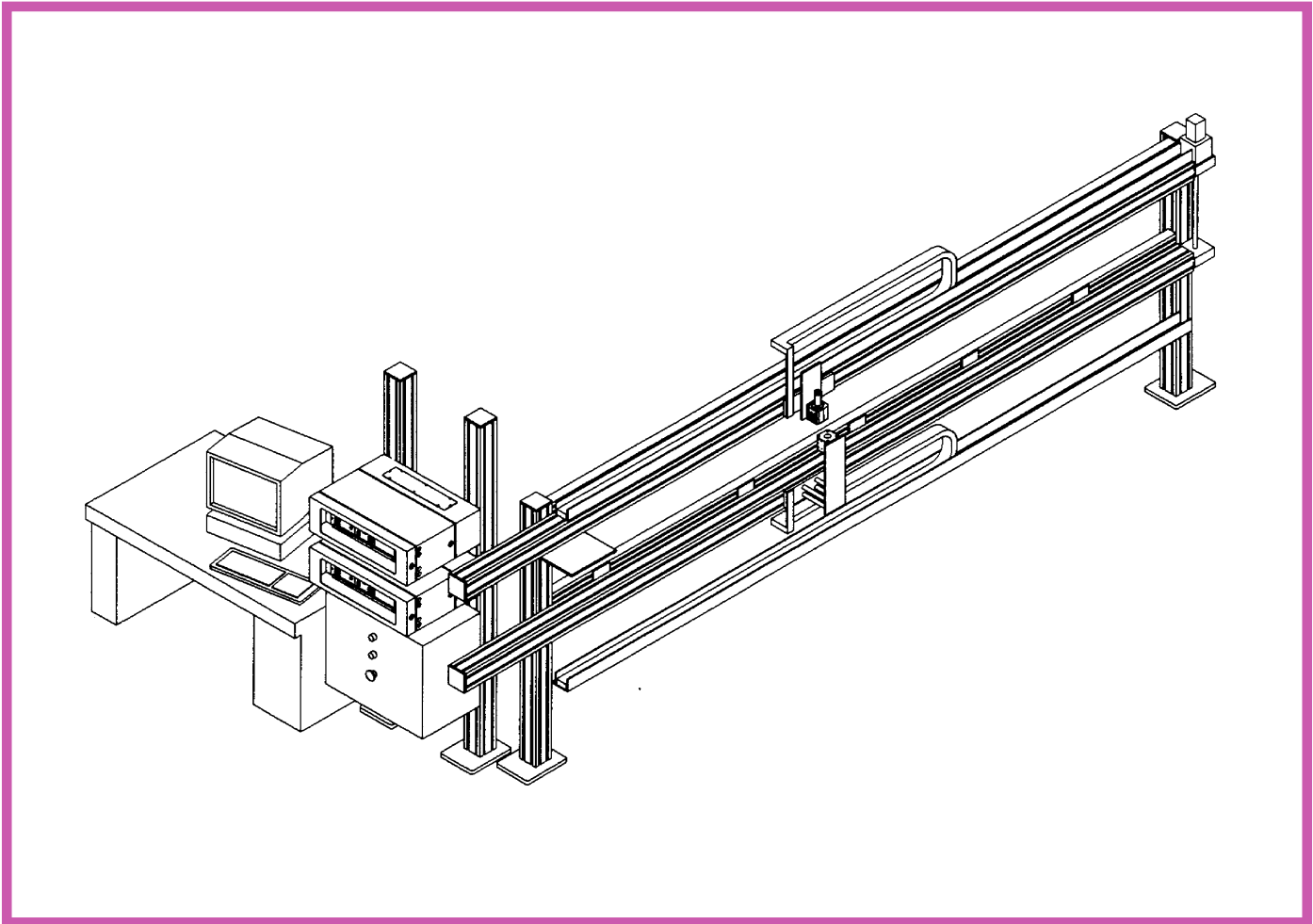
The ZEISS logo is a blue square with a white banner at the bottom, containing the word "ZEISS" in white capital letters.

ZEISS

Process description

A great number of applications, such as panes, displays, etc. cannot be imagined today without the use of glass. This is due to its properties such as transparency, chemical stability, environmental compatibility, scratch resistance. The optical and thermal properties of glass can be influenced.

Vacuum coating is a technique that can give glass such particular properties. By vacuum coating, ultra-thin layers are applied to the glass surface. To achieve the desired quality of the coatings it is very important to monitor the applied layers.



System description

The system serves for quality control after the coated flat glass has passed through all technical production processes. The system collects the data of transmission and reflection measurements performed by the system itself. It calculates the colour data according to CIELAB, and displays them graphically and numerically on the screen of the control computer. The measuring heads are

firmly mounted to a carriage traversing on a rail. The measuring heads are controlled and positioned in such a way that measurements can be taken at any point of the surface and underside. The measured results can be used as proof of quality according to ISO 9000.

System description

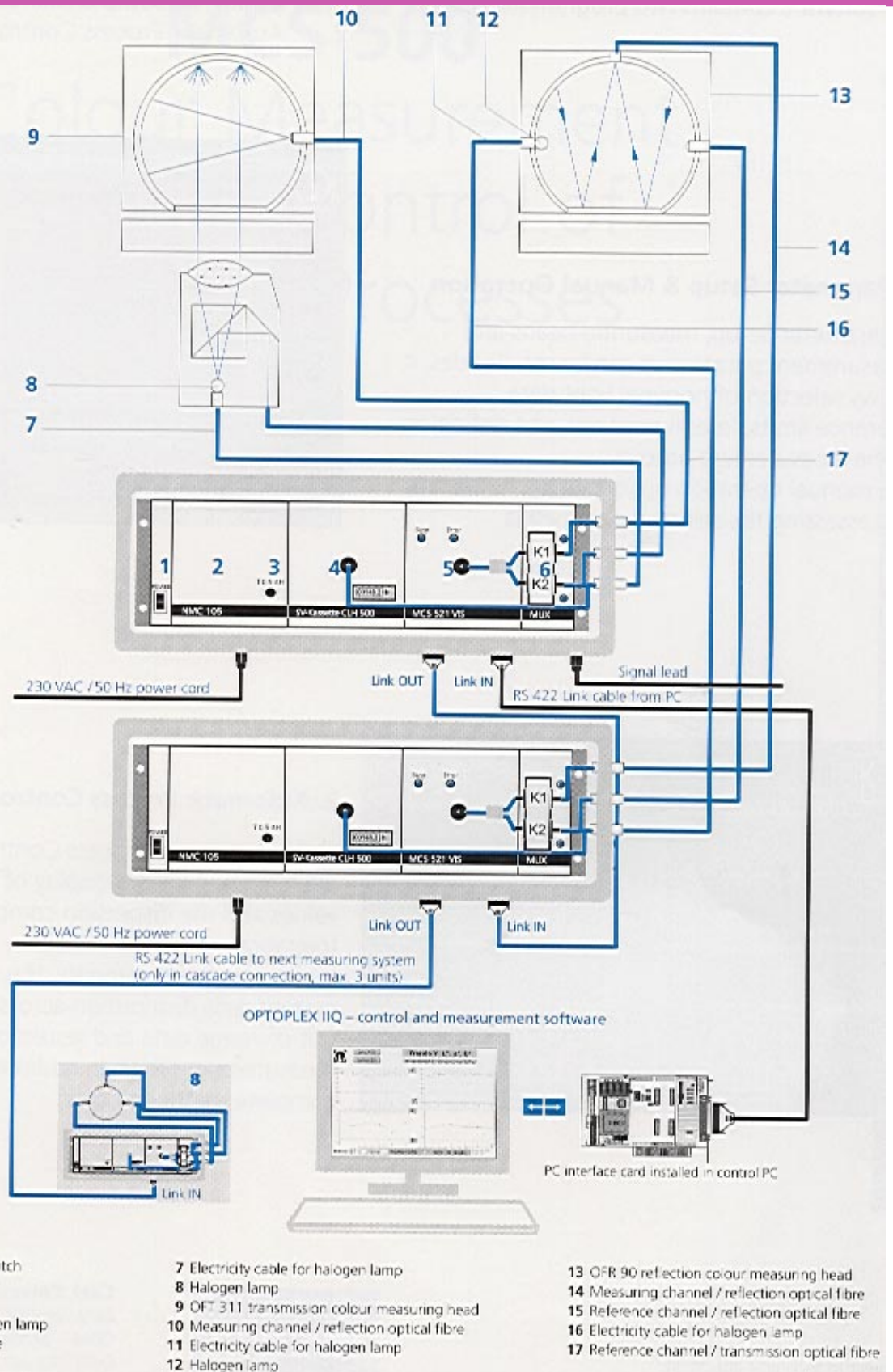


Fig. 1 System Overview

Software

The software contains two program modules:

1. Parameter Setup & Manual Operation
2. Automatic Process Control

1. Parameter Setup & Manual Operation

In Parameter Setup, measuring heads and measurement parameters can be set. Besides, it allows selection of nominal light data, tolerance limits, lateral positions and definition of the measurement process.

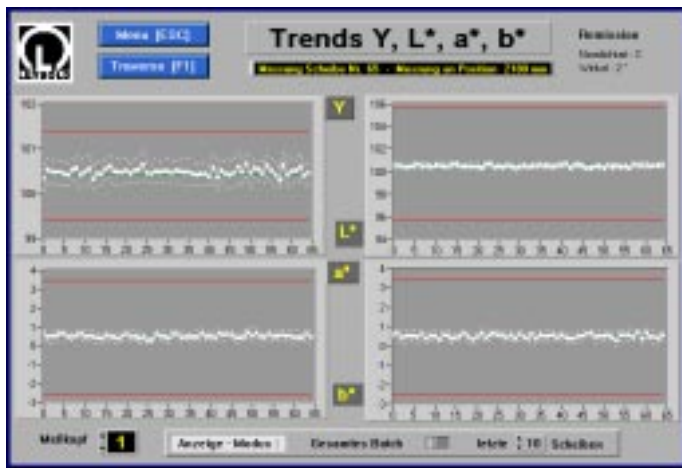
The manual operation option serves for testing and assessing the selected parameters.



2. Automatic Process Control

In the Automatic Process Control Module, the main menu provides display of the trends of mean values and the dispersion compared with the tolerance zone.

In running measurements, the system can display current data distribution across the scanned area, out-of-range data and results of preceding measurement series. In addition, the user can load complete methodologies.



Subject to technical alteration

263259-7564.161



Carl Zeiss
OEM - Spektroskopik
D-07740 Jena
Phone +49 36 41/ 64 28 38
Fax +49 36 41/ 64 24 85
e-mail: mack@zeiss.de