ILMetro R2R

ILMetro R2R metrology stations combine several LayTec in-line metrology systems for a comprehensive control of industrial flexible thin film production processes by non-contacts measurements. If required, ILMetro R2R can drive the winder motors for transporting the substrate foil. Thus, complete mappings of roll pairs can be obtained in a fully automated mode. The measurement head compensates for residual waviness of the substrate foil for maximum robustness.

Features

Measurement parameters

- Individual layer thickness of complex layer stacks with nm-accuracy
- Sheet resistance
- Transmission spectrum
- Reflectance spectrum
- Photoluminescence spectrum
- Chemical composition

Full integration into manufacturing line

- Designed for 24 / 7 operation in industrial environments
- Non-contact measurements
- Customization:
  - Integration into common winder architectures and communication
  - xyz-movement of measurement for automated mapping and waviness tolerance
  - Communication with production line via ProfiBus, OPC, EtherCat. Other types of field bus upon request
  - Pass-on of measurement results into local and remote database and MES
  - Optional compartment for hand-loaded sample analysis
- ILMetro-to-ILMetro communication via TCP:IP

Benefits

– Improved process control by combined evaluation of various metrology techniques
– Uniformity information across the production line by providing multiple measurement heads
– Using results from upstream ILMetro for data evaluation at downstream ILMetro (optional)

Description of the parts

Modularity

Various metrology systems to be selected from the following industry-proven LayTec in-line metrology systems. Each system may yield multiple measurement heads:

Metrology system	In-line metrology method	Parameter to be measured
Flames	Reflectometry and transmission spectroscopy in UV, visible spectral range and near-infrared range	Layer thickness
		L*a*b* values (color)
		Reflectivity
		Transmission
Eddy	Eddy current measurementse	Sheet resistance
PearL	Photoluminescence spectroscopy	Layer composition (derived from peak position)

Further details on these metrology systems are provided by their respective data sheets.

Operating conditions

Power supply	220 V AC / 230 V AC / 240 V AC Other voltages upon request
Supply frequency	50 Hz / 60 Hz ±5 Hz
Maximum power consumption	400 W + 100 W for each metrology system
Dimensions – Width (adaptable)	~ 800 mm
Dimensions – Length (adaptable)	~ 2500 mm
Dimensions – Height (adaptable)	~ 2000 mm
Weight	Depending on configuration, approx. 500 kg
Operation temperature	15°C – 28°C
Storage temperature	15°C – 35°C
Max. operation humidity	50 %
Max. storage humidity	50 %

Control computer

– CPU: Intel Xeon Processor E5-2603 v3 (6C, 15MB Cache, 1.6GHz)
– HDD min. 500 GB, RAID 1
– DVD-writer, card reader, mouse, keyboard
– Multiple Gbit / s LAN interfaces
– Operating system: Windows 10 pro MUI (multi language version)
– Touchscreen (15”) for visualisation and operation

LayTec Insight metrology software

– Data acquisition
– Customized data evaluation
– Driving of winder for foil transportation

Communication / Integration

The system can interface to production machines using a variety of interface protocols: TCP / IP, Profibus, DeviceNet, RS232, RS 485, SECS II / GEM, OPC and others on request. Customer specific adaptations are possible. Specific software / hardware interfaces can be implemented based on 5 V TTL or 24 V voltage / current on request.

Technical documentation

– User manual
– CE declaration of conformity
– Other documentation available upon request

Typical industries

– Photovoltaic
– Packaging
– Printed electronics
– Foil coating

Typical fields of application

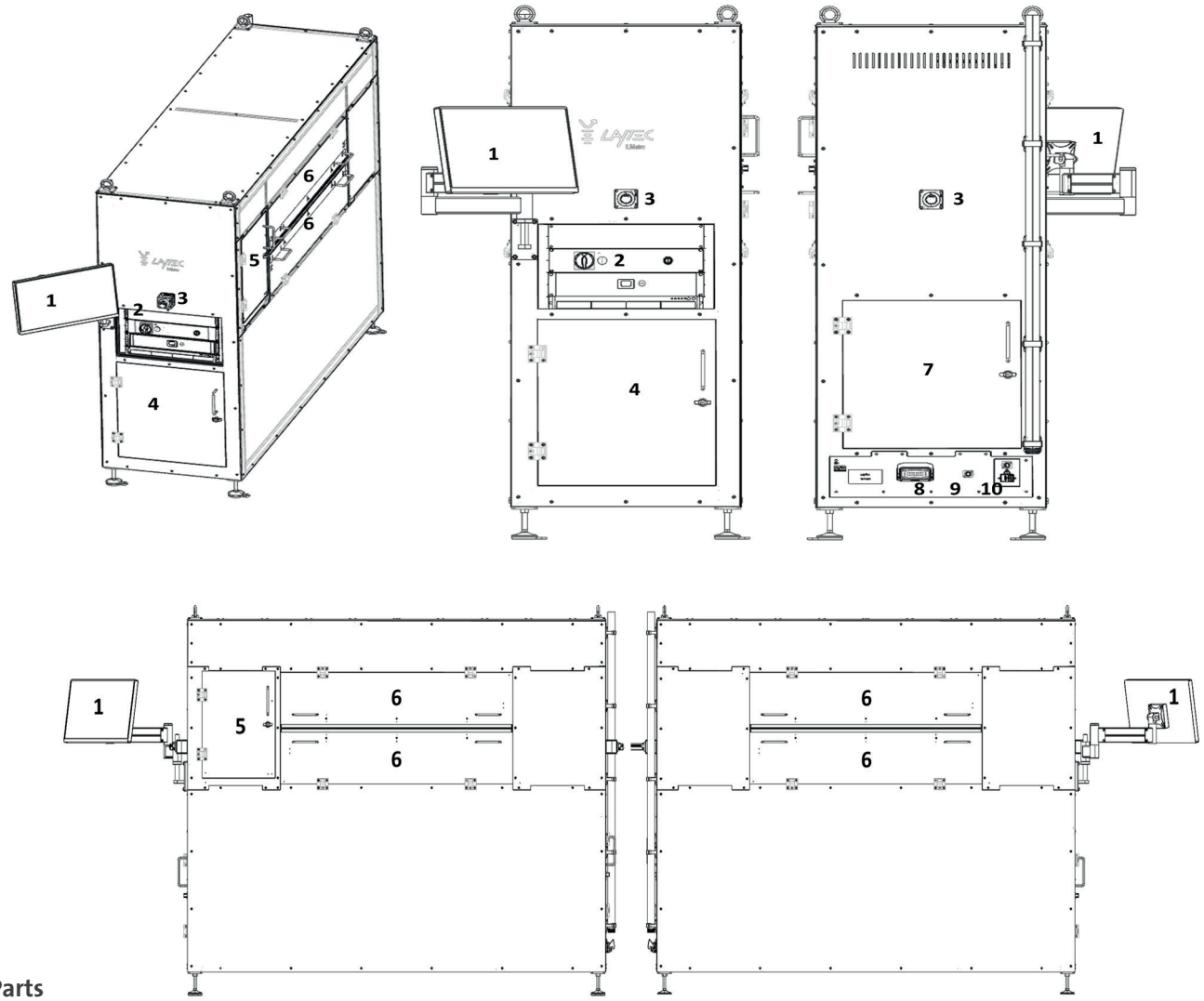
– Quality assurance
– Stand-alone mapping station for roll pairs
– In-line quality control
– Feed-forward processing

Further Details

– Measurement rate of milliseconds
– Remote service and software maintenance
– CE certification

System Components

Drawing or picture of delivery content



Parts

1 Main touch panel display
2 Main Power switch
3 Emergency stop (1 on front-side, 1 on back-side)
4 Front door for accessing the main control cabinet
5 Door for manual loading of hand loaded samples
6 Doors (2 on right side and 2 on left side) for loading of web
7 Rear door for accessing the secondary control cabinet
8 Safety interface to rewinder system
9 Network communication interface to rewinder system
10 Main power connector

All parts are clean room compatible!

Specifications are subject to further technical development and may differ from those given in the data sheet. In certain cases, performance may be limited by reactor type and/or growth conditions. Please consult our technical sales team to see how LayTec metrology can best serve your specific application.

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Developed, manufactured and qualified in Germany.

Version 10·2021