



🇩🇪 Made in Germany

THT inspection and
Conformal Coat check with MultiCam Line

Susann MUltze



Inspection

- Automated Optical Inspection (AOI)
- Automated X-Ray Inspection (AXI)
- Solder Paste Inspection (SPI)

Agenda



- MultiCam Line – System presentation
- THT inspection – Requirements
- Conformal Coat check – Requirements
- MultiCam Line – System design
- MultiCam Line – Image acquisition
- MultiCam Line – PILOT AOI & PILOT Connect
- MultiCam Line – Parameter



MultiCam Line – System presentation



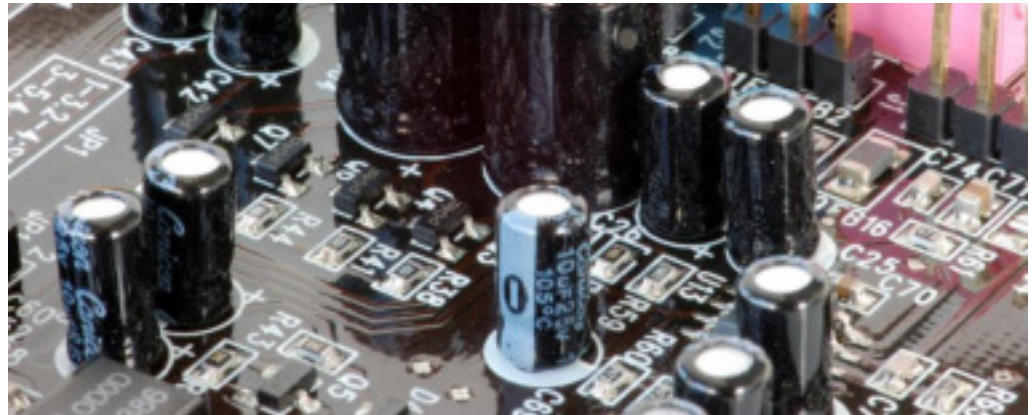
- High-Speed AOI system based on innovative multi camera image acquisition module MultiEyeS
- Inspection speed up to 300 cm²/s
- Completely wear and maintenance free AOI system due to no need of x/y axis movements of the camera head
- Minimized footprint
- Inspection height up to 100 mm



THT inspection - Requirements



- Integration in existing THT lines
- Special test functions for THT components
 - Presence
 - Colour check
 - Polarity
 - OCR
- Flexible test programm adaption



Conformal Coat inspection – Requirements



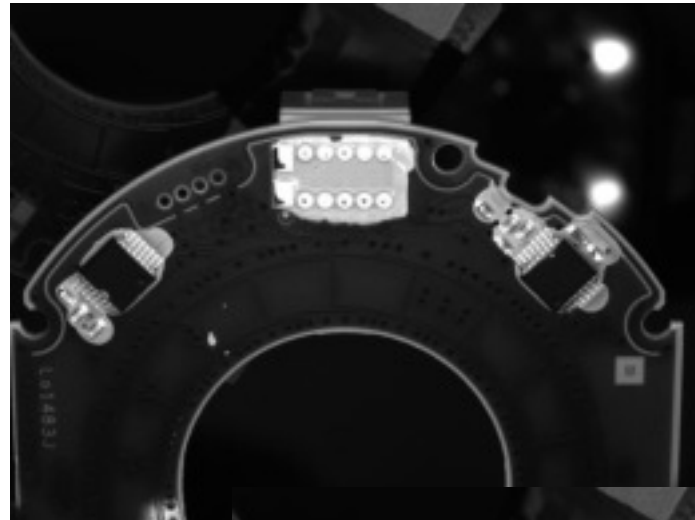
Coating Process:

- Wet coating flows in unpredictable directions

System requirements:

- Integration in existing lines*
- Special test functions
 - coating present
 - coating forbidden
 - splashes
- Flexible test programm adaption

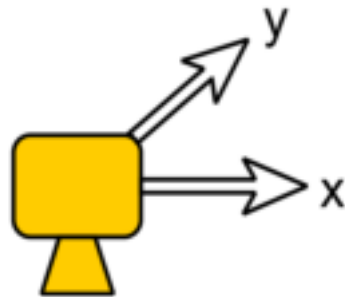
*also available as stand-alone system



MultiCam Line – System design

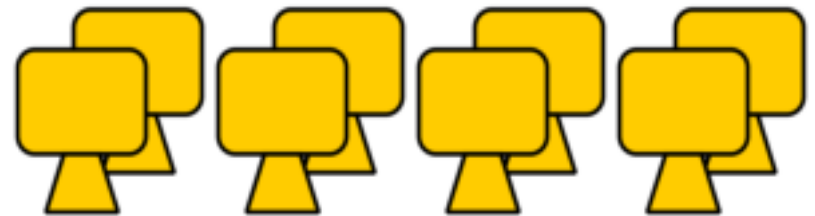


- Traditional AOI approaches are not suitable for all problems from an economical point of view



Assembly

Traditional AOI



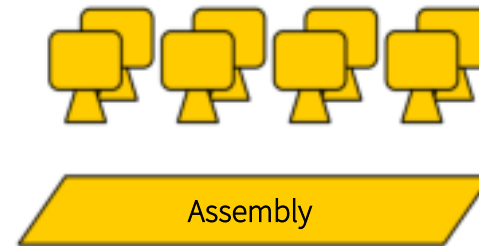
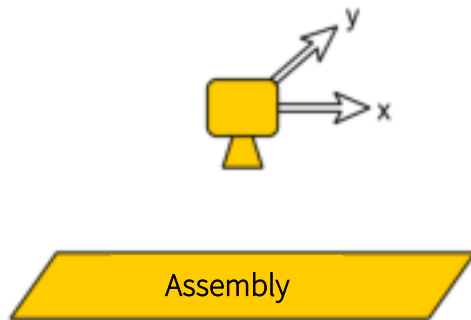
Assembly

MultiCam Line

MultiCam Line – System design



- Traditional AOI approaches are not suitable for all problems from an economical point of view



- Precise axis system for X and Y direction (on demand also Z)
 - Increased cycle time at full test coverage
 - Bigger system design /size
 - Fixed optical design
- Size of boards determines the amount of cameras
 - Cycle time is independent from board size and packing density
 - Smaller system design / size
 - Adaptable optical design for different inspection tasks

MultiCam Line – System design



Basis: MultiEyeS



- High-Speed image acquisition without any movement of the cameras
- Camera array with 120 mega pixel
- Combination of progressive Hardware technologies with modern Software concept

MultiCam Line – image acquisition



Key to success

- Synthesis of single pictures into one complete picture

➡ Stitching

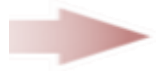


MultiCam Line – image acquisition



Key to success

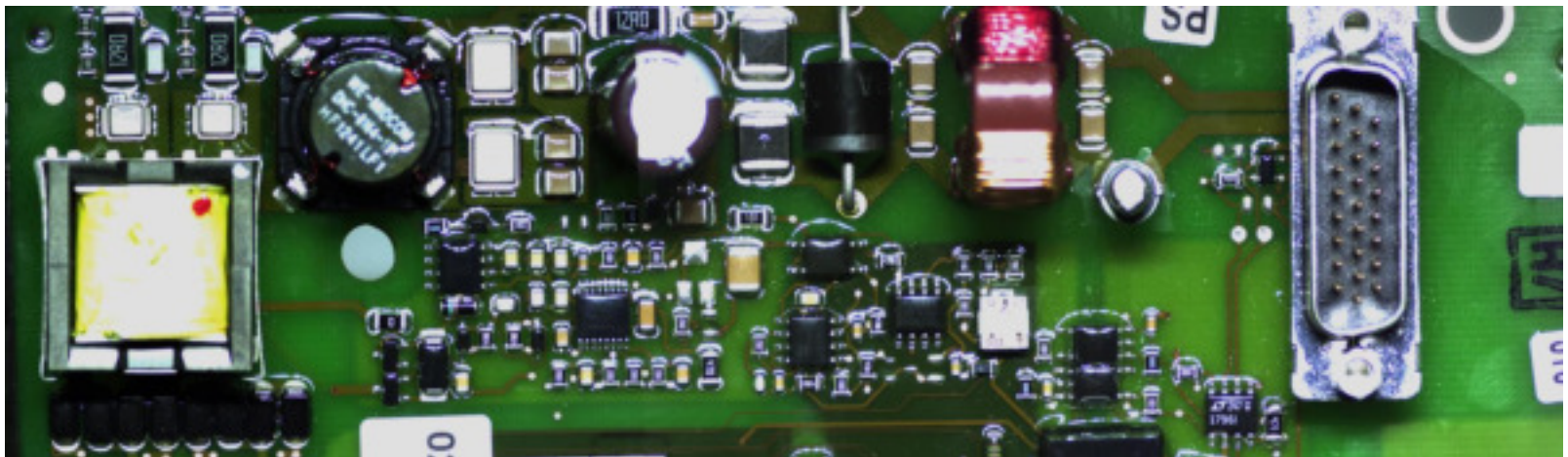
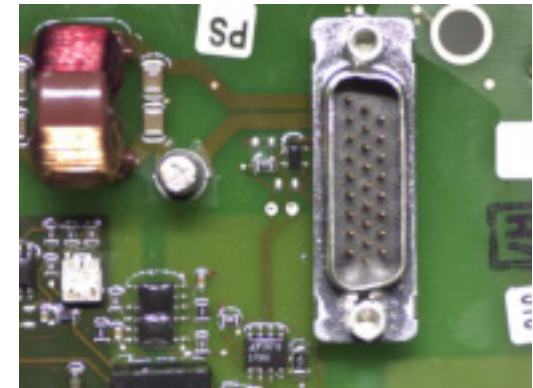
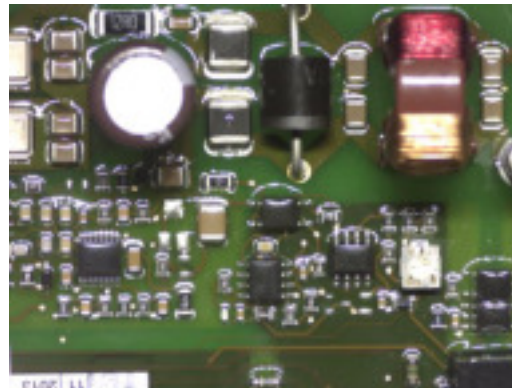
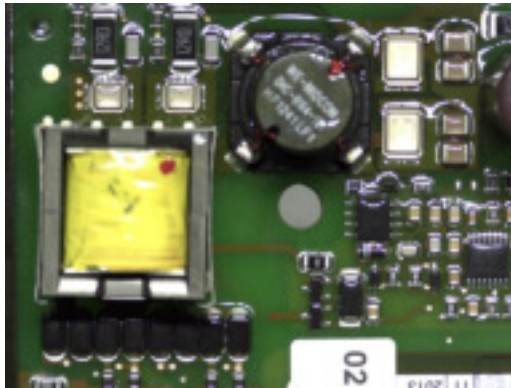
- Synthesis of single pictures into one complete picture



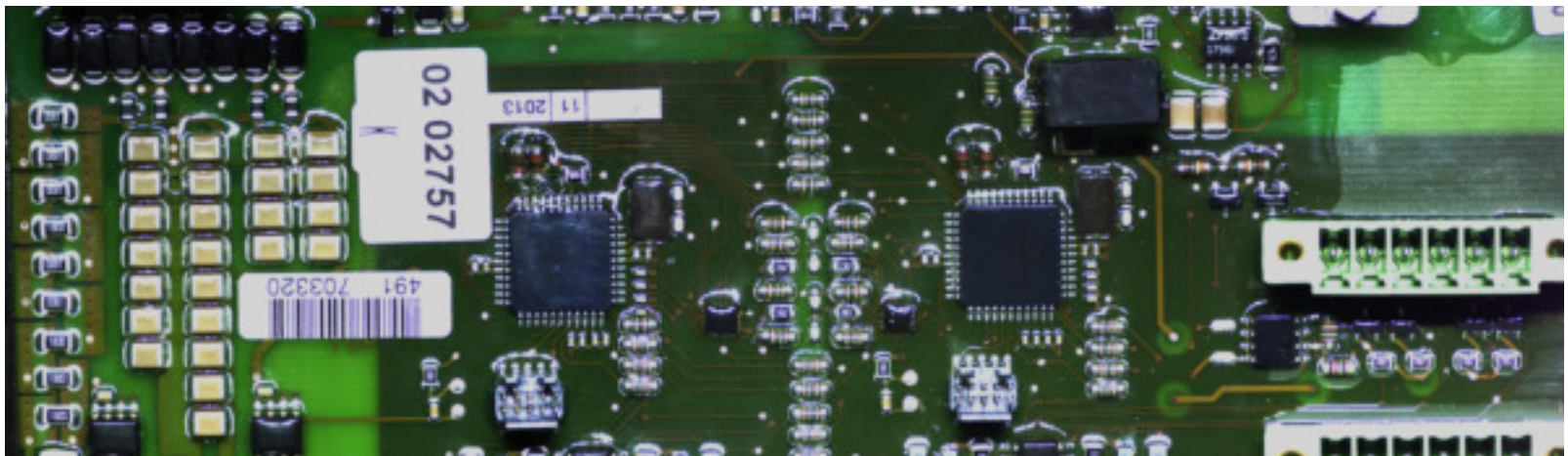
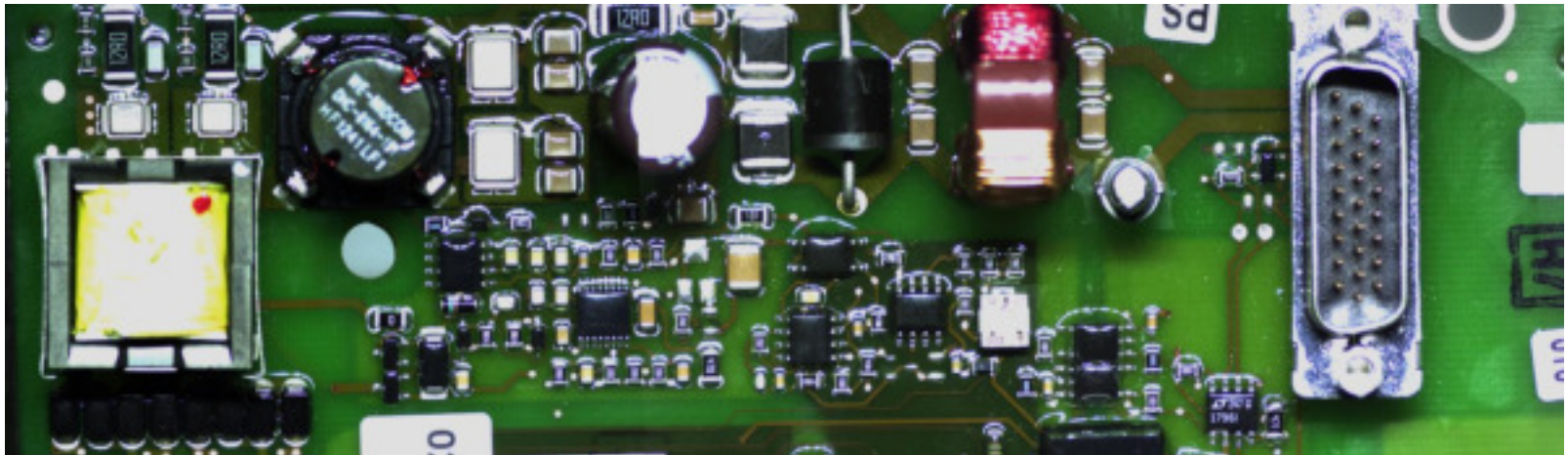
Stitching



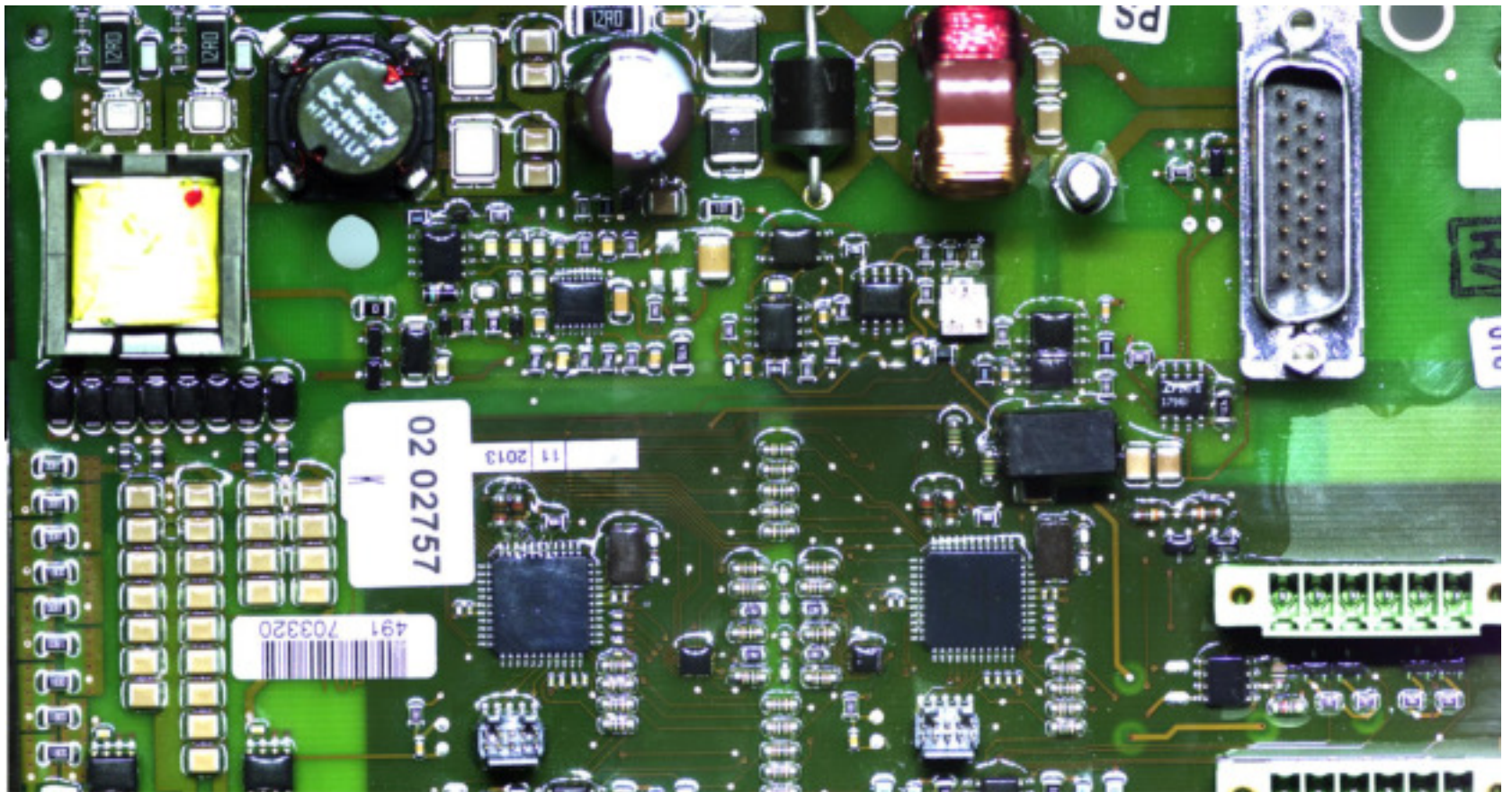
MultiCam Line - THT – image acquisition



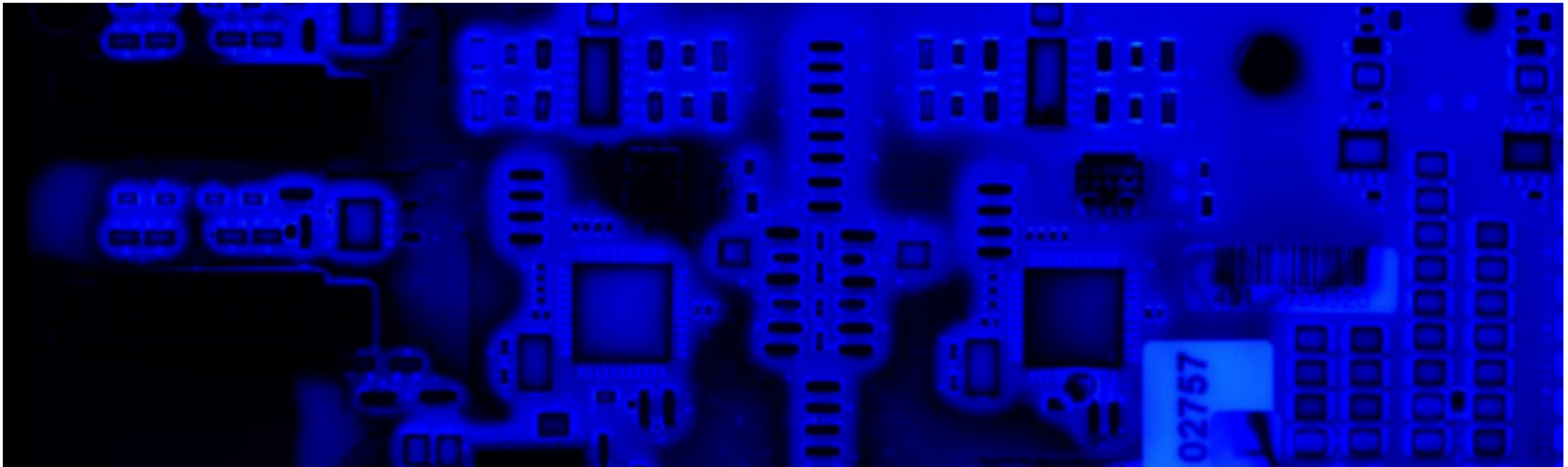
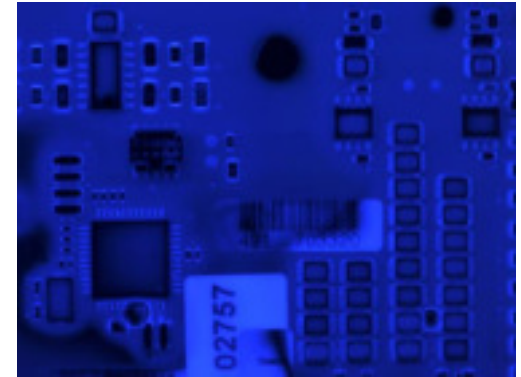
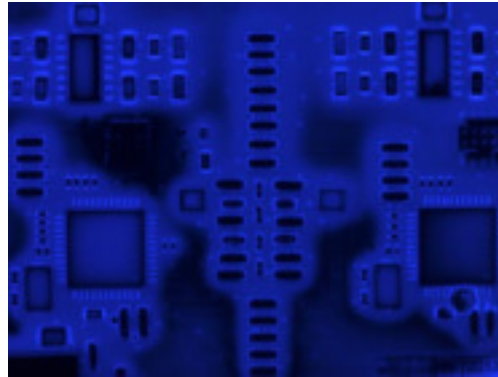
MultiCam Line - THT – image acquisition



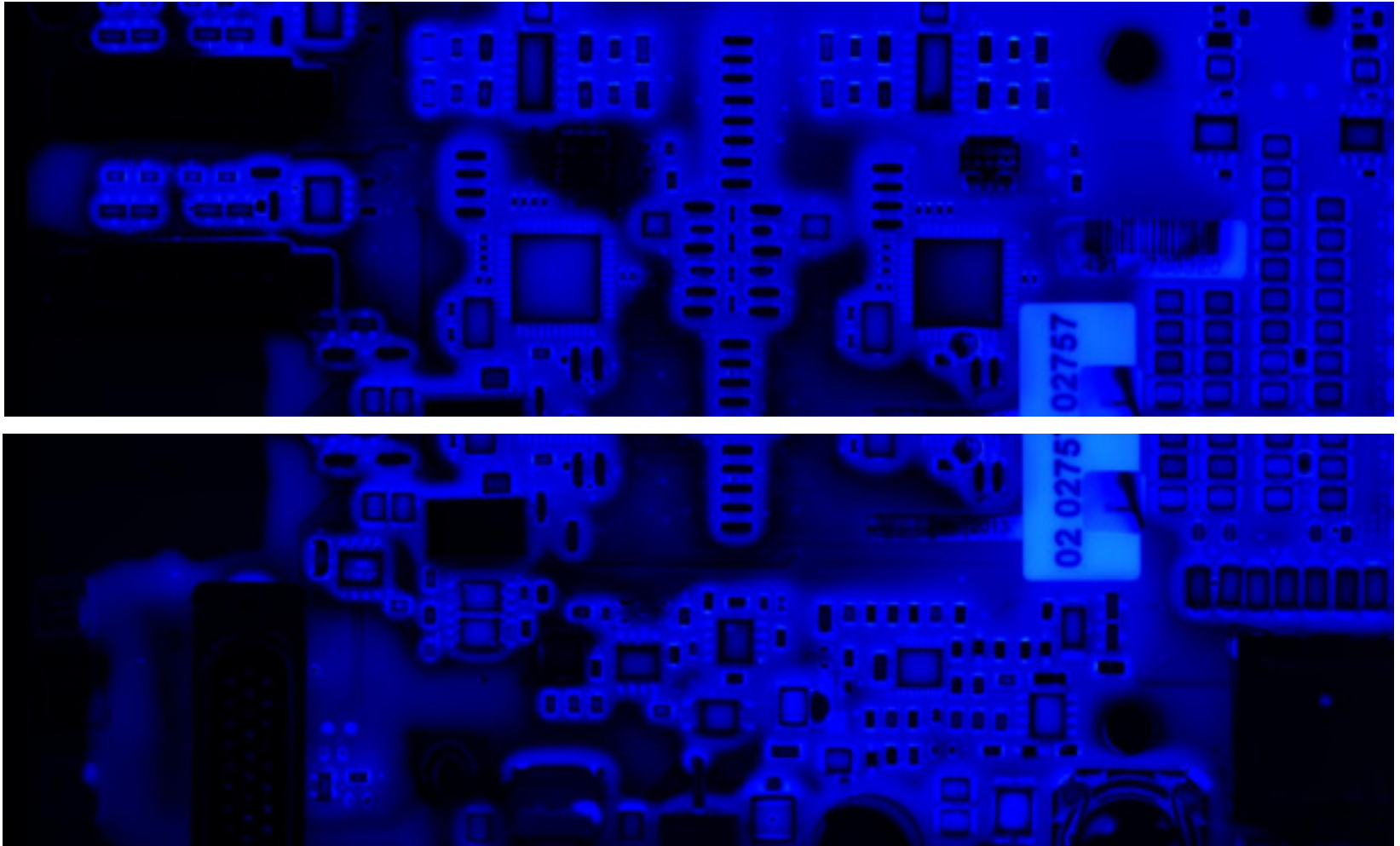
MultiCam Line - THT – image acquisition



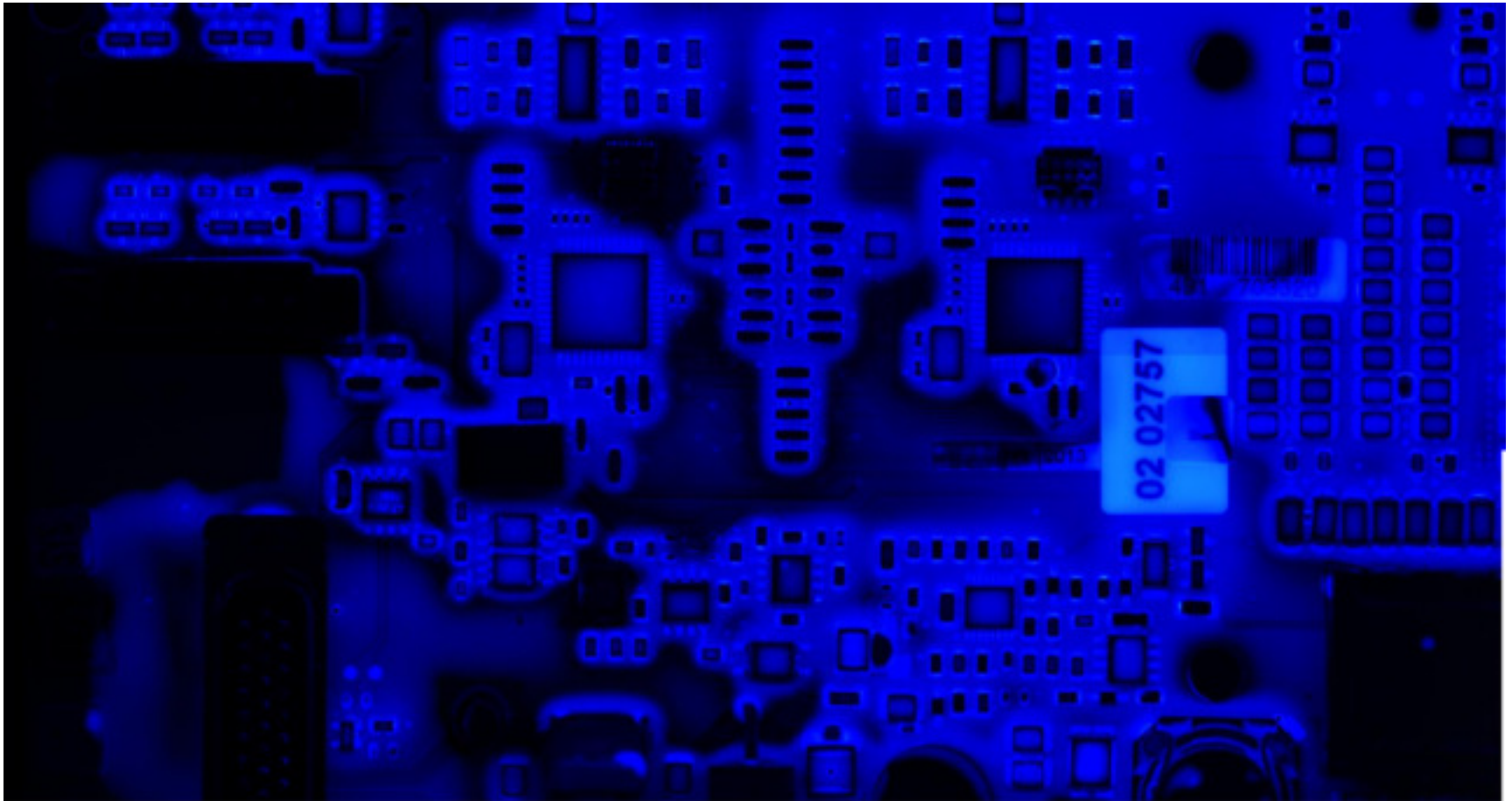
MultiCam Line - Conformal coating – image acquisition



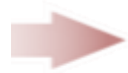
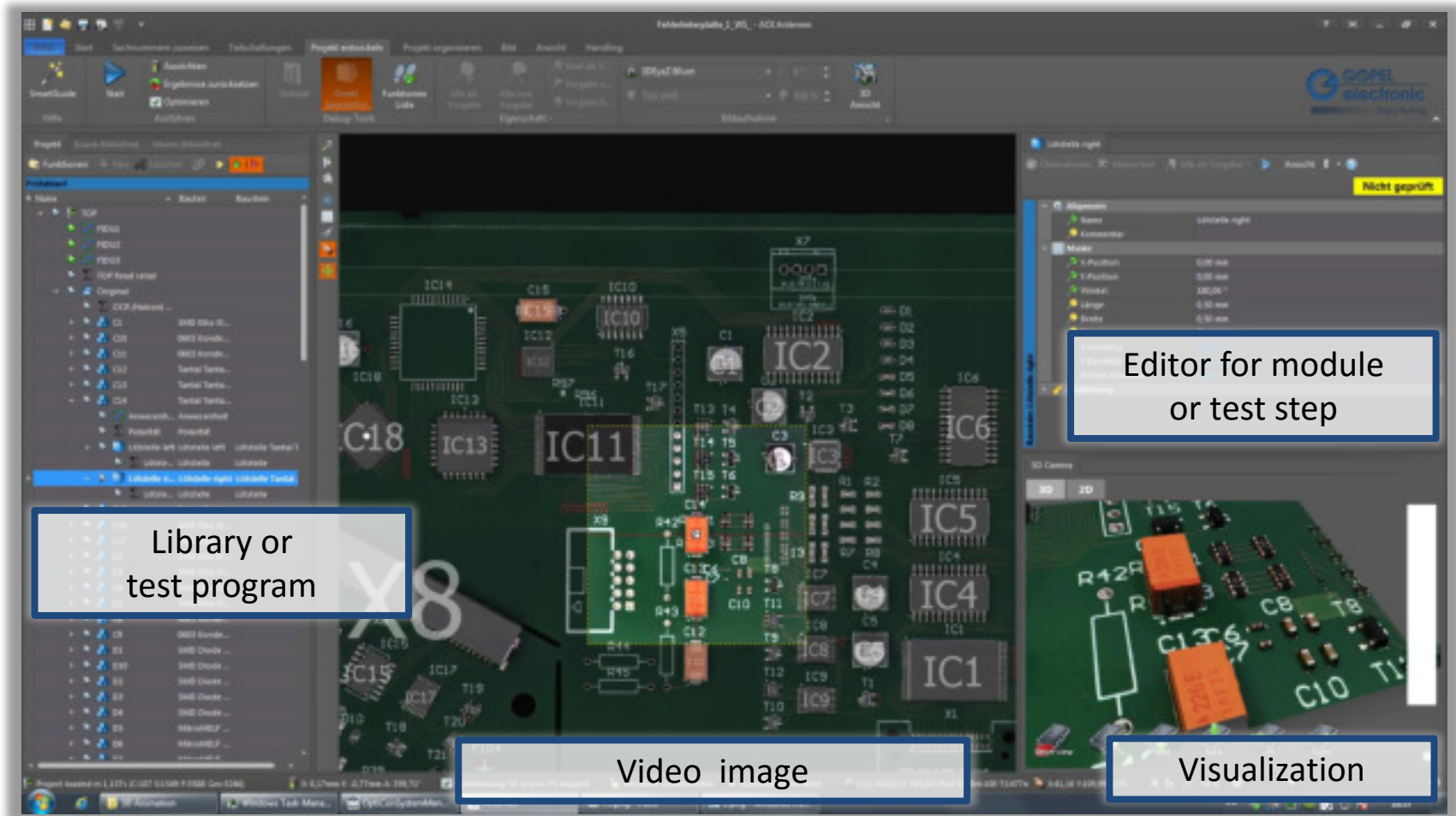
MultiCam Line - Conformal coating – image acquisition



MultiCam Line - Conformal coating – image acquisition



MultiCam Line – Software PILOT AOI



Efficient and intuitive test programm generation

Many data – one solution: PILOT Connect



MultiCam Line – System concept



- Multi camera image acquisition module (color)
- Adaptable optical design
- LED: white, UV
- Maximum board size 490 mm x 390 mm
(bigger sizes on demand)
- Modular system design



MultiCam Line – Parameter



Parameter	
Image acquisition technology	Multi camera array MultiEyeS with 120 Mega-Pixel
Colour depth	24 Bit
Depth of focus	100 mm
Integration	in transport system
Inspection scope	Presence, Placement / positioning, Polarity and labelling (OCR) of THT assemblies, Inspection of conformal coating
Illumination	TOP LED white / UV
Inspection speed	Up to 300 cm ² /s
Inspection area	490 mm x 390 mm
max. Inspection height	100 mm
Component clearance	100 mm
Software	PILOT AOI
Dimensions (width x depth x height)	660 mm x 760 mm x 2475 mm

Summary



Traditional AOI approaches are not suitable for all problems from an economical point of view

Flexible and modular test systems with inline capability are needed.

System solutions based on innovative multi camera image acquisition technology offer an optimum of efficiency.

 *Made in Germany*

Wishes or questions?



Mrs. Susann Mülitze (Key Account Manager)

Phone: 0049 3641 6896 790

s.mulitze@goepel.com



Mrs. Alice Göpel (International Sales)

Phone: 0049 3641 6896 715

a.goepel@goepel.com



Dr. Jörg Schambach (Product Manager IVS)

Phone: 0049 3641 6896 887

j.schambach@goepel.com





🇩🇪 Made in Germany

