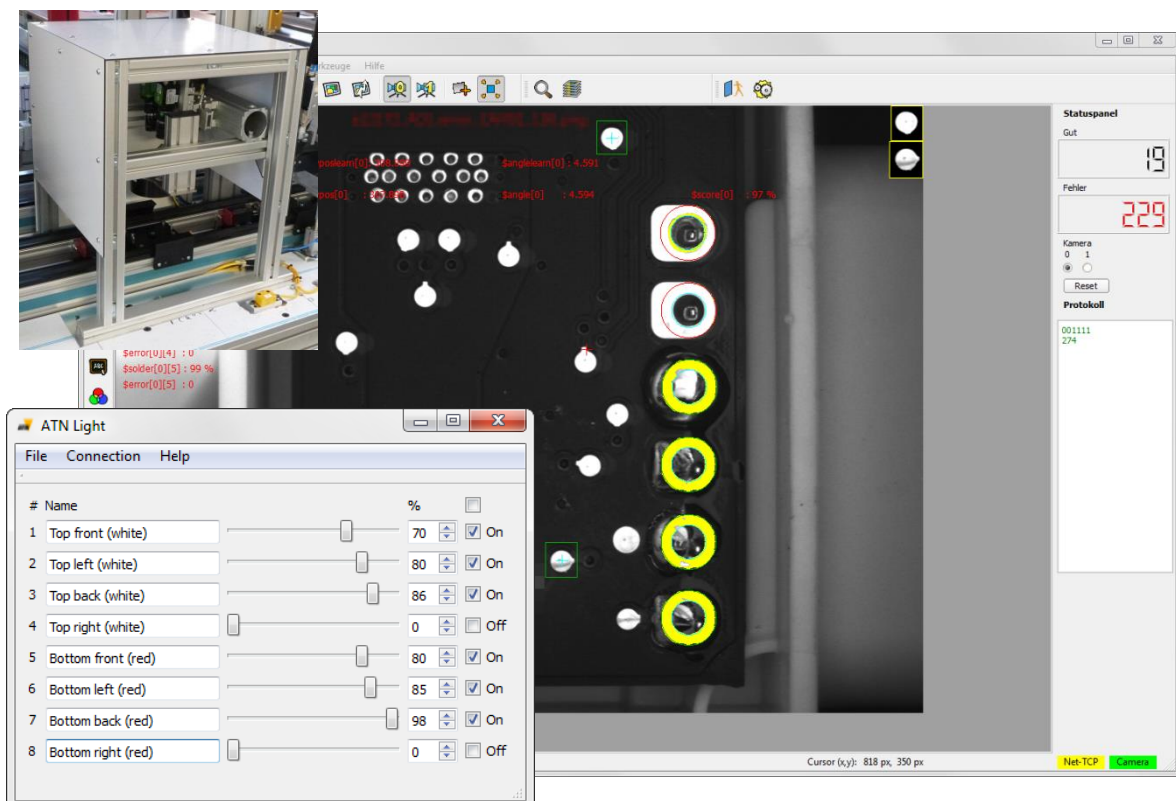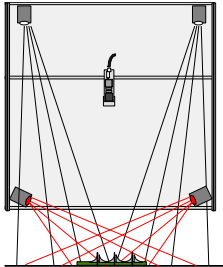# *Solder joint inspection*
BV-AOI-S, BV-AOI-M

- *optimized for Robotic Soldering and Selective Soldering*
- *PC-based*
- *Color and 3D inspection*
- *up to 6 cameras and programmable multi-color lighting*
- *Templates for standard solder joints (THT, lead, wire, SMD chip, MELF, ...)*
- *Inline Integration (AOI-S) or manual workstation (AOI-M)*

System Description

The high quality requirements in electronics assembly require the automation of single-point soldering and automatic optical inspection (AOI). ATN and CORMEX have developed a system optimized for this application. The AOI system that can be integrated into the ATN robot control WinControl. In developing great emphasis was placed on an intuitive user interface.

The combination of multi-colored LED lighting and high resolution color camera provides a unique 3D evaluation of meniscal and short circuit inspection. The standard housing with white and red reflected light dark field illumination and integrated LED driver for programmable setting of 8 LED segments allows uniform illumination of the work
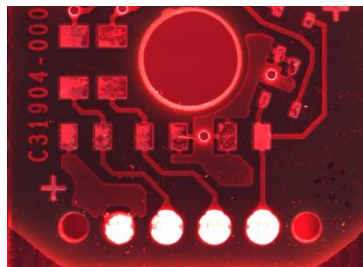
area - even with interference contours. The white incident highlights the planar surfaces, the red dark field illumination shows the 3D menisci. In addition, the color control allows regarding the evaluation. The pad surfaces (eg gold coating) and the board.
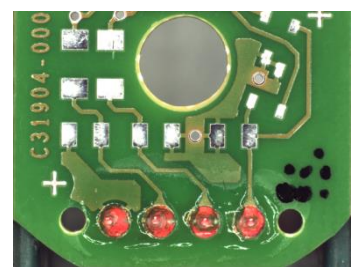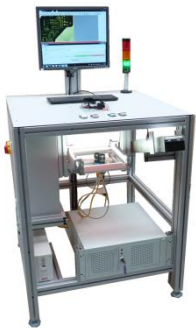

2-color illumination

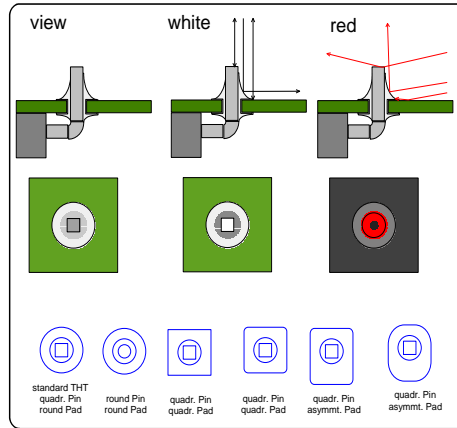Incident illumination white

red dark field illumination

3D analysis with red and white

BV-AOI-M:
Stand-alone system

The programming of the test criteria is simplified by using predefined templates, eg for THT solder joints
- 3 test reports
- Color Check
  White / Red meniscus
  Green for solder bumps
  Gold wetting surface
- Pad-wetting
- Meniscus control
- "Cold" solder joints
- too much solder
- Solder bridges
- spashes and solder balls

Data and AOI features
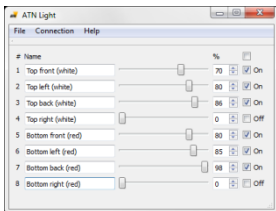PC-based image processing
up to 6 cameras (1-10 MPix)
High Quality Lenses
Lighting: LED strip white / red, blue optional / UV
　　　　　8 segments, intensity freely programmable
Workspace 75x75mm (with lens)
Inline Dimensions: ca. 300x300x300mm (IPC and 19 "4U)
Templates for standard geometries: THT, CMD chip, MELF, lead, wire, ...

Integrated Driver for LED
Lighting with 8 channels

additional image processing features
- Fiducial detection and position correction
- Measurement of solder joints and components
- Read conventional 2D codes
- Character recognition (OCR)
- Presence and position of components
- Surface testing example scratches

System Integration and Traceability
- image back up and built-in image browser
- Remote Support for optimized data transfer
- Data Interfaces Ethernet, USB, Digital IO, RS-232
- Log, statistics and traceability functions
- password-protected user management
- Integration with the ATN machine control system WinControl (data interface, result display)