

# PI-1600 Technical Specifications

## General

|  |  |  |   |   |
|--|--|--|---|---|
| <b>Camera Type</b>   | <b>Option 1:</b> 3 chip CCD Camera, NTSC format <ul style="list-style-type: none"> <li>648 X 494 pixels X 256 grey levels of red, green and blue</li> </ul> <b>Option 2:</b> Single chip CMOS monochrome 1394A Camera <ul style="list-style-type: none"> <li>1280 X 1024 monochrome pixels</li> </ul>  |  |   |   |
| <b>Camera Module Size (max)</b>  | 422 mm height X 150 mm diameter  |  |   |   |
| <b>Camera Standoff Height from Disc</b>  | 18 or 42 mm  |  |   |   |
| <b>Defect Detection Capability</b>   | Minimum Defect Size Detected: Greater than 0.250 mm in any direction<br>Minimum Threshold of Detection: 7-10 grey levels above average image noise level<br>Contrast Level: Minimum required defect to background contrast level varies with defect and ink type   |  |   |   |
| <b>Types of Defects Found</b>  | <table border="0"> <tr> <td> <b>Printed Color Defects:</b> <ul style="list-style-type: none"> <li>Pinholes</li> <li>Color Shifts</li> <li>Ghosting / Feathering</li> <li>Missing / Excessive Ink</li> <li>Large Area Printing Watermarks</li> </ul> </td> <td> <b>Surface Type Defects:</b> <ul style="list-style-type: none"> <li>Major Squeegee Marks</li> <li>Scratches</li> <li>Dust</li> <li>Some Raised Print</li> </ul> </td> <td> <b>Other Special Defects:</b> <ul style="list-style-type: none"> <li>Basic CMYK Comparison</li> <li>Centre Hub Print Defects</li> </ul> </td> </tr> </table> | <b>Printed Color Defects:</b> <ul style="list-style-type: none"> <li>Pinholes</li> <li>Color Shifts</li> <li>Ghosting / Feathering</li> <li>Missing / Excessive Ink</li> <li>Large Area Printing Watermarks</li> </ul> | <b>Surface Type Defects:</b> <ul style="list-style-type: none"> <li>Major Squeegee Marks</li> <li>Scratches</li> <li>Dust</li> <li>Some Raised Print</li> </ul> | <b>Other Special Defects:</b> <ul style="list-style-type: none"> <li>Basic CMYK Comparison</li> <li>Centre Hub Print Defects</li> </ul> |
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| <b>Machine Interface</b>   | 16 digital inputs; 16 digital outputs 0-24VDC - NPN or PNP compatible  |  |   |   |
| <b>Hardware Components</b>   | Rack Mount Industrialized computer complete with I/O interface module; monitor; Windows® Operating System<br>Camera module with integrated optics and 2 Solid state light sources for good print and surface defect detection performance  |  |   |   |
| <b>Cable</b>   | 10 m camera cable – other lengths available<br>Camera cable fully compliant to IEC-61000-4-2 level 4 and IEC-61000-4-4 level 4 electrical immunity standards   |  |   |   |
| <b>Software Modules</b>  | <ul style="list-style-type: none"> <li>Template Matching Tool</li> <li>Segmentation Tool</li> <li>Automated Teach Function</li> <li>Intelligent Defect Analysis</li> <li>Automatic Light Setup</li> <li>Production Statistics</li> <li>Primary / Secondary Masks for Different Setups</li> <li>Multiple Image Processing Capability</li> <li>Squeegee Mark / Surface Defect Detection Module</li> <li>Large Dynamic Range Light Adjustment</li> </ul>  |  |   |   |
| <b>GUI Language Support</b>  | English, Chinese, Japanese – Other languages by request  |  |   |   |
| <b>Reject Classification</b>   | By Size, by Location (Cartesian or Zone)   |  |   |   |
| <b>Cycle Time</b>  | Up to 100 parts per minute depending on print machine cycle time<br>Acquisition is completed in 290 msec, total processing time <600 msec.   |  |   |   |
| <b>Required Disc Alignment</b>   | To within 0.050 mm for best print inspection results   |  |   |   |
| <b>Number of Camera Heads</b>  | One IAD (Image Acquisition Device) supported per processor   |  |   |   |
| <b>Mounting</b>  | Mounting slots extruded on IAD body<br>Optional Precision Mounting bracket with lift mechanism is available  |  |   |   |
| <b>Operating Conditions</b>  | Power: 100-240 VAC, 500 watts, 50-60 Hz. Temperature: 10-40 °C (50-104 °F) Humidity: 10-60% RH (non-condensing)  |  |   |   |
| <b>Fume Evacuation system</b>  | Air pressure jets constantly evacuate the fumes from the lower light assembly  |  |   |   |
| <b>Air Requirement</b>   | Fine filtered medical-grade dry air feed capable of 1-2 bar (15-30 psi) pressure. Flow rate of 0.1 m3/min (3 cu. Ft./min)  |  |   |   |