orbotech The Language of Electronics

END-TO-END TRACEABILITY

Connecting the Physical with the Digital

ORBOTECH FACTORY SMART
Your Partner for Industry 4.0

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Orbotech's traceability solution is part of the Orbotech Smart Factory, a comprehensive Industry 4.0 compliant manufacturing solution that optimizes production services and data management. Compatible with all of Orbotech's solutions, Orbotech's traceability provides manufacturers with significant added-value by enabling them to track the entire PCB manufacturing process

Benefits

Increases visibility into the manufacturing process:
Gathers digital data from all relevant Orbotech solutions and links to the factory's MES and IT department
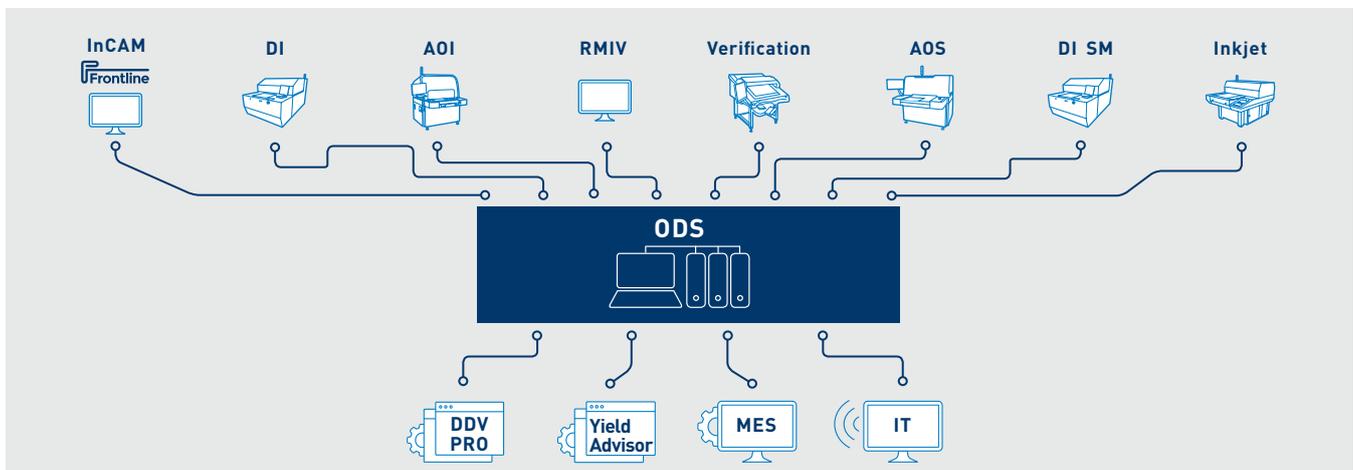
Boosts efficiency:
Single connection point for all Orbotech solutions in the manufacturing process

Improves cost-effectiveness:
Provides analytics tools that enable improved yield and process management

Smart Process Tracking
To keep up with today's increasingly complex and rapidly-evolving production environments, companies need traceability in order to monitor and record the entire manufacturing process at the most detailed levels. An important part of Industry 4.0 and Smart Factory, traceability tracks the entire PCB manufacturing process, including the production record of every PCB and each process it has undergone. Traceability enables root cause analyses that improve the capabilities of the PCB manufacturer and original equipment manufacturers (OEM), while ensuring product quality, increased efficiency, and lower costs.

Orbotech's traceability solution is based in a central data server, Leveraging Orbotech's presence throughout the PCB process

Adding Value from Start to Finish

As a leading global supplier of advanced manufacturing solutions for the electronics industry, Orbotech recognizes the importance of traceability. With the most comprehensive range of PCB manufacturing solutions, Orbotech produces a huge amount of digital data, including measurements and images correlating to each PCB ID. This enables PCB makers not only to identify and track detailed production history – including manufacturing process (e.g. machines, parameters, actions) and time-specific information (e.g. operator name, shift, lot number) – but also to make the most of such data. Adding significant value to the production flow from start to finish, Orbotech's traceability solution is based in a central smart factory data server – the Orbotech Data Server (ODS). Leveraging Orbotech's presence throughout the PCB process, the ODS serves as a single connection point and interface for rapid data sharing across all production stages and at all output levels, even down to the individual PCB unit. The ODS also serves as a platform on which process and yield analytic packages can be added to provide further value for PCB makers.

Going with the Production Flow

Orbotech's traceability solution reflects the company's extensive coverage of the PCB production process. The traceability flow starts with an Orbotech system – from CAM and direct imaging (DI), through inspection and shaping, to solder mask DI and Inkjet. Each system sends detailed data to the ODS, which stores the information. Authorized users can then access the ODS to share and manage data throughout the organization. Optional analytical packages connected to the ODS provide users with a better understanding of the data to further improve the production process.
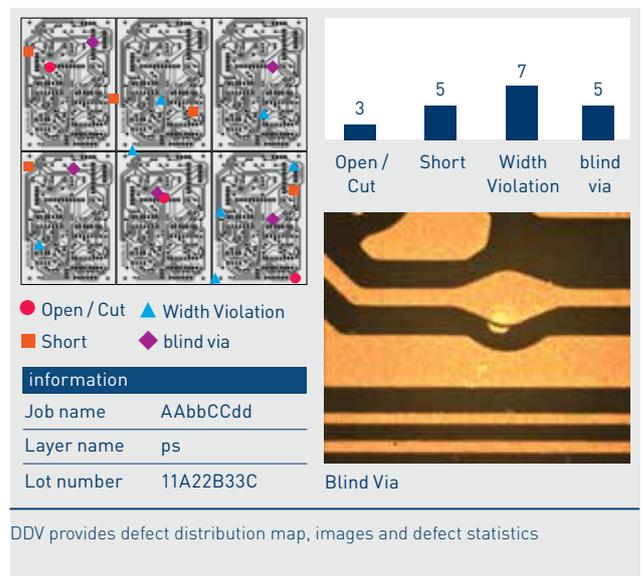
The Traceability Enabler

The Orbotech's Data Server (ODS) is at the heart of Orbotech's traceability solution. A single connection point and interface linked to the organization's IT department and its manufacturing execution system (MES), the ODS collects information from all PCB production stages to enable data sharing, identification, management viewing and increased efficiency of subsequent processes, including E-test. In addition, the ODS maintains a logical layer on which DDV Pro, Yield Advisor and other optional Orbotech analytic packages are added.

Fast Feedback from Actual Results

Orbotech's analytic packages provide users with valuable insights to help them better understand and improve their production processes. Complementing the large amount of historical information found in the ODS, these tools add further value to Orbotech's traceability solution by analyzing results and processing data in a fast and efficient way. The analytic packages are web based tools that can be connected remotely.

DDV (Defect Distribution Visualization) Pro

Defect Distribution Visualization (DDV) Pro is a process-analysis tool that automatically provides an accurate defect and distribution map for all levels, including the lot, layer, array and PCB unit. Delivering reports following the AOI, VRS and AOS manufacturing stages, DDV Pro gives users a results-driven picture of their PCB production process such as "feedback to design" and conducts smart-layer correlations which close the loop with designers based on real production data. DDV Pro is a web interface package and can be linked and viewed from different locations.

DDV provides defect distribution map, images and defect statistics

Yield Advisor

Yield Advisor is a yield-analysis tool that automatically monitors and calculates production yields across multiple levels, including lot, layer, panel and PCB unit. Monitoring various parts of the production process, Yield Advisor gives customers a better, more complete picture of their yield from the panel/array level down to the unique PCB unit.