A SOFTWARE PRODUCT TO PROVIDE REAL-TIME CORRECTIVE ACTIONS AND INCREASE PRODUCTIVITY

VIRTUAL PROCESS ENGINEER™ WITH INTELLIGENT AGENT

A DOVER COMPANY
Automation in Electronic Assembly
**Introduction of a New Product to Increase Utilization, Lower Costs, and Improve Yield**

Unscheduled downtime significantly impacts utilization and yield on surface mount assembly lines. To minimize diagnostic and corrective action time, Universal Instruments has developed a software tool that not only collects and analyzes equipment performance data, but also communicates prioritized corrective action recommendations. Full accountability is provided by a closed-loop verification of the recommendation’s effectiveness. This product is Virtual Process Engineer™ with Intelligent Agent (VPE/IA).

VPE is a standalone software module that works with Universal’s Dimensions™ Manufacturing Automation Software and automated optical inspection (AOI) equipment. When combined with AOI equipment and Dimensions software, VPE with Intelligent Agent reduces defect diagnostic and corrective action times, optimizing production utilization and yields.

**How VPE/IA Works**

VPE continually monitors the AOI data stream for trends and specific logical strings of defects; recognition of these is what triggers VPE to take action. Since the user can configure trends and defect strings, VPE can target specific areas of concern. VPE with IA investigates which machine, head, spindle, placement orientation, feeder, and nozzle are associated with any detected defect (VPE event).

Users can elect to be notified if a VPE event has occurred. This allows personnel to review the data associated with the VPE event and resolve the issue or call upon the Intelligent Agent to take over. If the user chooses to initiate IA, the expert system analyzes the VPE event data and provides recommended and prioritized corrective actions. VPE can also be configured to always call IA directly, bypassing the initial notification step.

Based on the machine associated with the detected defect, as well as the corrective action recommended, VPE employs a user-configurable communication matrix to notify the appropriate personnel of the defect and recommended solution. This notification can be made via telephone, pager, PDA, e-mail, or net messaging on the assembly machine.

Once a corrective action is completed and electronically signed off, VPE monitors the AOI data stream for new trends and specific logical strings of defects. Recognition of these is what triggers VPE to re-initiate and the next most likely corrective action will be communicated to its associated personnel to be performed. This cycle will continue until a user-defined number of cycles has been performed or until VPE has no more recommendations. VPE can then be used to automatically escalate the issue, notifying appropriate personnel.

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**Benefits**

Universal’s Virtual Process Engineer with Intelligent Agent adds the next level of intelligence, efficiency, and accountability to Universal’s total line solution. It is the first product in the electronic assembly industry that steps beyond merely collecting data and performing SPC-based data analyses, since VPE takes the data, performs a series of complex analyses on it, and provides recommendations for corrective action.

VPE has a user-configurable defect threshold module that can be redefined as process performance improves. This enables users to then lower action thresholds and target improvement actions at specific areas of process or product focus.

**Offline Use**

VPE is most effective when used inline, but it also functions offline. Some users may prefer to use VPE as an offline problem solving or training tool. VPE also works effectively with offline screen printing inspection and AXI equipment.

**For More Information**

If you would like to learn more about VPE/IA, please visit our web site at [www.uic.com/vpe](http://www.uic.com/vpe) or contact your local Universal sales office.