

OpenApps Development Kit



4.0 INDUSTRY

- Open architecture source code
- Customer applications supported
- Bidirectional data communication
- Universal interface connection to multiple MES systems and protocols

An open architecture source code which provides customers and third parties the capability of developing custom interfaces in support of Industry 4.0 initiatives and Manufacturing Execution Systems (MES).

Electronic Assembly Equipment

TW EAE

A division of Illinois Tools Works

OpenApps

OpenApps is currently available for MPM Printers, Camalot Dispensers and Vitronics Soltec Reflow Ovens. We are working to extend this capability to the entire ITW EAE portfolio.

While the OpenApps Development Kit allows you to create your own custom applications, many customers have contracted with ITWEAE to develop OpenApps for them.

ITWEAE's products lead the industry for factory integrations and equipment control. Most of our equipment supports industry standards like CamX, SECS-GEM and SMEMA.



With the OpenApps we offer connectivity from our equipment to customer's MES and other production systems. OpenApps is available as a development kit for customers who want to develop their own applications for controlling our equipment and managing information. Whether you need basic traceability of your process or sophisticated monitoring and control of your production lines, our machine connectivity can support your needs.

Growing with you into the future

New factory automation efforts are coming to the forefront every year, with much recent interest in Connected Factory (CFX), Hermes, Asys Pulse, Aegis, Fuji FMLink / Nexim, and Panasonic iLNB. With OpenApps connectivity, we have worked with our customers to provide many of these connections and assist in creating solutions that add value to their business. With our own industry experts, we can help customers understand how they can take advantage of what our equipment can provide to streamline their production efforts. Whether the need is to increase throughput, improve quality, know how each board was manufactured, or to simplify operator activities, we have the tools and capability to help you meet your goals.

Common Process Controls Available:

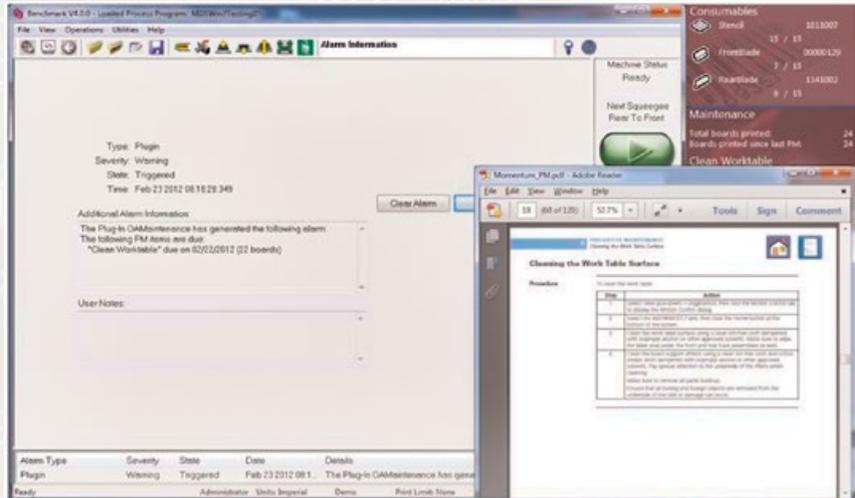
- Operator login validation and notification
- Send / Receive "recipe" for a panel/production cycle
- Identify materials in use. Decisions can be made at the MES whether these are appropriate. Alert the operator if anything needs attention.
- Identify panel entering equipment
- Control product into and out of equipment
- Notification if panel is rejected or removed, including remote ability to accept or reject a panel.
- Collect data for each panel processed (i.e. Squeegee speed, pressure and direction; paste type, temperature, stencil wiped, conveyor width)
- Utilize intelligence from Automated Optical Inspection (AOI) equipment to tune the process throughout the production cycle
- Reflow zone count, cell speed and temperature
- Bad marks locations, fiducial alignment score and line inspection data from dispenser
- Nearly every operation performed on the equipment is made available through the OpenApps interface.

Prepackaged OpenApps included with Benchmark User Interface

MPM Printers

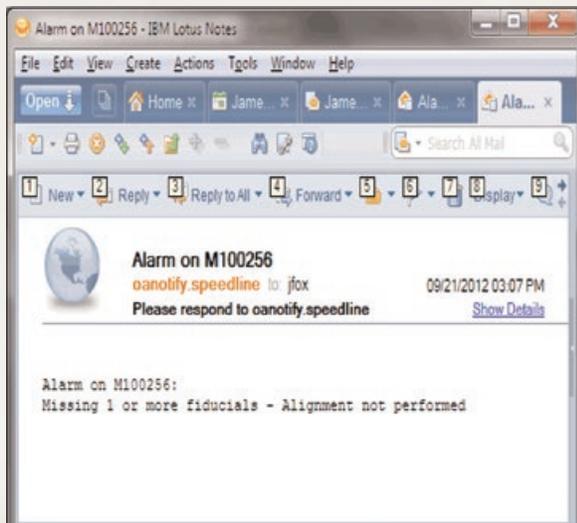
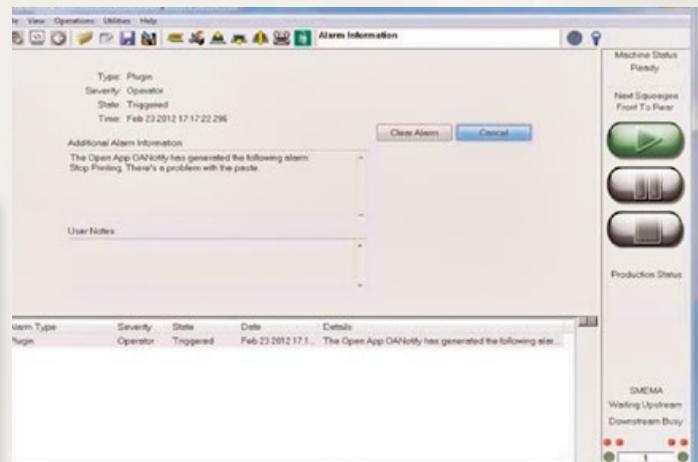
aMaintenance monitors boards printed at the machine and provides alerts on a variety of preventative maintenance functions.

aSnapshot monitors user selectable machine alarms and works with the existing Snapshot utility, to automatically trigger a snapshot when an alarm condition occurs. aSnapshot can also automatically trigger if a “lost connection” (with Benchmark server) condition occurs. As was possible, you can still manually trigger Snapshots.



aNotify monitors numerous user selectable machine events at multiple machines and can be configured to automatically send e-mail notifications to a distribution whenever events occur. Using aNotify, line managers can also manage multiple users, groups and remotely pause production. For safety concerns, however, aNotify cannot be used to start production.

aNotify can also be used to automatically send an email from the printer to one or more recipients based on an alarm event. Used in conjunction with other OpenApps such as aMaintenance.



aAutohelp monitors machine alarms and automatically launches an alarm specific help file whenever certain alarm conditions occur at the machine. You can also launch the standard Benchmark for Printers help files using aAutohelp.

Camlot Dispensers

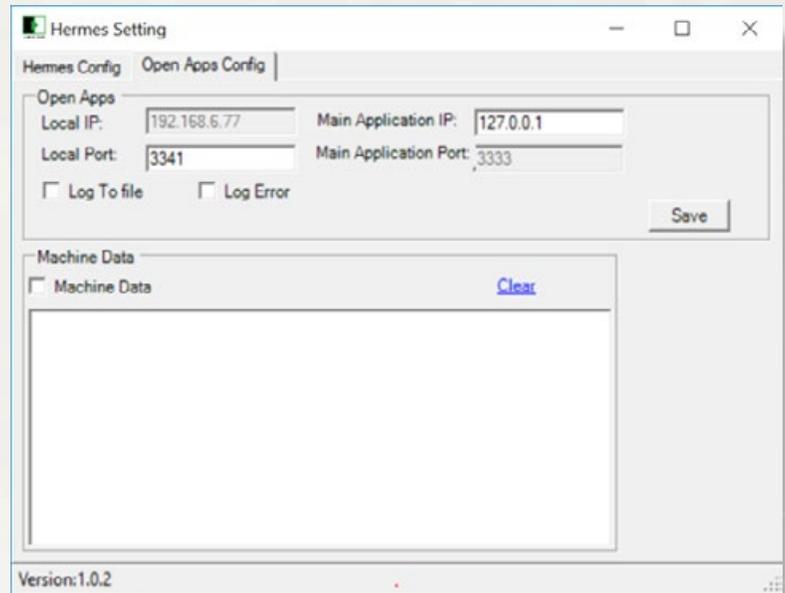
PauseDispenser is an OpenApp shipped with dispensers which allows you to pause the dispenser, send an alarm message to the operator and send an Abort instruction to stop processing the current board. These are just some example commands that are available from the OpenApp interface with the Benchmark for Dispensers software. Beyond these there are many interfaces available to retrieve quite a number of details about the Dispenser's configuration and its current process and configuration.

OpenApps for Hermes and Pulse Integrations

To respond quickly to customer needs and provide solutions for new connectivity solutions, ITWEAE has utilized its own OpenApp framework to develop solutions for both the new machine to machine standard Hermes and the machine to operator solution Pulse/OIC.

The **Hermes** solution allows our equipment to contribute to the enhanced data gathering/sharing protocol allowing customers to have equipment with a rich set of data for each to utilize and track within their processes.

On the Centurion reflow oven, the Hermes application appears as an icon on the toolbar, showing that it's connected as the full screen is used by the oven's main application for monitoring its operations. The user can click on the Hermes icon to bring up the configuration and logging details.



The OpenApp for **Pulse** provides the necessary configuration details to connect the equipment to the Pulse OIC application. Once connected, the OIC can be used to control operation of the equipment, load a specific recipe/process program, start/stop operation, notify uses of warnings and alarms which need their attention, etc. For Centurion, like the Hermes, the OpenApp for Pulse on the Centurion runs as an icon on the task bar allowing the user to see its connected to the host OIC application. Clicking on it allows the user to bring up the configuration and logging details

