

GENMARK'S EXPANDED EZTeach SYSTEM REDUCES ROBOT TEACH TIME BY A FACTOR OF 10 TO 15

**Latest version of Pocket PC-compatible terminal provides highly accurate, consistent, fast
and user-independent robot teaching**

MILPITAS, Calif. - July 10, 2003 - Genmark Automation, Inc., a leader in tool and factory automation solutions for the global semiconductor industry, today announced that its EZTeach technology-introduced last year at SEMICON West and the only such solution on the market-now offers highly extended functionality. Its expanded features include a comprehensive set of apparatus, algorithms, teaching wizards and fully developed diagnostics scripts, further simplifying the robot teaching process, optimizing operator interface and reducing the time needed to program robots used for material handling in today's semiconductor fabs.

Genmark's Vice President of Engineering, Zlatko Sotirov, noted, "Compared with traditional robot teaching performed via a host computer, our highly sophisticated Intelligent Teach Pendant Terminal, based on Pocket PC-style PDAs, provides OEMs with a lightweight, handheld device that incorporates object-oriented software and algorithms. With EZTeach, robot-programming processes that typically require a couple of hours implementing traditional teaching technologies, now can take less than 15 minutes. This significantly reduces downtime of the processing machine due to equipment maintenance or repairs."

The core of Genmark's EZTeach technology is identifying the position and orientation of the substrate locations with minimum or zero operator effort, utilizing dedicated instruments (sensor array tools, adapters) and geometry identification algorithms. The sensor array tools (teaching tools) are accurately attached to the substrate locations via mechanical adapters, allowing one tool to be used for various substrate locations. Specially designed teaching tools and adapters comply with the mechanical constraints imposed by various processing equipment configurations, thus allowing fully automated teaching of machine layouts with unique geometries. As a result, the teaching process becomes uniform, fast and independent from operator skill.

An integral part of the EZTeach technology is the Intelligent Teach Pendant Terminal, based on Pocket PC- compatible PDA. It streamlines the robot teaching by providing the full functionality, capabilities and intelligence of a traditional host-computer in the footprint of a handheld device. The EZTeach software is based on Genmark's Gencobot Tool Box-a set of powerful utilities dedicated to the Pocket PC environment. The software features intelligent 'teaching wizards'-predefined sequences of training steps, tailored to a variety of equipment modules including load ports, pre-aligners, open cassette stations, process chambers and others.

The EZTeach allows the operator to transfer files from the robot controller to the host computer, as well as to upload and download firmware configurations, station information and other data. The EZTeach can automatically collect extensive diagnostic information in case of failure and store it for remote troubleshooting and failure analysis.

The diagnostic capabilities of the EZTeach technology have been further extended by incorporating a small device inside the robot body. This device, called the Black Box, collects and stores critical information about the robot operation. The information includes:

- Equipment uptime, downtime, manufacturing time and total running time (data is in compliance with the SEMI E10-0701 standard)
- Number of revolutions for each motor and faults due to excessive speed/acceleration or overloads caused by robot collisions
- Robot-specific information like serial number, calibration data and more

The accumulated information provides objective criterion for the need of preventive maintenance procedures. The usage data can be used for lubrication scheduling or belts and motors replacement, as well as allowing for adjustment of the robot warranty term based on the real usage and thus extending the warranty for robots not actively in use. The Black Box is compatible with all Genmark robots, observing up to 8 motors and has 64KB Flash storage media retaining data for more than 10 years. It supports RS232 and Ethernet communication interfaces and allows for remote robot diagnostics via the Internet.

Genmark reports it has multiple orders for its EZTeach solution from customers around the world.

About Genmark Automation

Genmark Automation, Inc. is a worldwide leading supplier of factory automation solutions for the semiconductor, flat panel display (FPD) and data storage manufacturing industries. It provides customers with turnkey, highly sophisticated hardware and software automation solutions for both atmospheric and vacuum environments, supporting numerous applications across the semiconductor, FPD and data storage fabrication industries. OEM and fab customers leverage Genmark's automation technologies to maximize equipment productivity in dynamic manufacturing environments. More information about Genmark is available at its Website, www.genmarkautomation.com

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