

## PRESS RELEASE

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## **Yokogawa Develops TandemThroughStage -A Next-generation Platform That Will Revolutionize the LCD Manufacturing Process-**

Tokyo, Japan - Yokogawa Electric Corporation has developed the TandemThroughStage, a next-generation positioning platform for LCD panel manufacturing devices.

The TandemThroughStage is a positioning platform for eighth-generation mother glass substrates that is used by LCD panel manufacturing devices. It includes a gate-shaped component that moves on the X and Y axes above the substrate. Equipment such as drying and coating devices can be mounted on the TandemThroughStage, enabling its use as a common platform in each of the LCD panel manufacturing processes. This contrasts with conventional assembly processes that use a separate glass substrate positioning stage for each manufacturing device. In addition, an LCD panel transfer robot is provided as a standard feature with the TandemThroughStage. By incorporating both LCD manufacturing devices and a transfer robot, the TandemThroughStage can boost the productivity of an entire LCD panel production line.

Yokogawa will exhibit a prototype of the TandemThroughStage at SEMICON Japan 2005, which will be held December 7 - 9 at Makuhari Messe. The company will conduct full-scale market research prior to commercialization of the TandemThroughStage next fiscal year.

## **Development Background**

With large LCD TVs entering widespread use, LCD panel manufacturers must raise productivity to meet increasing demand and survive intense price competition. As mother glass substrates increase in size, manufacturers are striving to reduce costs and add value through the mass production of these LCD panels. In the fall of 2006, factories capable of manufacturing eighth-generation mother glass substrates (2,160 mm × 2,400 mm) will enter operation.

In line with the increasing size of mother glass substrates, the manufacturing devices and the rooms in which the substrates are manufactured must also be larger. This is true for the manufacturing devices used in each phase of the manufacturing process, the devices used to transfer substrates between processes, and the clean rooms which house this equipment. LCD panel manufacturers need to find a way to reduce the space taken up by manufacturing devices, streamline the entire production line, and make clean rooms more compact.

Yokogawa's TandemThroughStage provides a solution that addresses the needs of the LCD panel manufacturing process and market.

## **Overview of TandemThroughStage**

The TandemThroughStage is capable of handling eighth-generation mother glass substrates and includes an XY-stage function for LCD panel manufacturing devices and an LCD panel transfer function. Equipped with Yokogawa's LINEARSERV direct drive motor and DrvGIII intelligent driver, the TandemThroughStage achieves a positioning accuracy of  $\pm 0.25 \mu\text{m}$ . It is ideal for processes such as inspection and repair that require high positioning accuracy.

### **Stage 1 (single unit)**

The TandemThroughStage provides a common platform for the devices used in the cleaning, coating, and other phases of the LCD manufacturing process. It also has a transfer robot for moving the substrates between these devices. With the multi-function capability that it gives LCD manufacturing devices, the TandemThroughStage helps make the production line more efficient.

### **Stage 2 (multiple units, connected)**

Conventionally, a separate LCD manufacturing device has been assigned to each manufacturing process. For example, one device would be used for the exposure process and another for the development process. When connected in a single line, multiple TandemThroughStage units can bring together discrete manufacturing processes into one continuous process, significantly raising the productivity of the entire LCD panel manufacturing line.

## **Business Development**

Yokogawa will exhibit a prototype of the TandemThroughStage at the SEMICON Japan 2005 trade show. In cooperation with manufacturers of LCD panels and manufacturing devices, the company will conduct full-scale market research prior to commercialization of this product in the coming fiscal year.

By making full use of its core measurement, control, and information technologies, Yokogawa will continue to offer unique solutions for multi-functional LCD manufacturing devices that save space and streamline the entire production line.

## **About Yokogawa**

Yokogawa's global network of 18 manufacturing facilities, 83 affiliate companies, and over 650 sales and engineering offices spans 28 countries. Since its founding in 1915, the US\$4 billion company has been engaged in cutting-edge research and innovation, securing more than 7,000 patents and registrations, including the world's first digital sensors for flow and pressure measurement. Industrial automation and control, test and measurement, information systems and industry support are the core businesses of Yokogawa. For more information about Yokogawa, please visit our web site at [www.yokogawa.com](http://www.yokogawa.com)

## **About Yokogawa Corporation of America**

Yokogawa Corporation of America is the North American unit of \$4 billion Yokogawa Electric Corporation, a global leader in the manufacture and supply of instrumentation, process control, and automation solutions. Headquartered in Newnan, Georgia, Yokogawa Corporation of America serves a diverse customer base with market-leading products including analyzers, flowmeters, transmitters, controllers, recorders, data acquisition products, meters, instruments, distributed control systems, and more.

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