Industry: **Semiconductor /// Materials Handling**
Products Used: **Modular PLCs /// Servos**

High accuracy test system uses Mitsubishi Servos and PLCs

ES Technology manufactures high accuracy test handler systems which are used by semiconductor producers for testing of components. ES Technology has chosen Mitsubishi Electric PLCs and servo drives to deliver the level of motion accuracy they require.

In a recent order supplied to International Rectifier, EST chose a Mitsubishi AnS series PLC and a MR-J2 60A servo amplifier that drives a Mitsubishi HA-FF-63-EC motor through an alpha planetary gearbox, to achieve the combination of speed and accuracy needed for a component test table. The test table is circular, 500mm in diameter and inclined at approximately 45 degrees. Power transistors for test are fed in at the 9 o'clock position and moved to various stages for function test and eventual off-load at the 3 o'clock position.

The test table operation is completely controlled by the Mitsubishi AnS series PLC which is equipped with an A1SD75 special function positioning module. This positioning module generates a pulse train command for the MRJ2 servo amplifier. Rotary movement of the table is indexed to 32 positions and indexing speed demanded is rotary repositioning to within 0.1 second coupled with an accuracy of ±0.1 mm on the outside diameter. This equates to less than half a minute of arc.

To simplify specification, installation and commissioning, Mitsubishi supplied the motors, servo amplifiers and positioning controllers as one integrated package. Since the positioning controller plugs directly into the Mitsubishi AnS series control system it ensures fast response and high accuracy by using high speed digital communications to the servo amplifiers.

Highly advanced control algorithms also suppress servo lock micro vibration, making a truly stable system possible. The highly compact Mitsubishi motors are fitted with serial communicating absolute position encoders that resolve up to 16,384 positions per revolution as standard, and also automatically identify themselves to the MR-J2 servo amplifiers to eliminate risk of system mismatch.

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