MELSERVO-J4 Solutions

For your all production needs

Motion Alignment (X-Y-θ)

Vol. 03

1. X-axis
2. Y-axis
3. θ-axis

(a) COGNEX Vision System
(b) Wafer

System Example

Issues at production sites

1. Accurate Positioning
2. Precise Drive Operation
3. Shorter Tact Time

(application)

- Pre/Post inspection system imaging
- Solar panel production
- FPD manufacturing
- 3D LCD manufacturing
- SEMI logic inspection

Set up procedure

Step 1: System Configuration Settings
Step 2: Parameter Settings for Ethernet Connection
Step 3: Vision System Connection Settings
Step 4: Motion SFC Program Creation

MNIST Image Classification

1000-Classification Accuracy: 61.05%

Solutions

For your all production needs

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Accurate Position Reading and Quick Location Readjustment

The vision system can easily read the current position, and quickly moves the material (wafer) to the target position, calculating the correction amount.

Solution 1
COGNEX Vision System

Material (Wafer) Detection

STEP 1
The vision system measures the current position.

STEP 2
The system moves the wafer to the target position following the correction amount calculated.

Solution 2
Direct Drive Motor

Direct Connection to Drive Parts for High Response and Accuracy

High-response, high-accuracy, and stabilized positioning are achieved by using the direct drive motor for rotary axes. This motor is also suitable for a low-speed and high-torque operation.

Solution 3
Target Position Change Function

Flexibly Responding to Changes in the Target Position

When performing a position correction using the vision system data during positioning operation, the system can move the wafer to a new target position directly without starting positioning again. Thus shorter tact time is achieved.
Setup procedure

**Step 1: System Configuration Settings**

Set the servo amplifier.

**Step 2: Parameter Settings for Ethernet Connection**

Set the IP address of the Motion controller.

**Step 3: Vision System Connection Settings**

Set the parameter concerning the Ethernet communication and the vision program operation.

**Step 4: Motion SFC Program Creation**

Describe the vision system dedicated instructions, and then the positioning data from the vision system is possible to be read.

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**SSCNET Structure**

**Amplifier Settings**

**MR Configurator2**

Double click

**Built-in Ethernet Port Setting**

IP Address Setting
Default: 192.168.3.39

Select from “MELSOFT Connection” or “MC Protocol” for protocol.

**Built-in Ethernet port Open Setting**

**Vision Program Operation**

These simple instructions enable to read the data from the vision system.
The Servo Amplifiers, Servo Motors, and Optical Networks Linked in Symphonic Productivity

**Advanced One-touch Tuning**

Servo gains including machine resonance suppression filter, advanced vibration suppression control II, and robust filter are adjusted just by turning on the one-touch tuning function. Machine performance is utilized to the fullest using the advanced vibration suppression control function.

**Flexibility**

MR-J4 series servo amplifier operates rotary servo motors, linear servo motors, and direct drive motors as standard.

**Reduced Wiring**

Simple connections with dedicated cables reduce both wiring time and chances of wiring errors. No more complicated wiring.

**Power Saving**

Driving power and regenerative energy are calculated from the data in the servo amplifier such as speed and current. Motor current value, power consumption, and total power consumption are monitored with MR Configurator2. In SSCNET III/H system, data are transmitted to a Motion controller, and the power consumption is analyzed and displayed.

**Features**

- **Quick Setting by Just One Click**
- **Dramatically Reduced Wiring**
- **Energy-conservative system examination**
- **Power Monitor Function**

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