

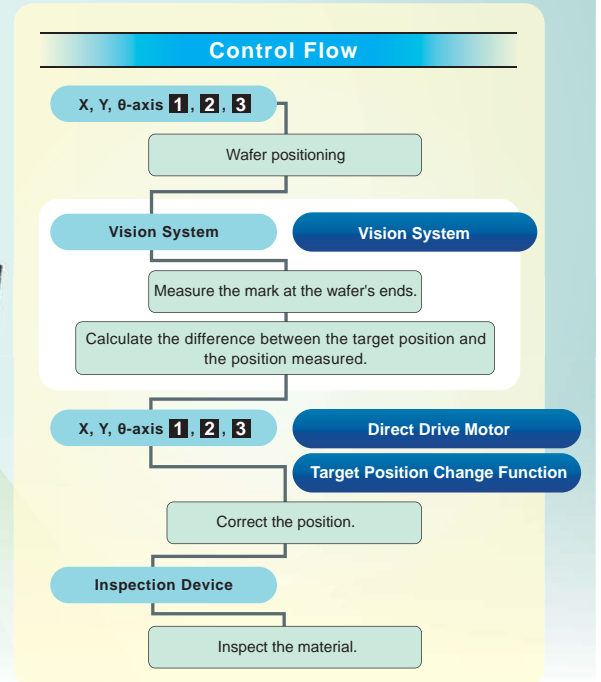
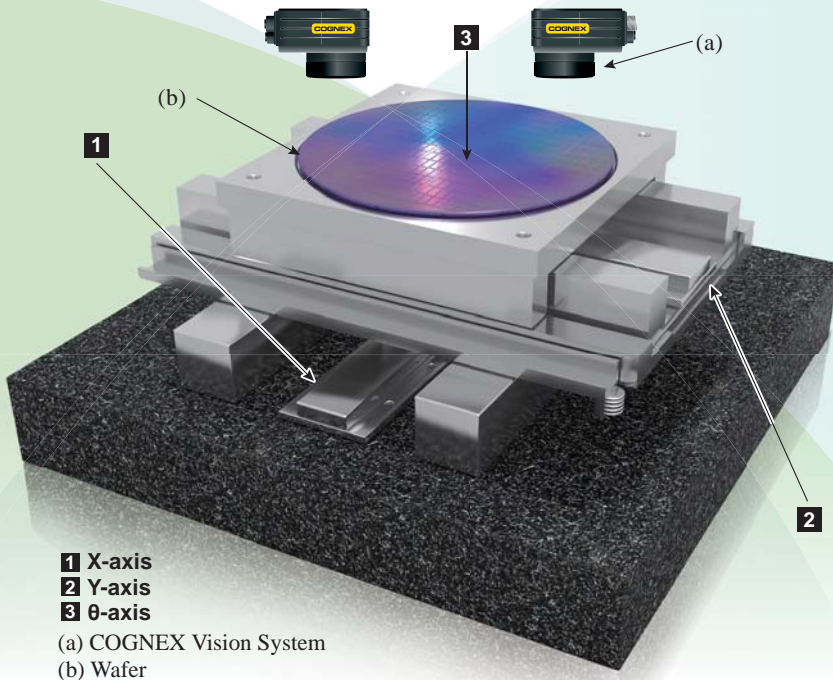
For your all production needs

# MELSERVO-J4 Solutions

MITSUBISHI SERVO AMPLIFIERS & MOTORS  
MELSERVO-

# J4

## vol.03 Motion Alignment (X-Y-θ)



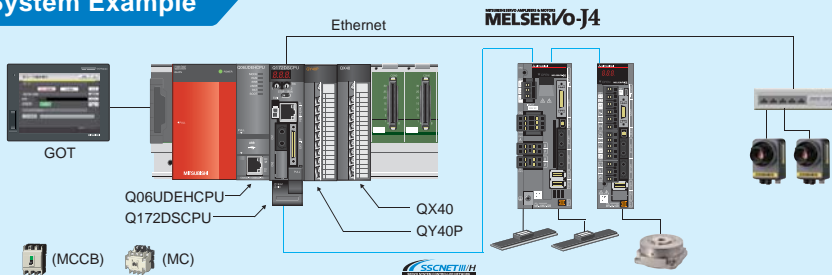
Issues at production sites

**Issue 1** Accurate Positioning  
→ **COGNEX Vision System**

**Issue 2** Precise Drive Operation  
→ **Direct Drive Motor**

**Issue 3** Shorter Tact Time  
→ **Target Position Change Function**

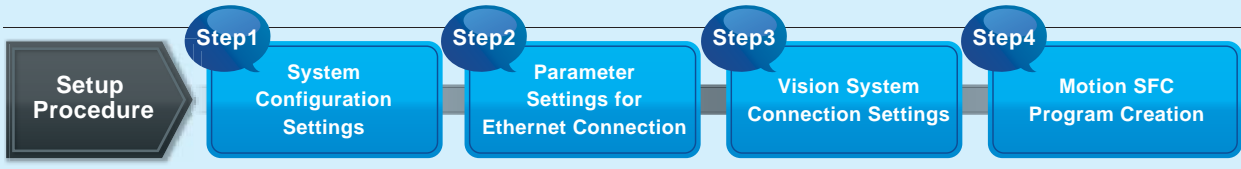
### System Example



#### 《Mitsubishi solution》

Motion CPU : Q172DSCPU    Servo amplifier: MR-J4-B, MR-J4W2-B    Servo motor: TM-RFM, LM-H3  
PLC CPU : Q06UDEHCPU    GOT : GOT1000 series    I/O module : QX40, QY40P  
Main base unit: Q35DB

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



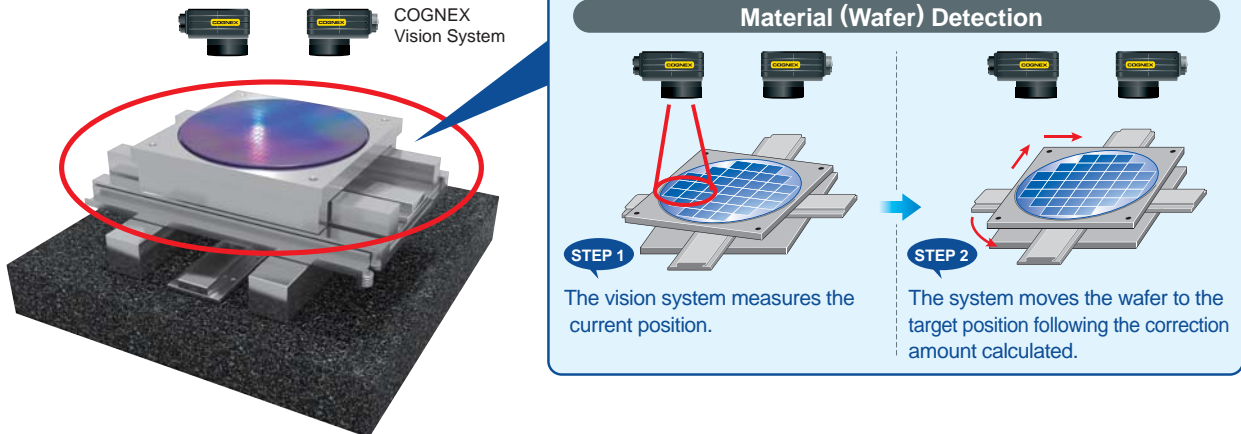
## Solution 1 COGNEX Vision System

### Accurate Position Reading and Quick Location Readjustment

Quick position detection

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

[Example of using wafer (material)]



## 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.

[Direct Drive Motor Example]

This hollow construction enables cables and wires to go through inside.

Elimination of transmission mechanical parts



Suitable for a low-speed and high-torque operation.

Smooth operation with low noise

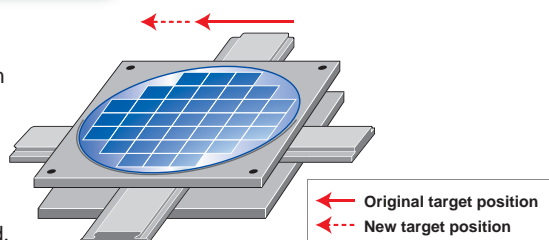
Clean system without dust coming from worn out

## Solution 3 Target Position Change Function

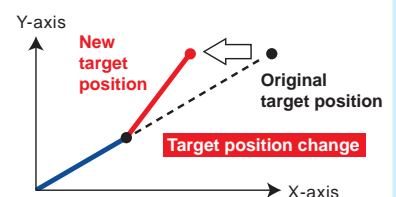
### Flexibly Responding to Changes in the Target Position

Shorter tact time

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.



[Operation Example of Target Position Change Function]



# Setup procedure

## Step 1 System Configuration Settings

Set the servo amplifier.

**SSCNET Structure**

**Amplifier Settings**

**Parameter Setting**

**Easy settings for DD motor**

## Step 2 Parameter Settings for Ethernet Connection

Set the IP address of the Motion controller.

**Built-in Ethernet Port Setting**

**Built-in Ethernet port Open Setting**

**IP Address Setting Default: 192.168.3.39**

**Select from "MELSOFT Connection" or "MC Protocol" for protocol.**

## Step 3 Vision System Connection Settings

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

**Ethernet Communication Line**

**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.

**10: Alignment**

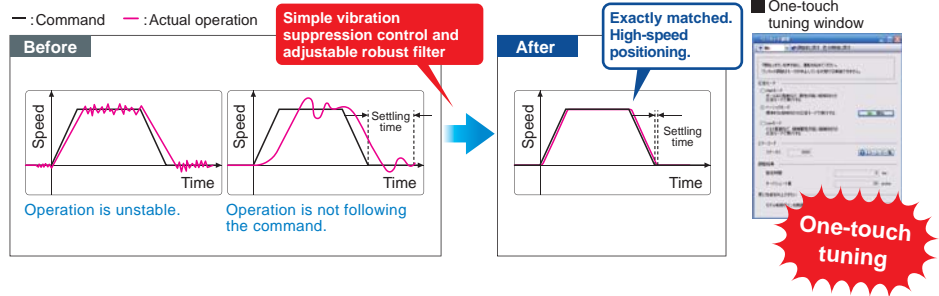
**These simple instructions enable to read the data from the vision system.**

**MELSERVO-J4**  
Features

**The Servo Amplifiers, Servo Motors, and Optical Networks Linked in Symphonic Productivity**

**Advanced One-touch Tuning Quick Setting by Just One Click**

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.



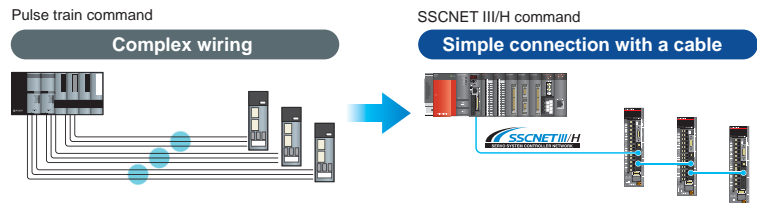
**Flexibility Applicable for Various Control and Driving Systems**

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



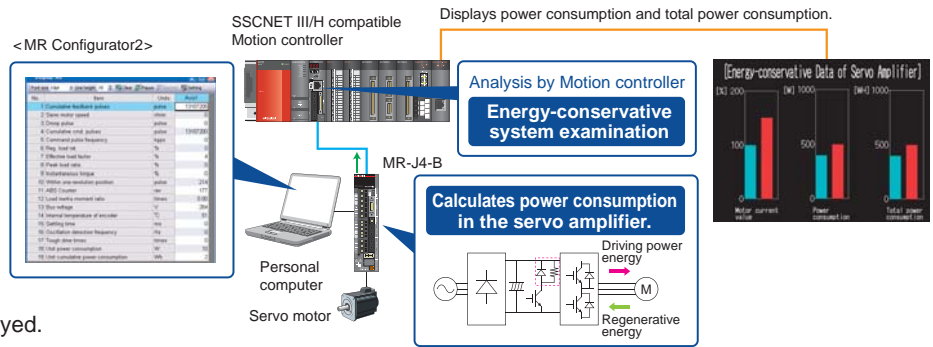
**Reduced Wiring Dramatically Reduced Wiring**

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



**Power Saving Power Monitor Function**

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.



Man, machine and environment in perfect harmony

Solution

**MITSUBISHI ELECTRIC CORPORATION**

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