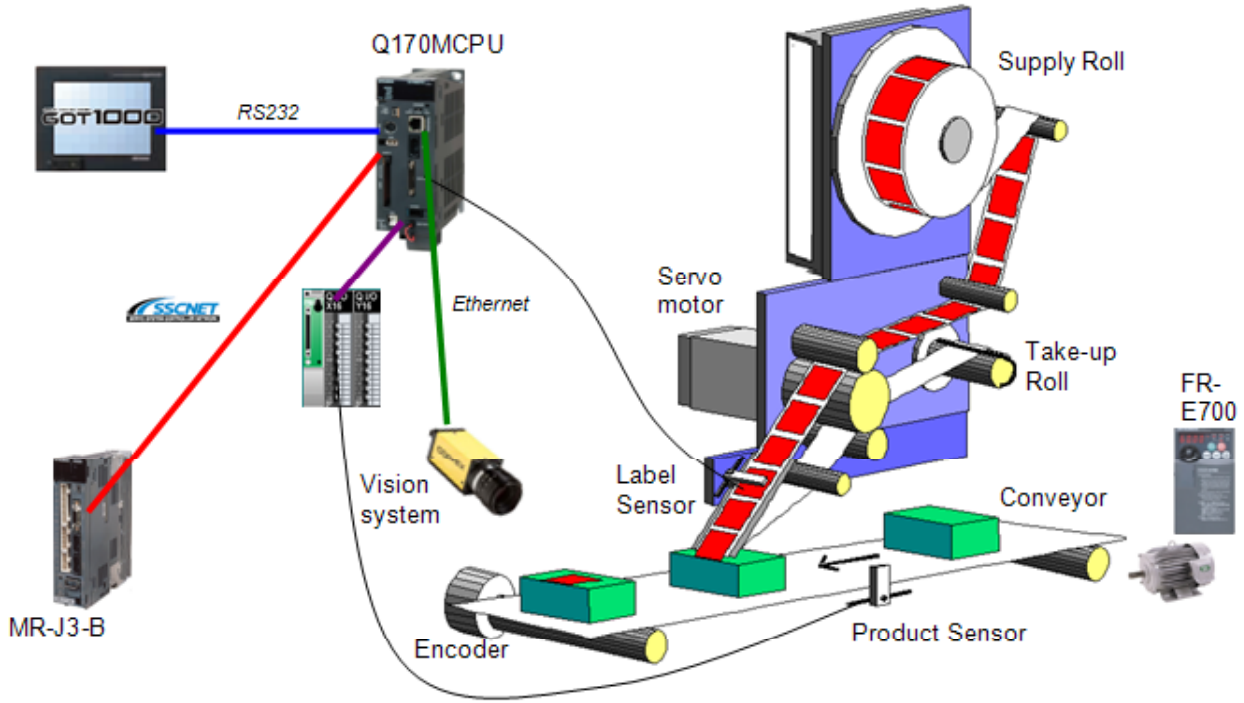
# *Labeling Machines*



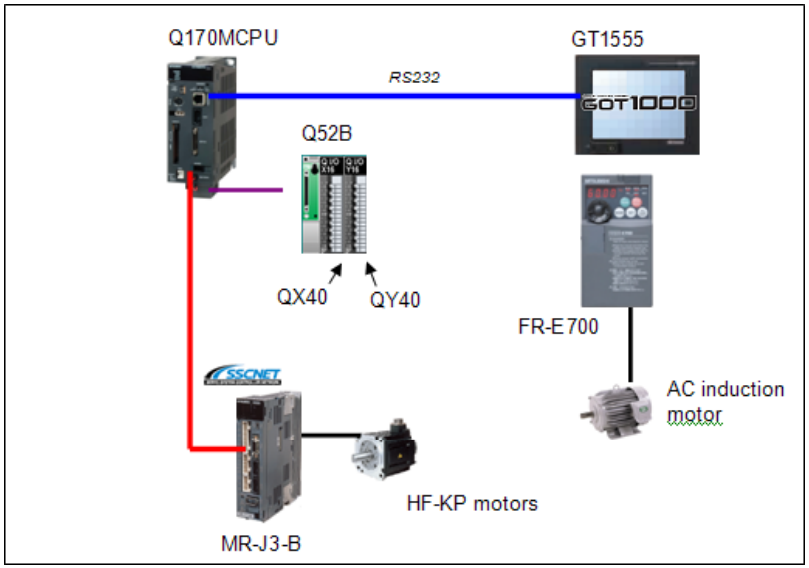

## Unique Points:

1) High-speed Registration Function, *INCREASED THROUGHPUT*
2) Web advance function, *LESS SCRAP MATERIAL*
3) Automatic label detection, *FAST CHANGEOVER*

Solutions Marketing

# Labeling Machines

## Overview

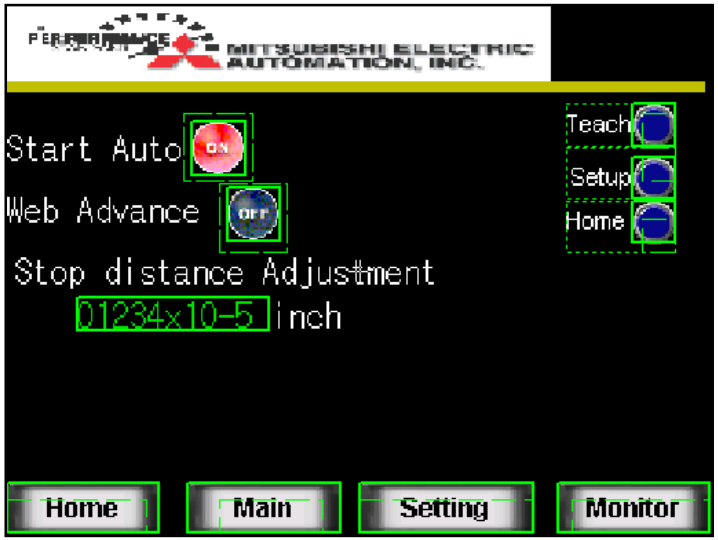



High-speed labeling machines require registration and encoder following in order to accurately position labels at different speeds. In-line labeling systems such as the machine shown above place labels on block shaped products that move in a single direction. Rotary labeling machines place labels on cylindrical products that rotate around a central label head. When more than one label is placed on a product, multiple label heads can be configured with additional servos and sensors. Mitsubishi Electric's iQ Platform offers flexibility for system expansion with intelligent multi-axis control, and for additional trend analysis and quality control, a vision system is used to track defective products and monitor label accuracy.

# Labeling Machines

## Mitsubishi Solutions

- Controller: **Q170MCPU**
- Servo Amplifier: **MR-J3-B**
- Servomotor: **HF-KP, HF-SP, HF-JP**
- Graphic Operation Terminal: **GOT1000**
- VFD: **FR-E700**
- Cognex Vision System




### Other Options

- Q172D/Q173D iQ Motion Controllers for Multi-head
- MR-MQ100 Motion Controller for single head
- Large Selection of Motors
- CC-Link communication to VFD

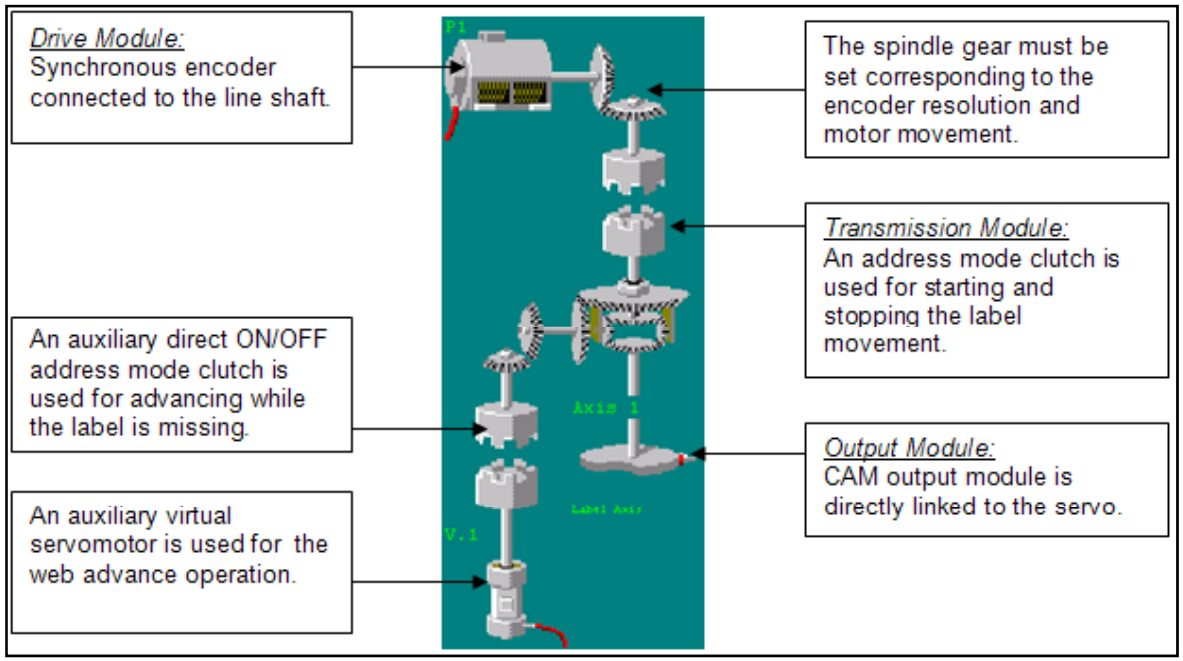
### Example Applications

- Food/beverage machines
- Pharmaceutical
- Material handling machines

# Labeling Machines

## Sequence of Operation

### Process

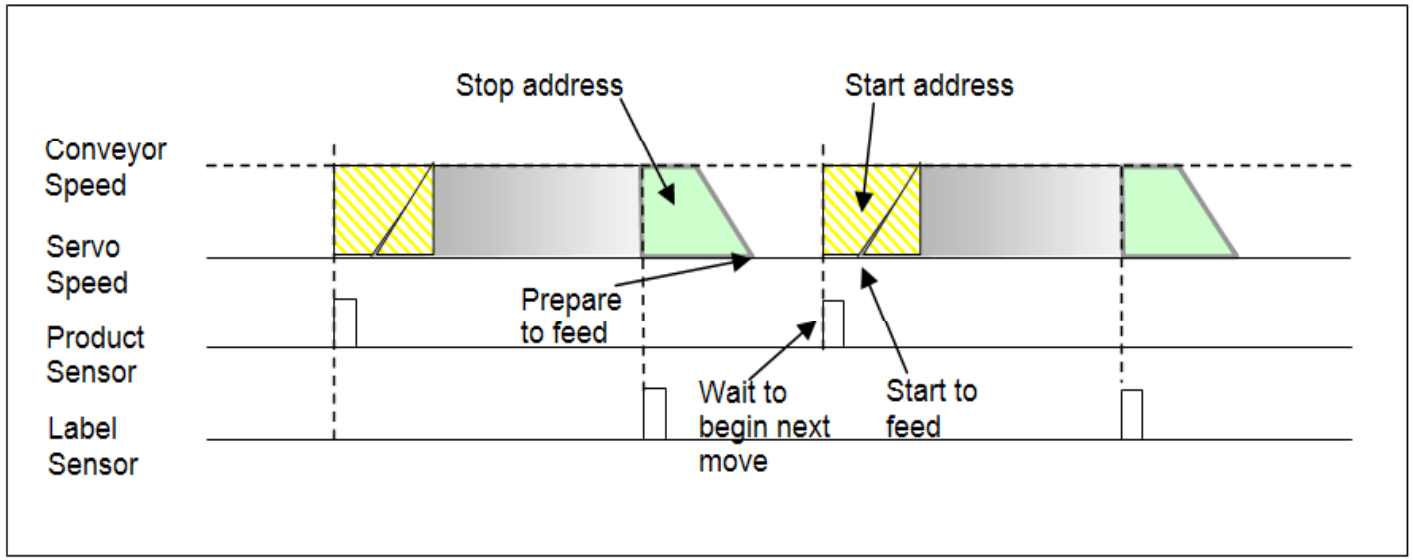



### Sequence of operation

1. Wait for Product Sensor
2. Calculate Clutch On and Off Address and Close at that point
3. Wait for Label edge Sensor
4. Calculate Clutch Off Address and Open at that point
5. Activate web advance function if label is missing on the web

## Sequence of Operation

### Timing Chart



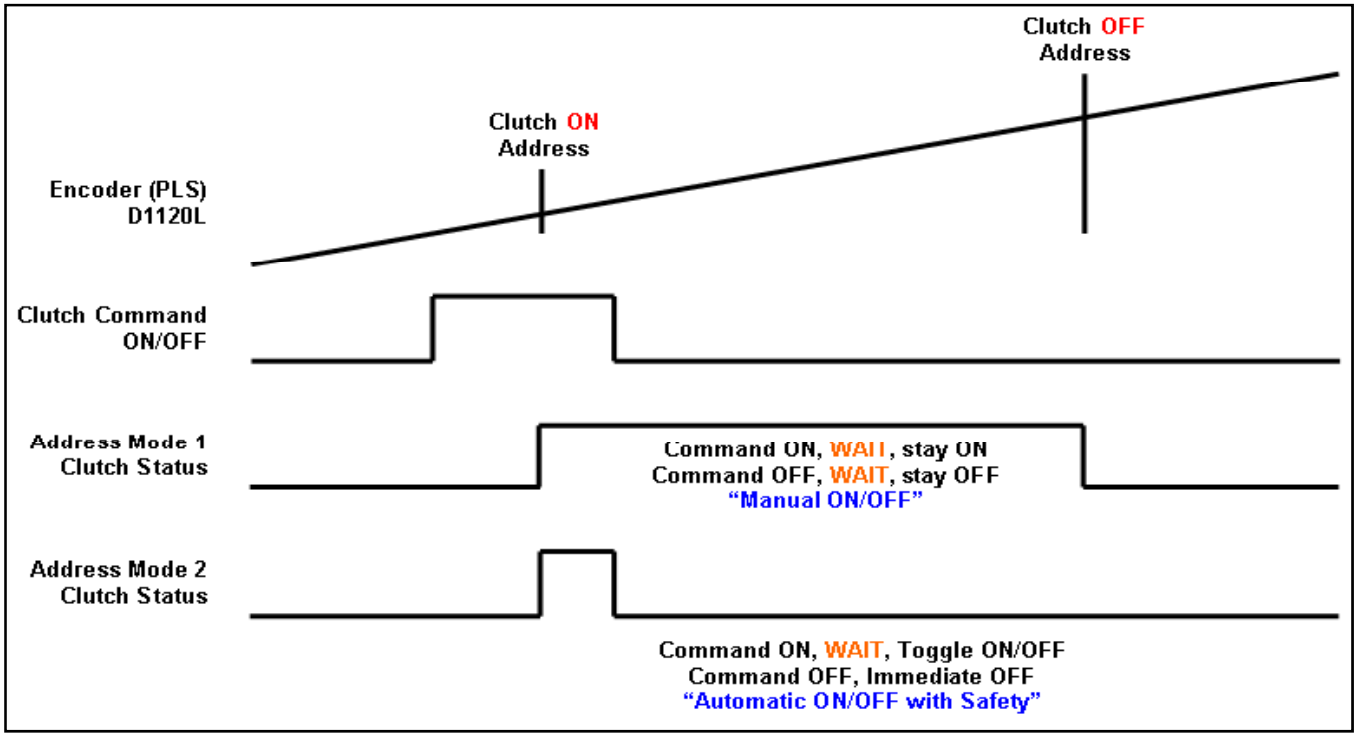

The label reel is advanced each time a product is detected with the product sensor. When the next label is detected, the label reel stops. This cycle repeats.

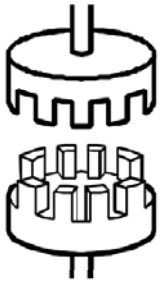
In order to place labels in the correct positions regardless of speed, mark registration techniques are used with an address mode clutch in virtual mode.

# Labeling Machines

## Sequence of Operation

The Key part of this solution is our ability to use the mechanical editor and set address mode clutches, along with our High Speed Registration.

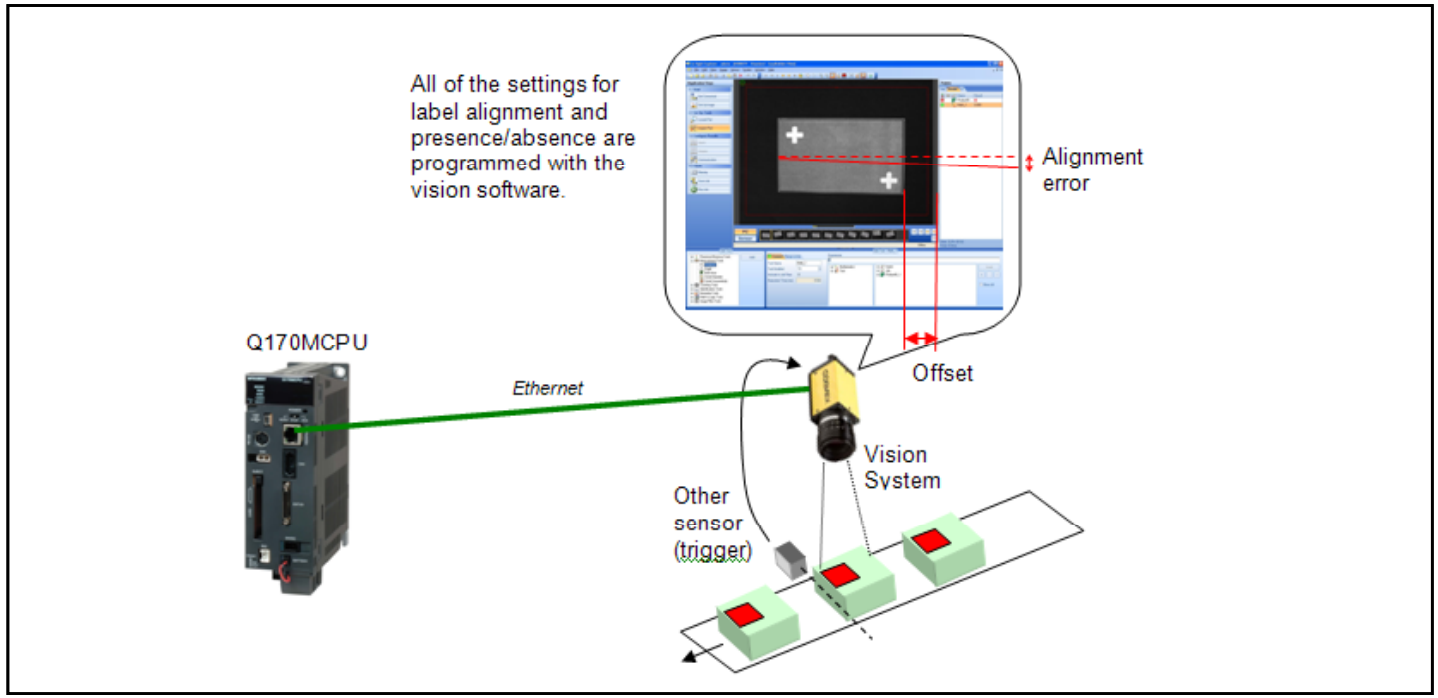


# Labeling Machines

## Option for Vision Inspection

For additional quality assurance, a vision system can be attached to the end of a labeling system for 100% product inspection. Products are queued in a line before a sensor commands the camera to take a picture. Data is immediately transferred to the PLC for trend analysis and pass/fail decisions.



# Labeling Machines

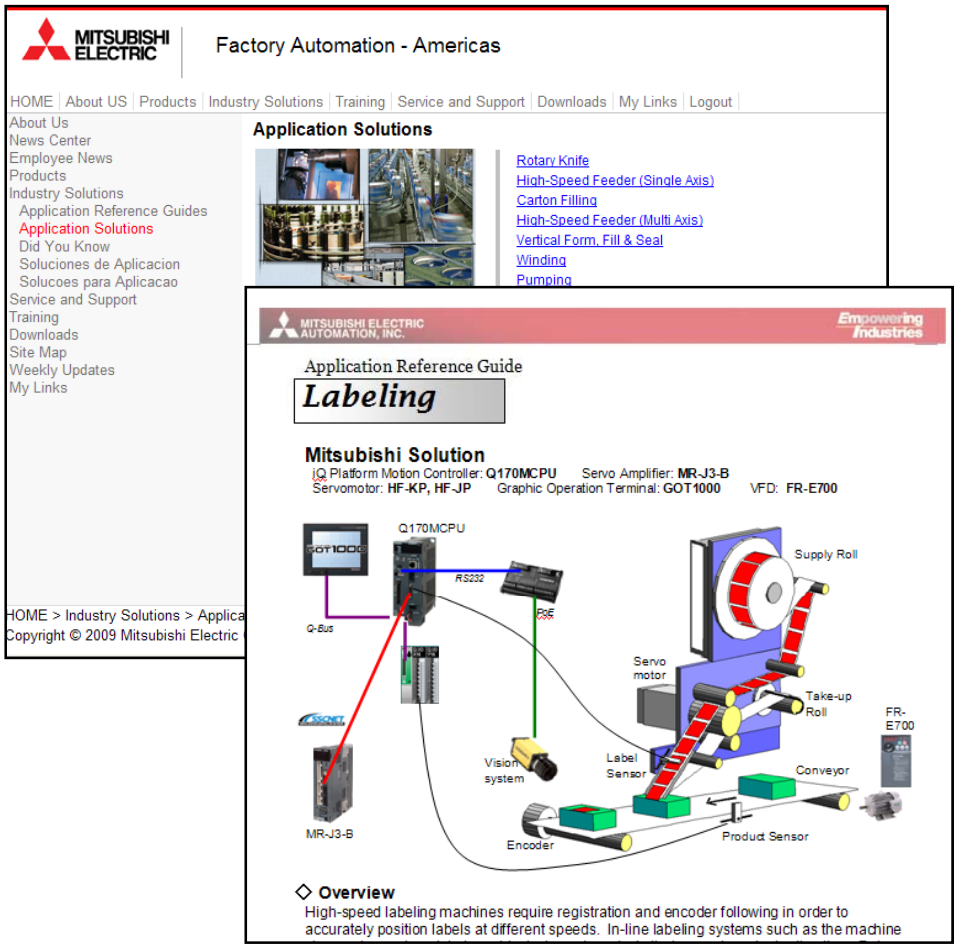
## Mitsubishi Features, Advantages and Benefits

| Features | Advantages/Benefits |
|---|---|
| • Flexible mark detection programming<br>➢ Up to 32 user defined registration settings per program<br>➢ Easy set up in software | • Improved machine throughput<br>➢ Accurate label placement<br>• 10% reduced parts cost<br>➢ No additional hardware for mark registration<br>• Faster implementation in program |
| • Web advance algorithm<br>➢ Detect missing labels to advance the label web automatically | • Reduced waste material<br>• Improved machine throughput |
| • Changeover function for different sized labels<br>➢ Automatic label detection | • Reduced setup time<br>➢ Easy to implement function from GOT |
| • Servo auto tuning<br>➢ MR-J3 amplifiers tune automatically and continuously without the need to re-tune or adjust manually | • Reduced machine setup time<br>• Increased machine lifetime<br>• Improved productivity |
| • Easy to use visual motion programming<br>➢ Easy to set up a visual representation of the system for encoder following | • 30% reduced programming time<br>• Reduced labor cost<br>• Reduced machine cost (less mechanical and electrical components) |

# Labeling Machines

## Application Materials

- Reference Guide
- Application Guide
- Example Movie
- Program Files
- Basic Customer Presentation



# Labeling Machines

## Questions