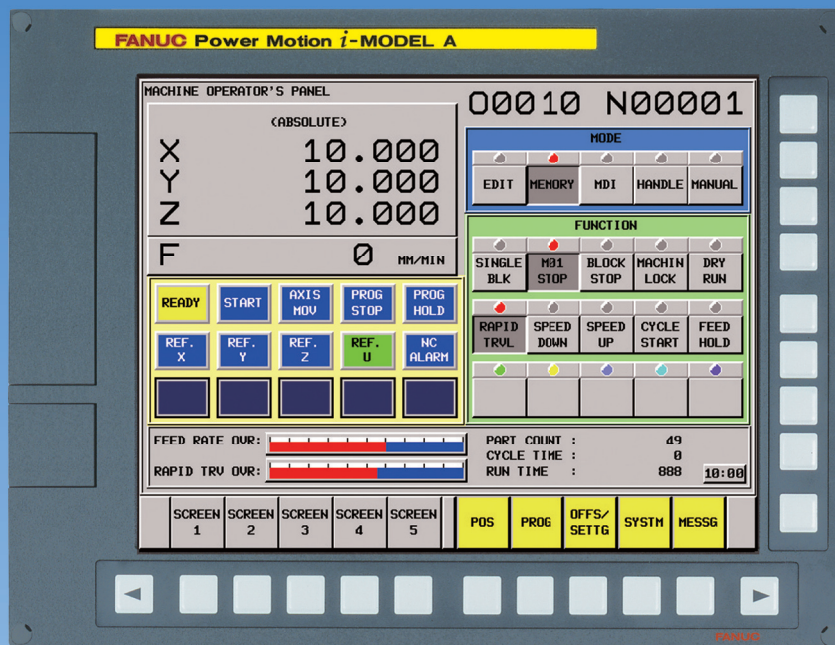
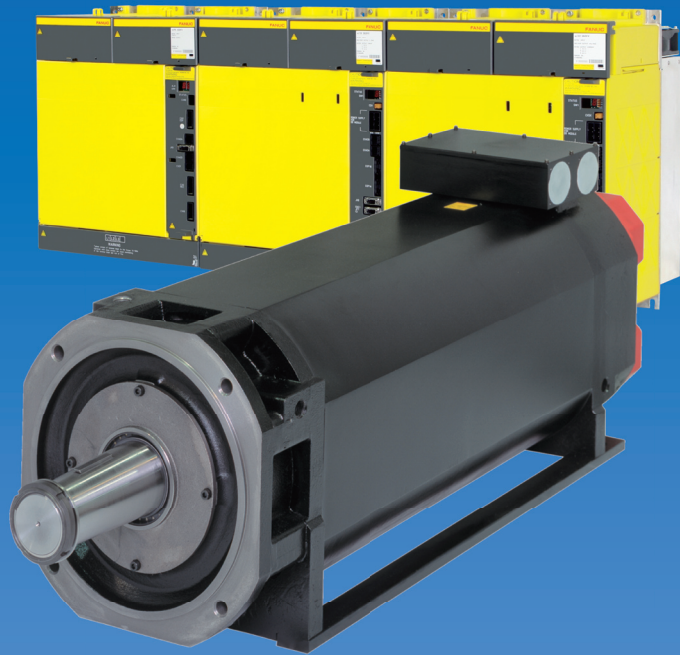
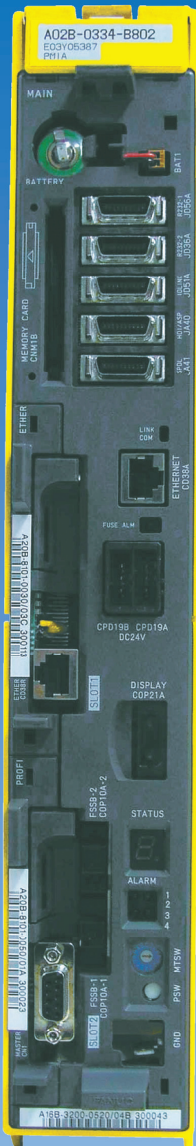


# High response CNC for General Industrial Machine

# FANUC Power Motion *i*-MODEL A



# High response CNC for general industrial machine

## FANUC Power Motion *i*-MODEL A

Max. number of paths : 4 paths

Max. total number of control axes : 32 axes

Max. number of simultaneous control axes : 4 axes

### Applicable function for general industrial machines

- Applying wide range for general industrial machines by multi-axis and multi-path functions

#### Example

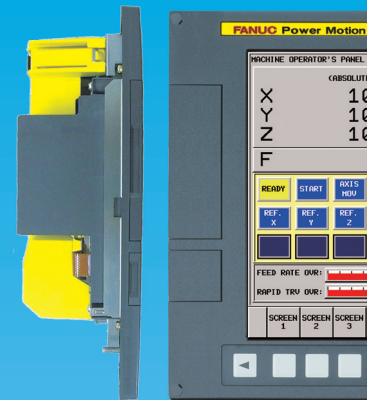
- Press machines • Stamping machines • Loaders
- Wire saw • Winding machines • Filling machines
- Replace hydraulic cylinders with servo motor, etc.
- Up to 16 axes by PMC axis control function that can be executed independently for each axis
- Applying to various industrial machines by position, speed, and torque control
- Shortened cycle time by PMC axis control acceleration/ deceleration specification feed

### Best controller for Large Servo Motor

- Functions to replace hydraulic mechanism with servo motor
- Up to 10 large servo motors control in one CNC(No need for PWM Distribution Module)
- Servo amplifiers for large servo motor achieved significant effect of the energy saving by adopting the power source regeneration and the latest low loss power device

### State-of-the-Art Hardware

- The leading-edge hardware has enhanced the basic performance of the CNC, servos and the PMC.
- High-reliability hardware allows stable operation in a harsh industrial environment.
- Various types of enhanced diagnosis functions improve maintainability so that the cause of trouble can be identified quickly.
- easily-exchangeable spare parts

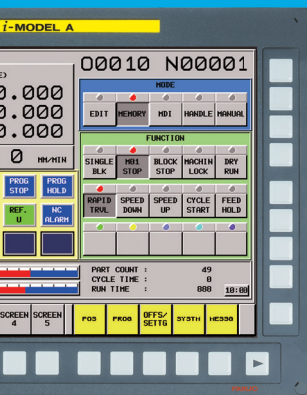


FANUC Power Motion



FANUC Power Motion *i*-MOD (Stand-alone type)

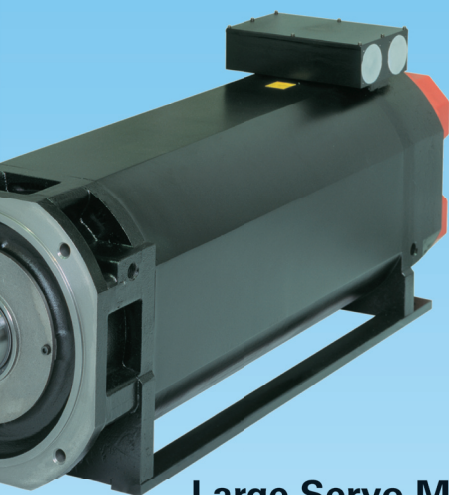




**i-MODEL A**  
(LCD-mounted type)



**Servo Amplifier**  
achieving Energy Saving



EL A

**Large Servo Motor**  
with Large Torque  
and High Power

## High response motion control

- Shortened cycle time by quick axis start/stop
- Improved accuracy for machines that require high speed operation by quick response for an external signal
- Shortened cycle time by high speed ladder execution cycle

## Plenty of Customize Functions

- Compact operator's panel by touch panel
- Easy addition of operator's panel by FANUC PICTURE
- Unique display and operation by C language executor

## Display units meeting the needs for applications

- LCD-mounted type CNC
  - Ultra Compact, Ultra Thin, Reduced wiring
- Stand-alone type CNC
  - Display unit which enables to display for plural CNC's screen
  - Displaying the CNC screen on a PC (Ethernet Display Function)
- Hand-held display unit which enables the operator to perform teaching operation near the machine

## Various Types of Field Networks

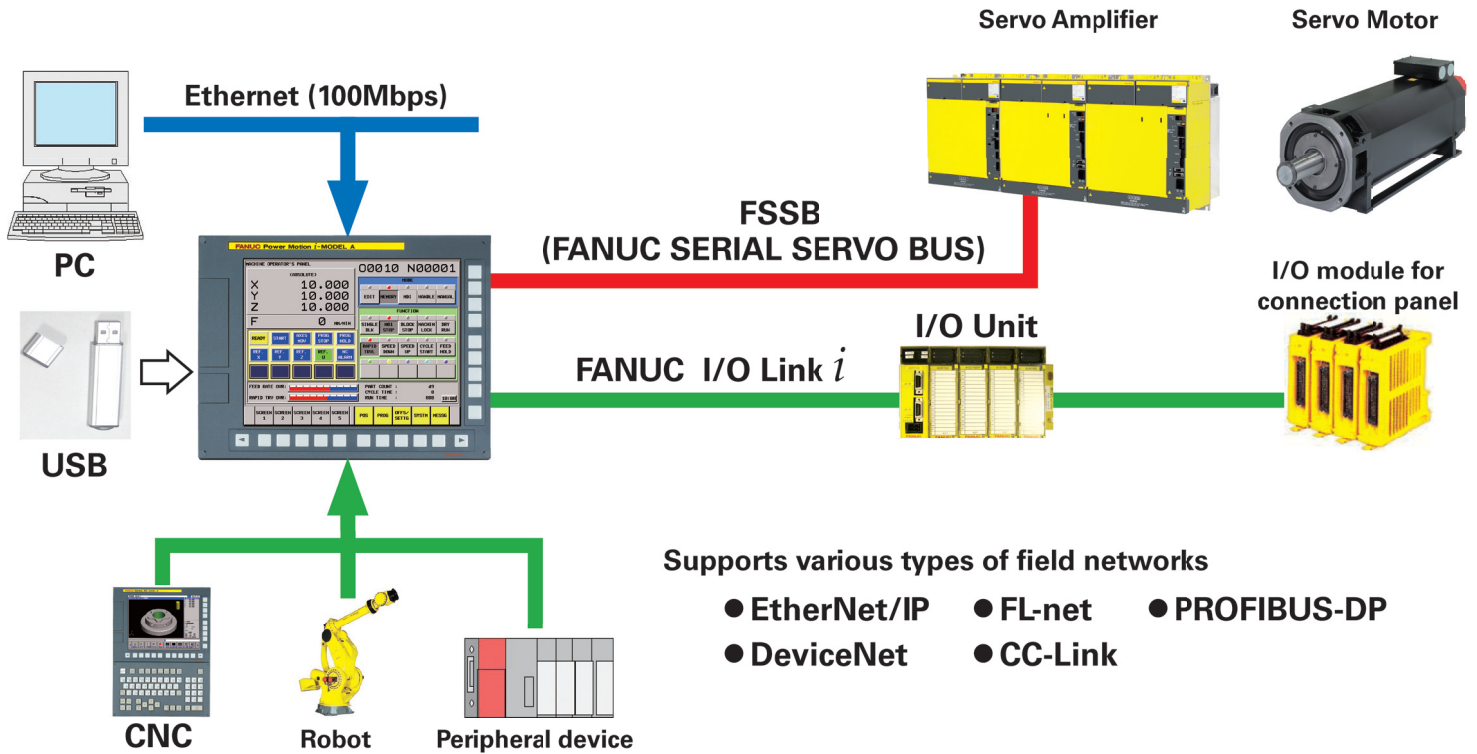
- Various types control system can be constructed easily by using field networks with PLC and peripherals.
- Communication with PC and robot can be performed easily via embedded Ethernet.

## Superior Safety Functions

- Integrated safety functions facilitate safety measure of machine.
- Integration of motion control and safety.
- Conformity with International safety standard "Functional Safety" IEC61508.

# State-of-the-Art High-Speed, High-Reliability Hardware

Ultra-Compact, Reduced wiring, High-Reliability



## Enhanced basic performance

The leading-edge hardware has enhanced the basic performance of the CNC, servos and the PMC to support advanced CNC functionality such as multi-axis and multi-path control.

## Thin and compact [Patent]

The LCD-mounted type CNC with all the functionality implemented behind the display greatly reduces CNC mounting space on the machine. This contributes to downsizing. Intelligent communication functions are also embedded in the ultra-thin control unit of 60mm in depth, which helps design a compact operator's panel.

The stand-alone type CNC, a control unit with a separate display, is also available. You can select a CNC suitable to your machine structure.

## Leading-edge servo control with fast FSSB and high-speed DSP [Patent]

The CNC and amplifiers are connected with FSSB (Fanuc Serial Servo Bus) using optical fiber cable. Leading-edge DSPs and newly-designed FSSB offer advanced servo control such as multi-axis control and fast current control.

## FANUC I/O Link *i*

FANUC I/O Link *i* is a serial I/O interface between the PMC and various I/O units. The number of DI/DO points per channel is 2048/2048, doubled from conventional FANUC I/O Link. FANUC I/O Link *i* helps quick recovery from troubles by making it easy to pinpoint the faulty part using abundant error detection capability such as bitwise DO ground fault detection and I/O power supply failure detection

## Reduced wiring

The faster FSSB and FANUC I/O Link *i* realize further reduction of wiring and lower wiring cost.

## High reliability realized by ECC [Patent]

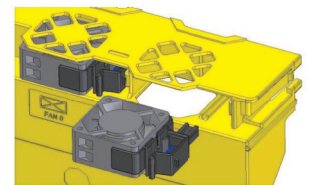
Error correcting code (ECC) is a leading-edge high-reliability technology. Should an error occur during data transfer, it can be detected and corrected.

Although ECC has already been applied to various portions of the CNC, the range of application is further expanded and the whole CNC system is protected. ECC and original low power technologies contribute to high reliability.

## Easy-maintenance

### ● Spare parts

Fans and battery are stored in a cartridge and can be replaced quite easily, and maintainability is enhanced. (LCD-mounted type CNC)



Fan motors are detachable from front side in case of the amplifier.

### ● Preventive maintenance

Preventing machine from unexpected stop by detecting and indicating a phenomenon of abnormal status which may cause the system to stop.

### ● Trouble Shooting Function

The cause of an alarm can be diagnosed by answering questions displayed on Trouble Shooting Guidance Screen when an alarm occurs on CNC. As a result, down time can be shortened.



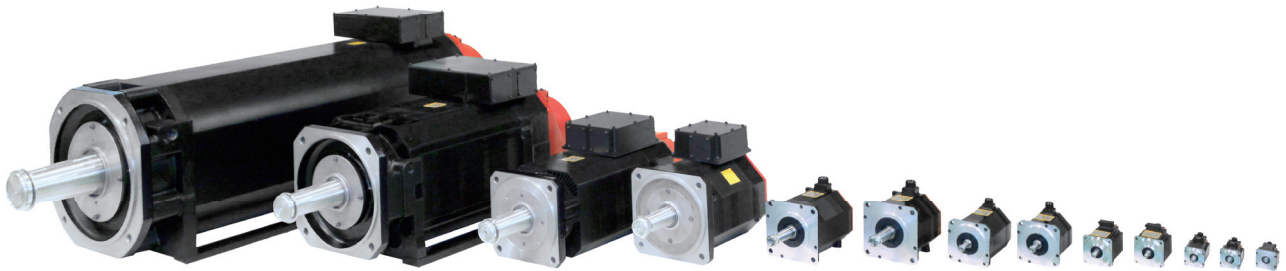
# Intelligent Servo System with High Speed, Precision and Efficiency

## Promoting High Speed & Precision, Compact Sizing and High Efficiency of Industrial Machines

### FANUC AC SERVO MOTOR $\alpha i$ series , $\beta i$ series

#### Ultra Smooth Rotation and Quick Acceleration AC SERVO MOTOR

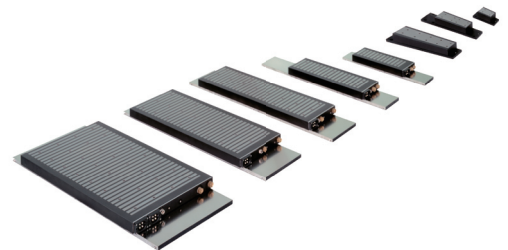
- Wide range line-up  
Motors widely lined up with stall torque from 0.16Nm to 3000Nm.
- Compact size  
Optimum structure design makes axial length of the motor shorter, contribute to downsizing of machine tools.
- Intelligent Servo Motor  
Servo Motor has ID information of the motor and the Pulsecoder, contribute to quick maintenance.



### FANUC LINEAR MOTOR $L i S$ series

#### Linear Motor Realizing Ultimate High Speed and High Precision Feed

- Wide range line-up  
Motors widely lined up with peak force from 300N to 17000N.
- High speed and high acceleration  
Realizing maximum speed of 4m/s and maximum acceleration of over 30G, which is difficult to be realized by using rotary motor.
- High accuracy  
Original cooling structure minimizing effect of heat transmission from motor to machine, and resulting in high accuracy of machine.



### FANUC SERVO AMPLIFIER $\alpha i$ series , $\beta i$ series

#### Compact and Energy Saving Servo Amplifier

- Compact size  
Downsizing of amplifier is realized by optimum cooling design, and it contributes to cabinet downsizing.
- Energy saving  
Power consumption is largely reduced by power source regeneration.  
Reducing power loss is realized by adopting the latest power device.
- Technologies for larger output  
ervo amplifier is applied to driving large motor by "Multiple drive with standard servo amplifiers"  
High stability is realized by Tandem Control in case driving one mechanical axis using plural motors.



# Applicable function for general industrial machines

## Flexible support for various machine configurations by multi-axis and multi-path

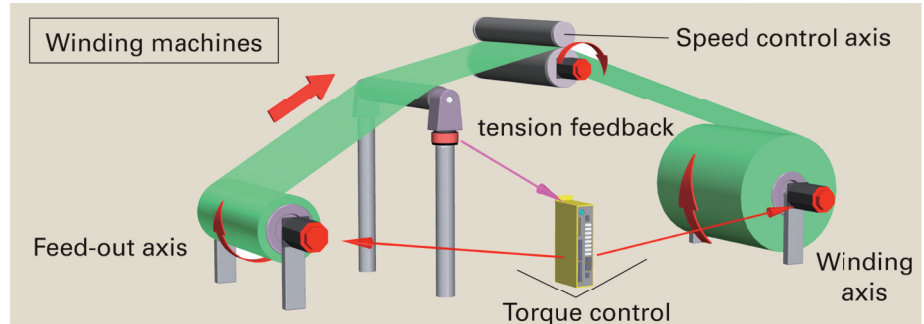
Up to 4 paths and 32 axes can be controlled in one CNC. So, the machine which has multi-axis can be controlled in one CNC.

- Up to 4 NC programs can be executed at the same time. Independent operation such as the press operation and the loader operation, etc. can be easily achieved by the NC program. Cooperated operation between two or more executing programs can be easily achieved by the waiting m codes function.
- Support for various machine configurations can be achieved by using the NC programs and PMC axis control function.

## Torque control for maintaining a constant tension

Torque control by PMC Axis Control

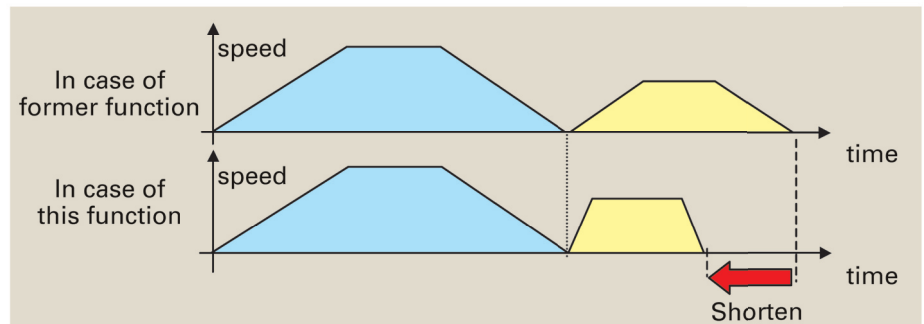
- The feed-out axis and winding axis can be controlled independently so that the tension of a sheet for winding is kept constant at all times.



## PMC Axis Control Acceleration/Deceleration Specification Feed

Feed function of PMC axis control that can separately specify acceleration and deceleration

- This function can specify the best acceleration and deceleration at each block, so that the cycle time can be reduced.
- Acceleration and deceleration can be specified separately.
- Acceleration and deceleration can be changed while accelerating.

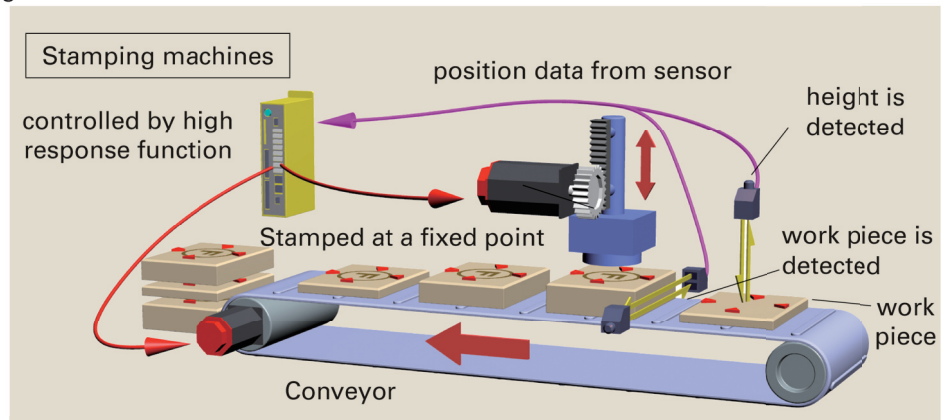


# High response motion control

## High-speed response function for quick axis start/stop

Quick response is realized for an external signal.

- The accuracy of the machines such as stamping machines, cutting machines, packaging/wrapping machines can improve.
- Programs are specified by NC program format, and programs compiled beforehand can start program execution earlier.
- Independent motion for each axis can be achieved by NC program because plural programs can be executed at the same time within a path.
- High response and reduction of cycle time can be achieved by high speed ladder execution cycle.



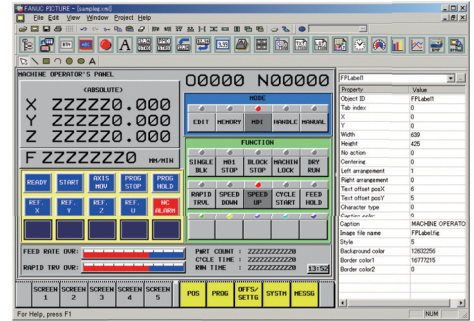


# Plenty of Customize Functions

## FANUC PICTURE

FANUC PICTURE enables a machine operation screen to be created only by pasting screen components such as buttons and lamps on the personal computer.

- Easy-to-use interface unique to FANUC.
- A screen usable on a display unit with or without a touch panel can be created.
- A created screen is executed by the C language executor, and can coexist with a C language executor application.



## C Language Executor

Machine tool builders can create their own operation screens, which enables unique CNC display and operation.

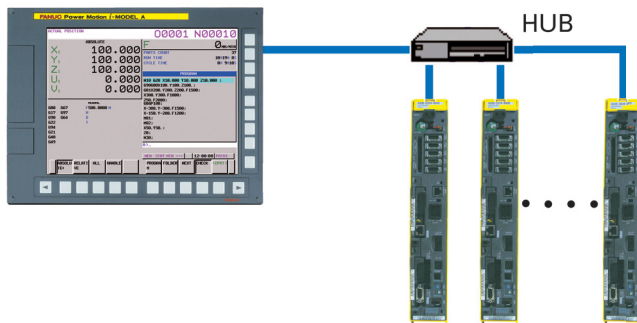
- C language is used for programming.
- In addition to standard ANSI functions, many functions are available for CNCs and PMCs.
- High-level tasks to which high execution priority is assigned can monitor signal and position information.

# Display units meeting the needs for applications

## Ethernet display sharing function

Up to 8 CNC can share one display unit. (stand-alone type)

- A CNC can be specified by selection switch.
- Display unit connect with CNC via Ethernet.



## i Pendant

Handy setting/display unit which enables the teaching operation near the machine

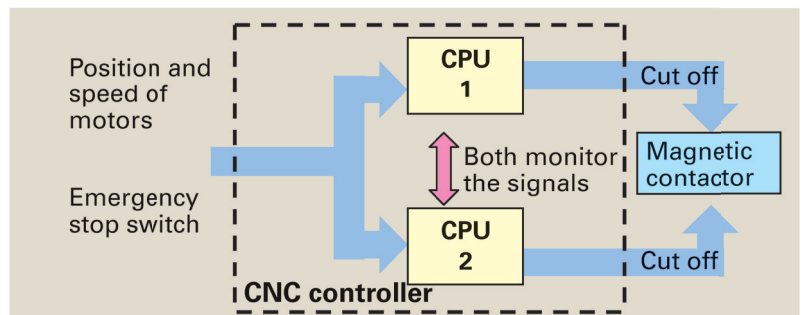
- Original teaching operation screen can be added.
- Maintenance data, such as parameters, diagnostic data can be set and displayed.



# Superior Safety Functions

## Dual Check Safety

- Safety Functions conformed with international safety standard "Functional Safety"
- Integrated Safety functions certified to IEC 61508 SIL2
- This function offers a high level safety by using multiple microprocessors incorporated into the CNC to redundantly monitor the actual servo motor position/speed and safety related input/output and by providing duplicated paths of breaking power for the servo amplifier.



# Maintenance and Customer Support

## Worldwide Customer Service and Support

FANUC operates customer service and support network worldwide through subsidiaries and affiliates. FANUC provides the highest quality service with the prompt response at any location nearest you.



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