

Driving FANUC Servo Motors with Customer's Controller

FANUC

Digital Servo Adapter-B Safety Digital Servo Adapter



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FANUC Digital Servo Adapter (DSA) is an adapter for using FANUC servo motors with a customer's controller. It contributes to the adoption of servo-driven industrial machines, including injection molding machines, press machines, die cushions, press brakes, carrier machines, and testing machines, by utilizing customers' own control technology.

FANUC Digital Servo Adapter-B (DSA-B)

Versatile interfaces and high-response control

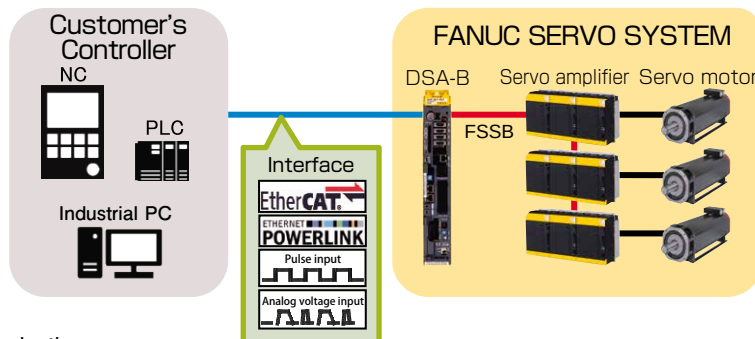
DSA-B allows customers to select the optimal interface and servo motor to suit their controllers.

- It supports EtherCAT, POWERLINK, pulse, and analog voltage, providing flexible compatibility with a wide range of systems.
- It also supports the full lineup of FANUC servo motors.

Supporting velocity commands with analog voltage

DSA-B replaces inverter motors with servo motors, enabling both energy savings and space savings.

Existing velocity commands from the PLC can be used as-is, thereby reducing installation man-hours.

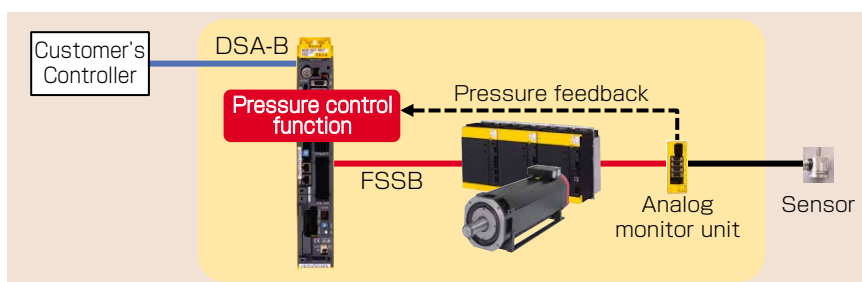


* EtherCAT® is a registered trademark and patented network technology, licensed by Beckhoff Automation GmbH, Germany.
* Ethernet POWERLINK is a technology licensed by B&R Industry Automation GmbH, Austria

High response pressure control



- Position control (or velocity control) and pressure control are smoothly switched by the pressure control function inside DSA-B.
- By using this function, stable pressure control without delay can be realized.



Extensive product lineup

DSA hardware specifications

Digital Servo Adapter-B (DSA-B)

○ : Available, - : Not Available

Interface			EtherCAT	POWERLINK	Pulse	Analog voltage
Command method	Position		○	○	○	-
	Velocity		○	○	-	○
	Torque		○	○	-	○
Maximum servo number	Windings (□1)	1	16	8	4	4
		2	8 (□2)	8		
		4	4 (□2)	4		
Maximum spindle number			2	-	-	-
Tandem control (□3)			○	○	○	○
Pressure control			○	○	-	-

(□1) A large servo motor of FANUC is controlled by multiple windings and amplifiers.

(□2) In case of using spindle motor, maximum servo number is 6 (2 windings) or 2 (4 windings).

(□3) A single axis can be driven by multiple motors, enabling high torque output.

Safety Digital Servo Adapter (SDSA)

Interface	EtherCAT
Command method	Position
Maximum servo number	8
Tandem control (□3)	○
I/O Link <i>i</i>	○
DCS function	○

DSA-B



SDSA



FANUC Safety Digital Servo Adapter (SDSA)

DSA also incorporates safety functions

SDSA provides a high level of safety with a simple system configuration using a FANUC servo system that supports safety functions.

- FANUC's I/O units can be connected via FANUC I/O Link *i*.
- Dual Check Safety (DCS) allows safe connections with safety-related I/O units via FANUC I/O Link *i*. Advanced safety functions are available without an additional safety PLC.

Dual Check Safety function

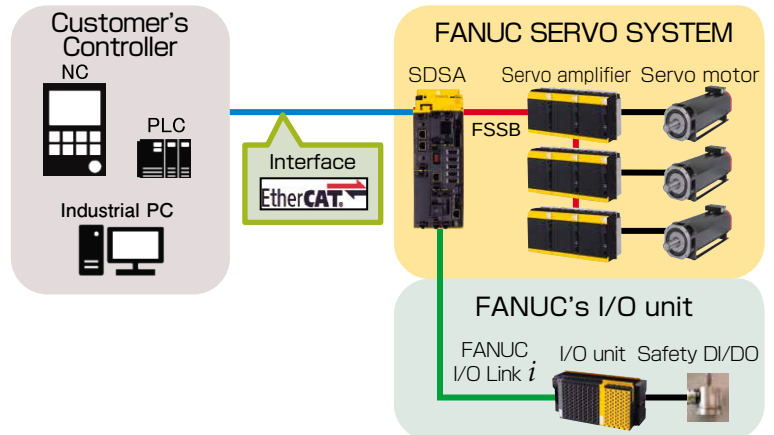
This built-in safety function supports up to Category 4, PL e under ISO 13849-1. It redundantly monitors the actual position and velocity of the servo motor, as well as safety-related I/O, with multiple processors while ensuring a high level of safety with dual power-shutoff paths and periodic fault detection functions.

Safety Torque Off (STO) function

This safety function is built into the servo amplifier and complies with IEC 61800-5-2. The redundant shutoff circuits in the amplifier safely cut off power to the motor.

Hardware/software renewal

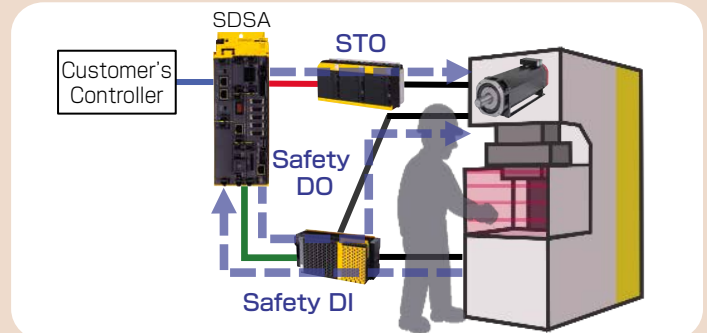
- Non-volatile memory enables battery-free operation. No battery is required to retain memory data, contributing to reduced maintenance costs.
- EtherCAT DC synchronization is supported.
- Structured Text (ST) is supported as well as ladder languages.



Application example of SDSA (press machine)

When an operator enters the machining area and a safety DI, such as a safety curtain, is activated, the following operations ensure safety.

- The servo amplifier is commanded to activate the STO, safely cutting off the power.
- The external brake is activated via the safety DO, securely holding the machine on the mechanical side.



Motors and amplifiers

Promoting High-Speed, High-Precision, Compact Size and High Efficiency for Industrial Machines

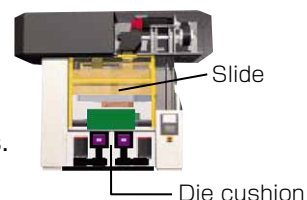
- Wide range line-up
FANUC's lineup includes servo motors, linear motors, and DD motors, supporting a wide range of industrial machines. Various models with either 200V input or 400V input are available, and it is possible to select these models flexibly according to the input voltage of the delivery area.
- Compact size
Downsizing of motors and amplifiers contributes to more compact industrial machines.
- Energy saving
Energy saving is achieved by the latest high efficiency power devices and power source regeneration.
- Control technology
High stability is achieved by tandem control that prevents interference between driving of multiple motors.



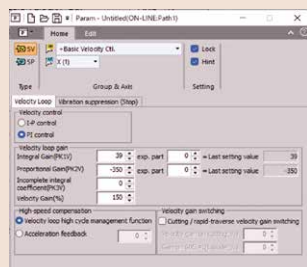
Easy to use servo tuning tool

FANUC SERVO GUIDE Plus (For DSA-B) / FANUC SERVO GUIDE 2 (For SDSA)

- These are integrated tuning tools for parameter setting and data measurement of servo axes.
- These tools enable users to confirm the motion of motors through waveform displays. They are useful for tuning and troubleshooting industrial machines.

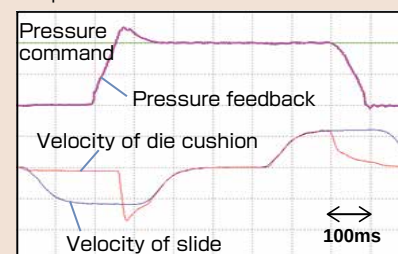


Example of parameter setting display



FANUC SERVO GUIDE Plus
FANUC SERVO GUIDE 2

Example of motion waveform of press machine



Service & Support

Excellent Maintenance Services

FANUC service team delivers customer trust and confidence based on direction of service "Maximizing Uptime", "Global Service" and "Lifetime maintenance".

Service First

Conforming to the spirit of "Service First", FANUC provides lifetime maintenance to its products for as long as they are used by customers, through more than 270 service locations supporting more than 100 countries and regions throughout the world.

Maximizing Uptime

Global
Service

Lifetime
Maintenance

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