



DAIHEN Inc.

Almega Friendly series II

NEW Robot Controller

FD21

CONTROLLER

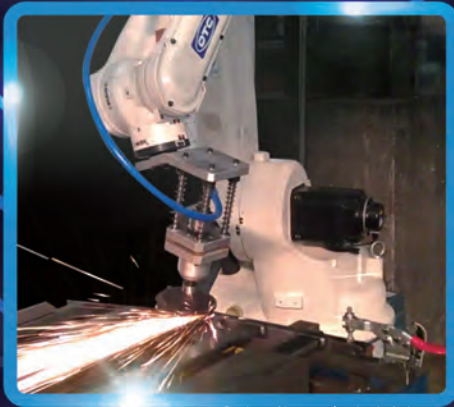
Fast & Easy System Integration

"Connectivity"

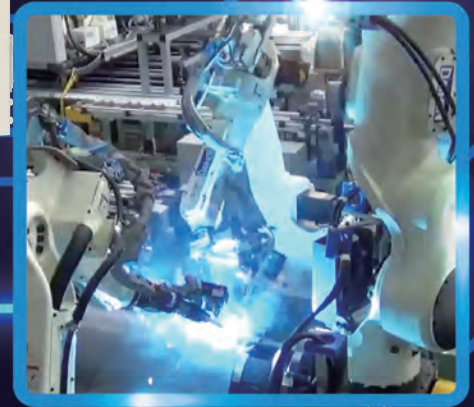
Easy connection and cooperation with peripheral devices



Material Handling



Grinding / Finishing



Arc Welding

NEW **FD21**
CONTROLLER

"Simple & Quick Operation"

Simpler operation to shorten new production startup



The limitless potential of extensive "connectivity"

The versatility to "connect" with facilities, devices and people

Easily "connects" with peripheral equipment through simplified system configuration

High-performance built-in software PLC



Graphical interface offers the functionality of popular PLCs



"Connects" from anywhere in the world

Remote maintenance

Remote support



*Feature available beginning October 2019



NEW FD21 CONTROLLER

Expanded motion control via "connectable" external axis unit

Built-in amplifier and external 2-axis unit

Supports high-capacity (7kW) motors

Increased number of "connectable" motors



*Feature available beginning January 2020

Improved "connectivity" with welders

Greatly improved synchronization with welders

Simultaneous welding with multiple robots yields greatly improved quality



Enhance your system by "connecting" commercial peripherals

3D Vision System



2D/3D Vision System

Offline teaching system

Laser oscillator

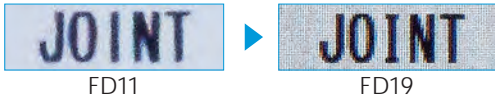
Offline teaching system



Revolutionary Ease of Use

Clear and legible screen

Higher contrast with clearer details



Tablet-like operation



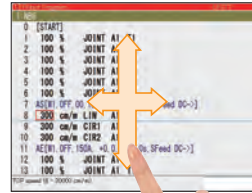
Menu icons

Comfortable touch-typing

Embossed main keys



Scroll screen by swipe operation



Touch screen keypad for numeric entry



Lightweight with ergonomic grip

15% lighter + enhanced grip design = 66% less arm fatigue

TEACH PENDANT

Enhanced Basic Performance

Small footprint

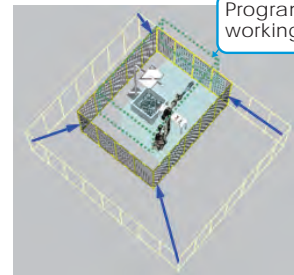
25% narrower than the previous model
Ideal for high-density installations



Complies with the latest international safety standards

Supports multiple safety control standards for emergency stop: Cat. 4, PLe, and SIL3.

Programmable working envelope



Optimized for high-precision laser & plasma processing

Six times faster synchronization with external devices for high-precision laser and plasma processing



Laser oscillator

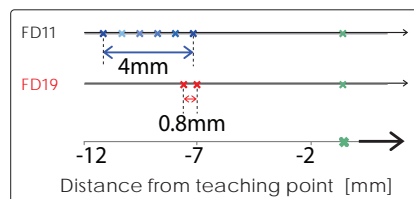
I/O signal control



High-precision robot FD-A20

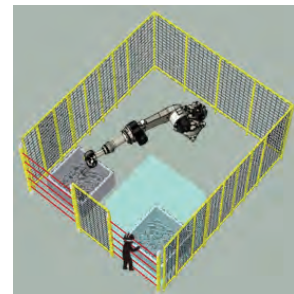


Improved I/O **NEW** response time by 80%



Safer working environment

- RMU* constantly monitors robot movement.
 - Restricts robot movement when worker is present in a shared area.
- * Robot Monitoring Unit



Basic Specifications of Robot Controller

FD21

Outside dimensions	W440xD542xH640 (mm) (Excluding projections)		
Mass	FD19-JV/FD19-JL/FD19-JS/FD19-JVP/FD19-JLP: Approx. 119lb (54kg)		
	FD19-JX: Approx. 126lb (57kg)		
Ambient conditions	Temperature: 32-113°F(0-45°C), Humidity: 20-80%RH (Non-condensing)		
Primary power	200/220VAC, 3-phase (+10%, -15%), 50/60Hz		
Power consumption	Manipulator		Power capacity*2
	NB6, NV8, NB4S, NV6S		1.5 kVA
	NB6L, NV8L, NB15, NV25, NA20, NB4LS, NV6LS, NV20S		2.4 kVA
	NH5, NS3		1.0 kVA
	NV50		5.5 kVA
	NV80, NV100, NV130		4.1 kVA
NV166, NV210		7.0 kVA	
Grounding	Ground the robot controller separately (grounding resistance of 100 ohms or less).		
I/O control over external equipment*1	Number of signals	Input/output 8 points each. Extension of input and output is allowed respectively up to 72 points (Optional).	
	Input specifications	Connect relay contact with a minimum applicable load of 5mA or less at 24VDC, or open-collector device with a leakage current of 1mA or less.	
	Output specifications	Relay board 8/8	24VDC/100VAC, up to 1A (Minimum applicable load [reference]: 5mA at 24VDC)
I/O board		Open-collector device whose rated current is 0.1A or less at 24VDC ± 3V	
Memory capacity	100 million steps (by PTP instruction in a single mechanism)		
Number of task programs	9,999		
External memory I/F	USB flash drive (Optional)		
Color	10GY9/1, Munsell scale		

*1 The number of I/O points can be extended to 2048 by adding an optional field bus (DeviceNet, CC-Link, EtherNet/IP, etc.).

*2 Varies by application & moving pattern.



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