

SYSTEM R-30iA™ I/O Products

FANUC Robotics America, Inc. offers a wide range of Input/Output (I/O) products for the R-30iA Controller to meet end user application requirements. FANUC Robotics' I/O link devices (Model A, Model B and Process I/O) are limited to a total of 512 inputs and 512 outputs (each analog channel consumes 16 points of digital I/O within this area).

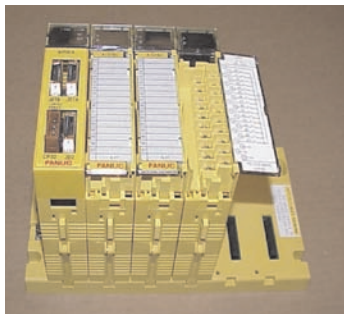
Model A I/O

Basic Description

Model A I/O is FANUC Robotics' rack-mounted I/O system that consists of a five- or ten-slot I/O rack, an interface card and modular I/O cards. Cards are available for AC digital I/O, DC digital I/O (sinking or sourcing) and Analog I/O. The I/O racks are daisy-chained together with an accumulative cable length of up to 10 meters (which can be extended with fiber converters).

Features and Benefits

- **Rack mounted plug-in type I/O card** – Fits inside the R-30iA enclosure eliminating the need for a separate I/O interface cabinet.
- **Quick connect plug-in type terminal strips** – Allows for easy removal to speed up I/O wiring.
- **Status LEDs on the I/O** – Aid in diagnosing I/O problems during troubleshooting.



Five-slot Model A I/O Rack w/I/O cards

Model B I/O

Basic Description

Model B I/O is FANUC Robotics' distributed I/O system that consists of one to four interface modules and up to 30 basic units per interface module. A basic I/O unit consists of 16 inputs, 16 outputs or a mix of eight inputs and eight outputs. One expansion unit can be added to each basic unit to provide up to 32 inputs or 32 outputs per I/O block. Any combination of up to four Model A racks and Model B interface modules can be added to a robot controller.

Features and Benefits

- **Compact distributed I/O cards** – Fits inside the operator box or inside a remote controller's cabinet space.
- **Terminal strips for I/O wire connection** – Provide for secure and reliable wire connections.
- **Remote location of I/O blocks (up to 100 meters)** – Reduces the device peripheral interface cost compared to point-to-point wiring.



Model B I/O Base Unit

Process I/O

Basic Description

Process I/O is supported by the ArcTool® application software. It supports both digital and analog signals. The process I/O board is pre-configured to include the following I/O types:

- 40 inputs and 40 outputs including 18 UOP inputs and 20 outputs.
- Eight weld inputs and eight weld outputs.
- Dedicated wire stick detection inputs.

Features and Benefits

- **Single I/O Board** – Minimizes the number of components to interface with the welding power supply and other peripheral equipment.
- **Dedicated I/O Interface** – Simplifies the I/O connection between the robot and the weld equipment.
- **Weld I/O and Wire Stick Detection** – Provides for cost effective process for arc welding applications.



Process I/O PCB

FANUC I/O Link Connection Unit

Basic Description

The I/O Link Connection Unit is used to link a FANUC robot to another FANUC robot or a CNC machine with I/O Link compatible FANUC Controller. It eliminates the need to use physical I/O modules to interface one FANUC Controller with another.

Features and Benefits

- **Single I/O Interface Hardware** – Reduces the cost of an I/O interface between two FANUC controllers.
- **FANUC I/O Link Cable** – Reduces the wiring cost compared to point-to-point wiring.

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DeviceNet

Basic Description

FANUC Robotics' DeviceNet Interface enables the R-J30iA Controller to communicate with external equipment over a DeviceNet network. It provides a simple method to connect FANUC robots to DeviceNet compatible actuators, sensors and external controllers. Both master (scanner) and slave (adapter) modes are supported in Full and Mini Wide slot versions of this interface.

Features and Benefits

- **Complies with DeviceNet Cabling Standards** – Reduces the I/O interface cost compared to point-to-point digital I/O wiring.
- **Selectable Baud Rate (125, 250 and 500 kbps)** – Allows user to optimize network performance.
- **Full slot version can interface to as many as four DeviceNet networks** – Allows users to handle PLC communication and local devices on separate networks to improve critical process controllers' performance.

ControlNet

Basic Description

FANUC Robotics' ControlNet (CN) Interface enables the R-30iA Controller to communicate with external equipment over a CN network. It provides a simple method to connect FANUC robots to CN compatible actuators, sensors and external controllers. Both master (scanner) and slave (adapter) modes are supported in Full and Mini Wide Slot versions of this interface.

Features and Benefits

- **Coaxial Cable Connection** – Reduces the I/O interface cost compared to point-to-point digital I/O wiring.
- **Faster Communication (5 Mbps)** – Provides deterministic high-speed connection to PLCs and I/O devices over a single network cable.
- **Easy programming via non-isolated Network Access Port (NAP)** – Allows for laptop connections and easy programming using the supplied ControlNet I/O configuration tool.

Profibus-DP

Basic Description

FANUC Robotics' Profibus interface allows the R-30iA Controller to look like a slave rack of inputs and outputs to a PLC over a Profibus-DP network.

Features and Benefits

- **Profibus shielded twisted pair cabling** – Reduces I/O interface cost compared to point-to-point digital I/O wiring.
- **Selectable baud rate (up to 12 Mbps)** – Allows users to optimize network performance.

Interbus-S Option (master and slave)

Uses a full-slot F-Bus card allowing R-30iA Controller to exchange I/O with other Interbus devices. The master supports up to 128 devices and the slave function supports up to 256 I/O points.

CC-Link (slave)

Uses a mini-slot F-Bus card allowing R-30iA Controller to exchange up to 128 I/O (112 bits user accessible, 16 bits reserved for status or diagnostics) with a CC-Link master such as a PLC.

Ethernet Global Data (EGD)

Ethernet Global Data (EGD) allows exchange of I/O over Ethernet to other devices, such as robots and the GE Fanuc 90/30 PLC, which support the EGD protocol. EGD uses UDP/IP and is based on a Client-Server model. EGD can be configured to exchange up to the full amount of I/O supported on the robot. The robot can have up to eight independent connections to other EGD devices.

Ethernet/IP (Adapter and Scanner)

The Ethernet/IP Adapter interface supports an I/O exchange with other Ethernet/IP enabled devices, such as a Rockwell Control-Logix PLC, over an Ethernet network. The Ethernet/IP specification is managed by the Open DeviceNet Vendors Association (www.odva.org). The robot can act as an adapter, accepting a connection from a remote scanner, and can be configured to exchange up to the full amount of I/O supported on the robot.

The Ethernet/IP scanner option adds scanner functionality to initiate I/O connections to remote adapters. Up to 16 independent connections are supported.

Intelligent Robot Solutions

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