Collision Recovery

Motion Option

Includes: High Speed Skip

Requires:
Collision Guard (J684)

Feature

Collision Recovery allows a robot to recover automatically from a collision with an external object.

Without Collision Recovery, when a collision detect error occurs, the robot program pauses with a SRVO-050 alarm. If Collision Recovery is enabled, the robot program will detect the SRVO-050 alarm, RESET the alarm and CONTINUE the robot operation from a user-specified area of the robot program.

It is also possible to completely with this option to completely abort the program when the collision is detected, run a recovery program, and then restart the aborted program from scratch. You can use digital outputs or numeric registers set by Collision recovery to plan how the robot should resume the original program after running the recovery program.

Function

- Recovers automatically from a SRVO-050 Collision Detect error.

Benefit

- Ability to plan an application anticipating light collisions as a part of the sequence.
- No manual intervention required after a robot collision.
- Higher throughput / productivity since the robot runs continuously.

Password Protection

Productivity Option

DEMO Option: Yes

Feature

The Password Protection option adds user/password functionality to the *i*Pendant. With highly customizable access levels, the system can be configured to grant access to the users who need it, and prevent unauthorized users from viewing or modifying critical data. Password protection is inactive until the Install (Admin) user is defined.

Function

- 4 preconfigured user levels: Install, Setup, Program, and Operator
- 5 highly customizable user levels for more access privileges/restrictions
- Drop down selection for user login
- Control access by screen, function or button depending on required security
- Adjustable automatic log out timer for added security
- All parameters are configurable using an XML file
- Users can login by simply inserting a USB memory stick
- Log file records login, program changes, file changes, and application events

Benefit

- Reduce downtime by preventing unauthorized users from access and/or changes
- Save troubleshooting time by viewing the password protection events log easily.
- View events and operations performed, and the user who performed them.
- XML file configuration reduces setup time allowing you to configure multiple robots easily.

EtherNet/IP Scanner

Communication Option

Feature

The Ethernet/IP (EIP) Scanner Software option (like a master) is capable of initiating communication. With the scanner option, the robot can drive physical output devices such as EIP compatible relays and solenoids. A robot with the EIP scanner option can communicate with other robots loaded with the EIP adapter option. EIP Scanner also includes the adapter option, and is recommended for more advanced applications. Ethernet/IP uses the Common Industrial Protocol (CIP), and is compatible with the Ethernet I/O of Rockwell PLC, and most other Ethernet/IP adapters.

Function

- Simple Ethernet interface for I/O signals
- Allows robot to exchange cell I/O data with master or adapter
- Supports up to 32 connections
- Supports Digital I/O, Group I/O and UOP signals
- Supports Analog I/O and digital/analog mixed I/O exchange
- Supports Quick Connect mechanism for tool changer applications

Includes:
EtherNet/IP Adapter

Benefit

- Reduces system costs by eliminating hardwired I/O blocks and related wiring.
- Reduces system complexity by utilizing standard Ethernet ports on the controller (no additional hardware is needed).

Motion Interface

Motion Option

Feature

Allows the robot controller to connect and work in conjunction with MotionPRO on a PC to perform motion optimizations, and to collect and display motion performance data.

Function

Motion Interface is an option on the controller to work in conjunction with MotionPRO on a PC for motion optimization including:

- Cycle time optimization,
- Path optimization,
- Small shape optimization,
- RV life optimization, and
- Power consumption optimization.

Benefit

Assist user on motion optimization and motion performance analysis

FANUC Payload Identification

Motion Option

Feature

Payload Identification (J669), available for most robot models, is used to estimate the robot payload automatically with the help of a built-in function. Payload Identification also includes Payload Confirm (J878) that is used to evaluate the payload setting accuracy with little robot motion.

Function

- Payload Identification operates by moving the robot payload (J5 & J6) between two user configurable positions, first at slow speed, then at full speed.
- After movement, the robot payload is calculated.
- Payload Identification includes Payload Confirm (J878) which:
  - Evaluates payload setting accuracy with little robot motion.
  - Disables any overload warning when the motor is able to move in an actual program with a payload that is over specification.

Includes:
Payload Confirm (J878)

Benefit

- Accurate Payloads optimize robot features such as Collision Guard and Soft Float
- Proper Payload definitions help maximize the life of the robot
- Proper Payload settings improves positional accuracy, cycle time, and general motion performance

FANUC Collision Guard

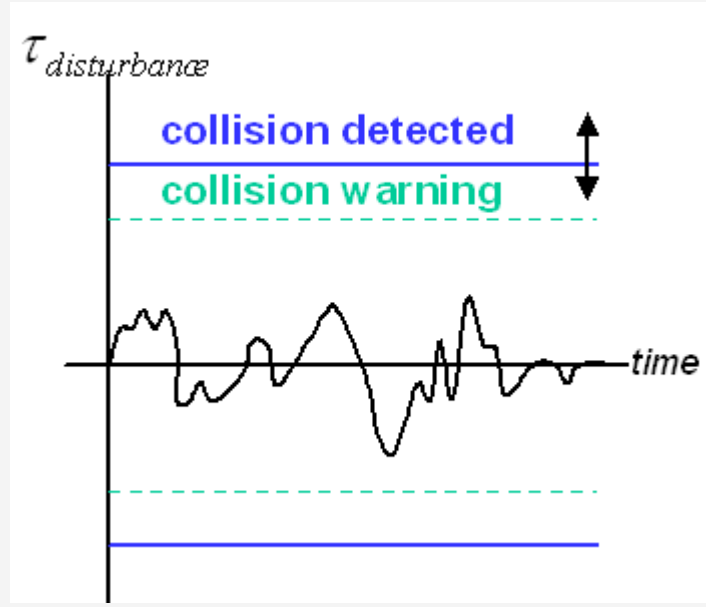
Motion Option

Feature

Collision Guard provides a highly sensitive method to detect that the robot has collided with an object and then stops the robot immediately. This helps to minimize the potential for damage to the end-of-arm tooling and robot. Collision Guard is effective for both program and jog motion.

Function

- Collision Guard monitors potential collision, and post
  - SRVO-053 Disturbance Excess Warning
  - SRVO-050 Collision Detect Alarm
- Collision Guard is effective for both jog and programmed motion
- You can change the sensitivity in UIF or in TP programs to detect collisions
- You can disable/enable Collision Guard within the teach pendant program
- Collision Guard can accommodate different payload schedules inside a TP program



Benefit

- Saves money by minimizing robot damage due to collisions.

Important Notes:
Payload schedule and Active payload setting is very important for proper usage of Collision Guard.

EtherNet/IP Adapter

Communication Option

Best Value: EtherNet/IP Adapter (R784) is included in Advanced EIP (Ethernet/IP) Package (R860).

Feature

The Ethernet/IP (EIP) Adapter Software option provides an Ethernet I/O interface between a FANUC Robot and some Rockwell (Allen Bradley) PLCs with the EIP Scanner Option (eg. ControlLogix, CompactLogix). The Adapter option is like a slave and it requires a scanner in the I/O network to initiate communication. The Adapter option can not drive physical devices such as EIP compatible relays or solenoids. Robots with the Adapter option can not communicate with other robots with Adapter option. The EIP Adapter option allows an I/O exchange over implicit connection and non-I/O data (registers) over explicit connection. However, some I/O data can be read/written over an explicit connection. Ethernet/IP uses the standard Common Industrial Protocol (CIP), and it is compatible with Ethernet/IP of Rockwell PLC. The EIP option supports explicit messaging in server mode.

Function

- Simple Ethernet interface for I/O signals
- Allows robot to exchange cell I/O data with a cell controller or PLC
- Supports up to 32 connections
- Supports Digital I/O, Group I/O and UOP signals
- Register (Numeric, String and Position) and Alarm information can be exchanged using Explicit Messaging

Benefit

- Reduces system costs by eliminating hardwired I/O blocks and related wiring.
- Reduces system complexity by utilizing standard Ethernet port (no additional hardware is required).

FANUC Constant Path, Advanced Constant Path & Speed Control

Motion Option

Feature

Constant Path allows the robot to maintain the same path regardless of speed override changes, and to resume the same path after Hold / Estop.

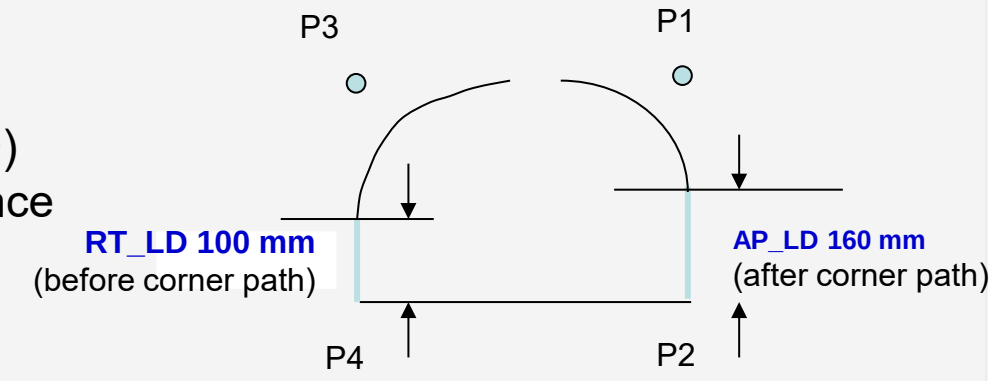
Advanced Constant Path allows you to define a path and to adjust motion speed easily.

Function

ADV-CP Path

– Linear Distance (Motion Option: RT_LD / AP_LD) ensures robot path is linear for a specified distance as it retracts or approaches a taught point

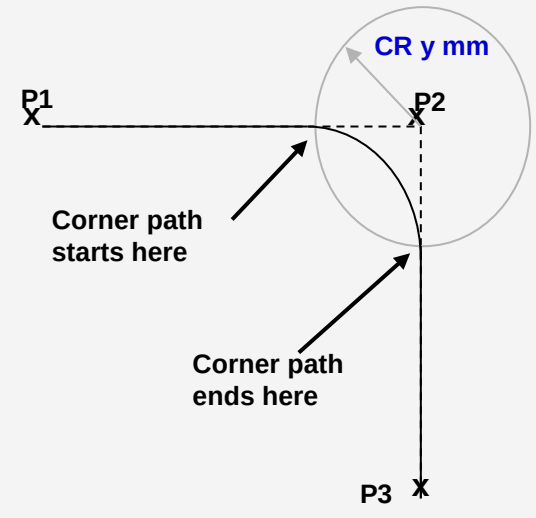
– Corner Region (Termtype: CR) ensures corner rounding is within a specified distance

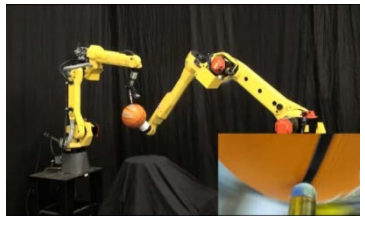


ADV-CP Speed

– Process Speed (Motion option: PSPD) Speed up programmed motion by the specified degree while maintaining the same path

– Max Speed (Speed field: Max_speed) speed up Linear motion by using maximum joint speed for each interpolation period. Ideal for long Linear motion where TCP speed does not need to be constant





ADV-CP Speed (R805) and ADV-CP Path (R806) require Constant Path (R663) to be installed

Benefit

– Advanced Constant Path and Speed control allow for easy teaching and cycle time reduction.

Order Number: R663, R805, R806 User Documentation: All FAC Setup and Operations Manuals

REV A

FANUC *i*RVision 2D Guidance

***i*RVision Option**

Feature

The *i*RVision 2D package is used to locate workpieces that shift in 2 dimensions. The workpieces can shift in parallel to the work surface (X,Y) and rotate on the work surface (Roll).

Function

Locates the workpiece using one of the following methods:

- **2D Single-view** – 2D (X,Y,R) using a single camera view.
- **2D Multi-view** – 2D (X,Y,R) using two or more camera views. Ideal for larger parts that are too large for a single camera view.
- **Depalletizing** – 2.5D (X,Y,Z,R) using a single camera view. The height of the part can be estimated based on the scale or size of the found workpiece.
- **Floating Frame** – 2D (X,Y,R) based on a single camera view. Used to find the 2D movement of a part relative to a robot mounted camera that positions the camera perpendicular to the work surface.
- **2D NoCal** – 2D (X,Y,R) using an uncalibrated robot mounted camera. Provides easy vision setup without the requirement to teach user frames (UFRAMEs) and user tools (UTOOLs).

Benefit

- Reduces the requirement for specialized fixtures and tooling.
- Saves money by adding flexibility to robotic cells.

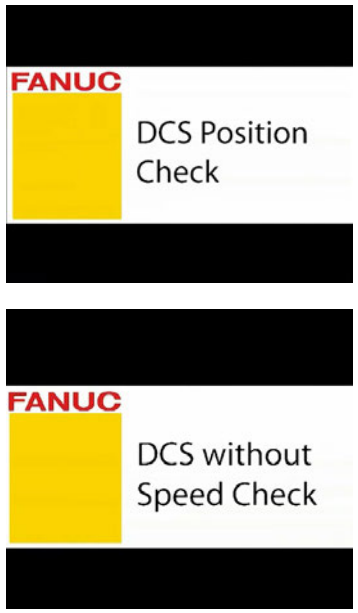
DCS Pos/Speed Check Pkg.

Safety Option

Best Value:
DCS Pos/Speed Check Pkg. (J567) is included in Advanced DCS Package (R859).

Feature

Dual Check Safety (DCS) Position/Speed Check monitors the position data and speed of motors with two independent CPUs in the robot controller. These functions can detect position and speed errors immediately, and shut down the motor power. Safety data and processes are cross-checked by two CPUs. Self-diagnosis of safety hardware and software is executed periodically to prevent potential failure accumulation. No external sensors are needed to monitor speed and position; built-in servo motor sensors are used for this function. (Use external electrical circuits to use safety inputs or safety outputs.) This can be used with HandlingTool V8.10 or later, and includes DCS visualization on the *i*Pendant.



Function

- Safely monitors the position or speed of the robot, in Cartesian and Joint
- Shuts down motor power when the defined safety parameters are exceeded
- Supports all 6 robot axes and single axis positioners / rail units
- Zones can be configured to be an ‘inside’ or ‘outside’ safe zone, selectively disabled by a safety input signal, and are visible on the *i*Pendant.
- Dynamically enables/disables checking based on external safety equipment
- Meets Safety Category 3, PL d, SIL 2 by the requirements of International Standard ISO13849-1 and IEC61508 by a notarized body.
- Can be used with basic positioners with known kinematics
- Excluded axes are: Servo gun axes, Independent axes, and Continuous turn axes

Benefit

- Eliminates limit switches and external safety controls saving $1000 - $2000/robot.
- Increases system reliability by eliminating short MTBF external safety hardware.
- Reduces the entire robot footprint giving customers more floor space (approx. 40% more).

4D Graphics (R764) is required for 4D Zones

www.fanucamerica.com

Order Number: J567

User Documentation: Dual Check Safety Function Operator’s Manual

REV C