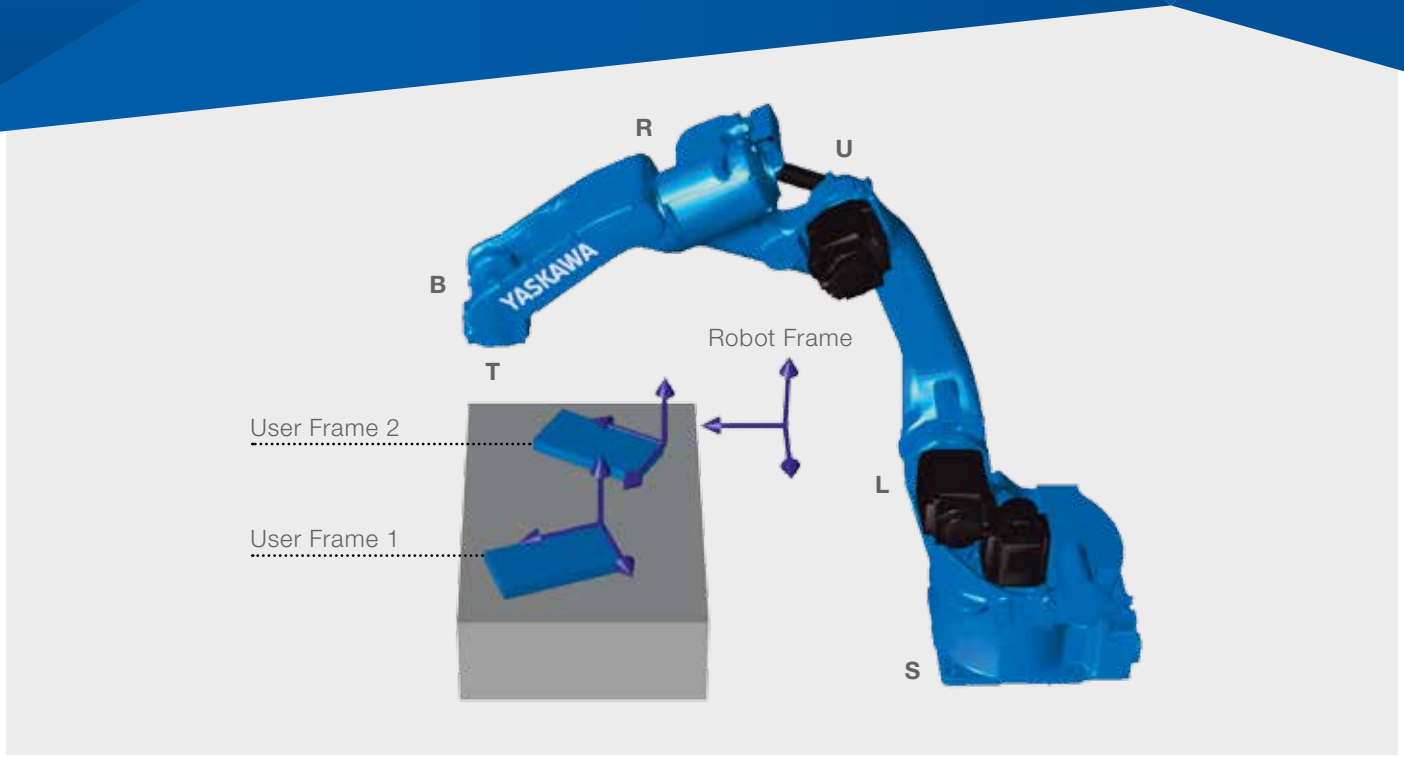
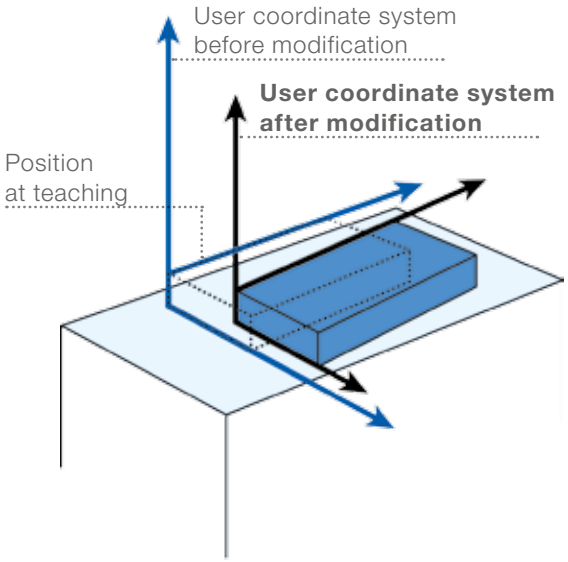
Relative Job

(195323)



The robot usually stores position data for the operation in the form of pulse-type data (motor rotation pulse amount of each axis). The job (program) consisting of the pulse-type data is called “Standard Job”. In contrast to the standard job, the program consisting of position data in the direction of X, Y, and Z, in reference to the origin in a coordinate system (such as base coordinate and user coordinate) is called “Relative Job”. Converting the standard job creates the “Relative Job”.

Although movement of the “Relative Job” itself is no different from the standard job, the “Relative Job” has a useful function called “Relative Job Shift” to shift the same movement in another. In the “Relative Job” in the user coordinate system, when a user coordinate is created by changing defined points, the movement shifted to the changed coordinate can be performed in the execution of the instruction.



KEY BENEFITS

- Change a pulse-type Job to a coordinatedtype Job
- All points are stored in X, Y, Z
- With “Relative Job Shift” function, complete jobs can be shifted in different frames

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Macro Command

(195339)

Example of macro instruction registry: SEALON

Line Step

```
000  NOP
001  MOVJ VJ 100.0
002  WAIT IN#(1) ON
003  MOVJ VJ 50.0
004  SEALON WIDTH=8
005  MOVL V=125
006  MOVL V=95
```

Example of macro job registry: SEALON

Line Step

```
000  NOP
001  GETARG LI000 IARG#(1)  :  Store 1st argument data '8' to LI000.
002  DOUT OT#(10) ON        :  Turn ON general output 10.
003  MUL LI000 10           :  Multiply the number of LI000 by 10. 8×10 80
004  WAIT N#(10) ON         :  Wait for general input 10 to be ON.
005  AOUT AO#(1) LI000      :  Output '80' to the analog output 1.
006  END
```

"Macro Instruction" is the function for creating, registering, and executing one instruction from plural INFORM, that corresponds to each system.

An argument tag can be added to a macro command like a normal instruction. "Macro Commands" and their argument tags can be easily programmed at will in the job data display. Instruction creation procedure: Create a macro job (in normal teaching method) and register the macro job as a macro instruction. (In the macro instruction setting screen.)

Instruction to obtain argument for macro instruction (GETARG): When the macro instruction is executed, argument data added to the macro instruction is obtained and stored into the specified local variable to use the data in the macro job.

If a post-processing is required when a macro command is interrupted, it is possible to add an interruption macro job (SUSPEND JOB) to the program.

The interruption macro job is carried out when a macro command that includes the interruption macro job is interrupted by being putting on a status such as hold, emergency stop, or mode switching.

For macro job, executive commands such as "JUMP", "CALL", and "PSTART" cannot be registered. For interruption macro job, additionally TIMER instruction and WAIT instruction.

KEY BENEFITS

- Creating own functions and routines in INFORM list

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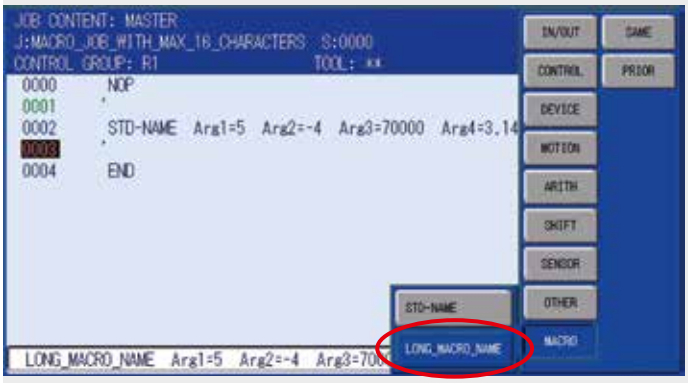
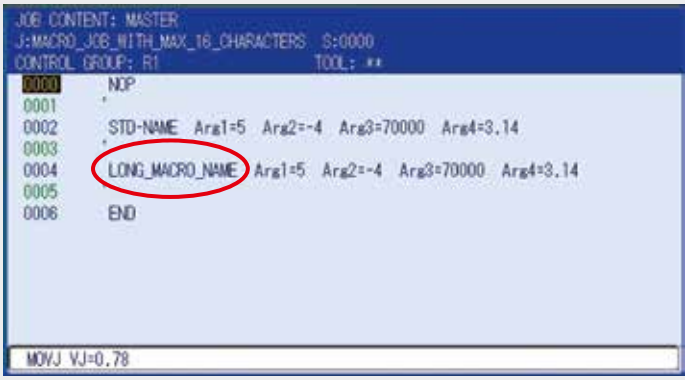
Macro Name with up to 16 Characters

(195377)





The “Standard Macro” function can use maximum 8 characters for the macro name. Often names have to be shortened, what makes them difficult to read.

This function is an Add-On for “Macro” function and expands the number of characters to a maximum of 16.

KEY BENEFITS

- Simple naming for macro jobs
- Better readability of program lines with macro

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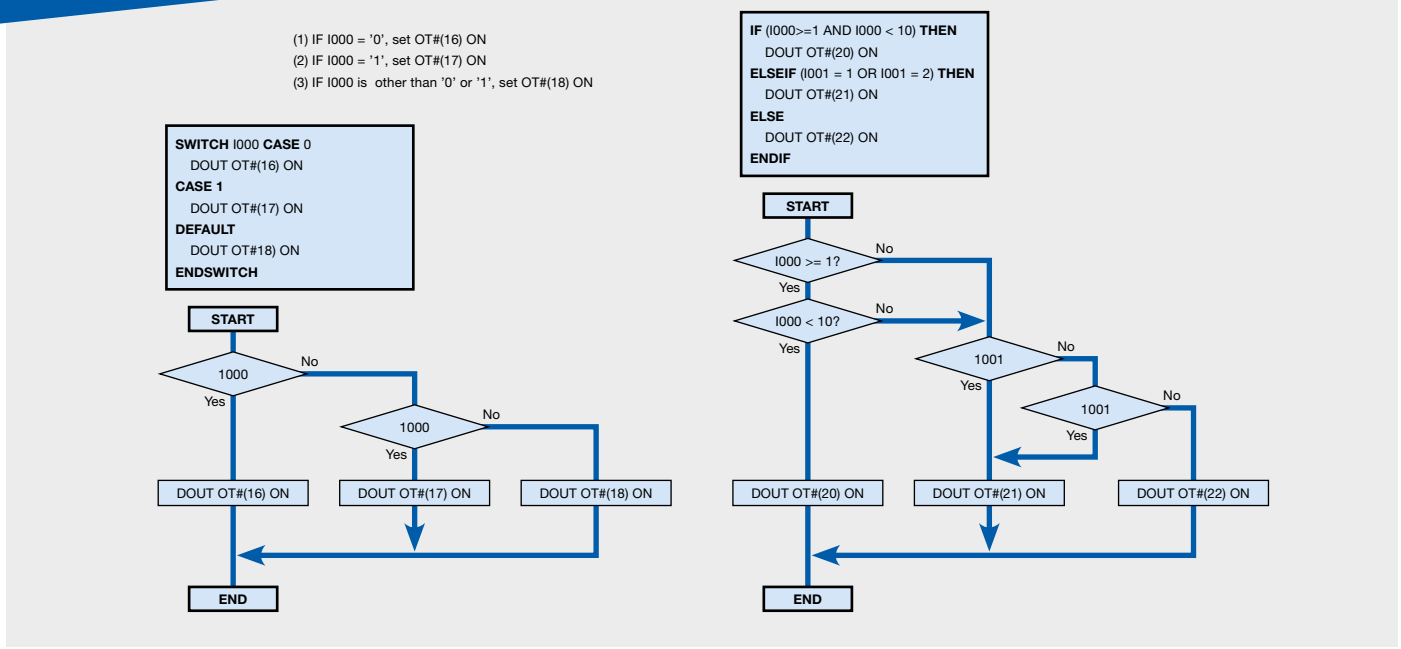
Structured Language

(195342)



With the “Structured Language” function it is possible to create
clearly arranged programms based on high level language with the folloing instructions:

- IFTHEN-ELSEIF-ELSE-ENDIF
- WHILE-ENDWHILE
- FOR-NEXT
- SWITCH-CASE-ENDSWITCH

KEY BENEFITS

- Shorten programs
- Structured program overview
- Complex functionality, easy to implement

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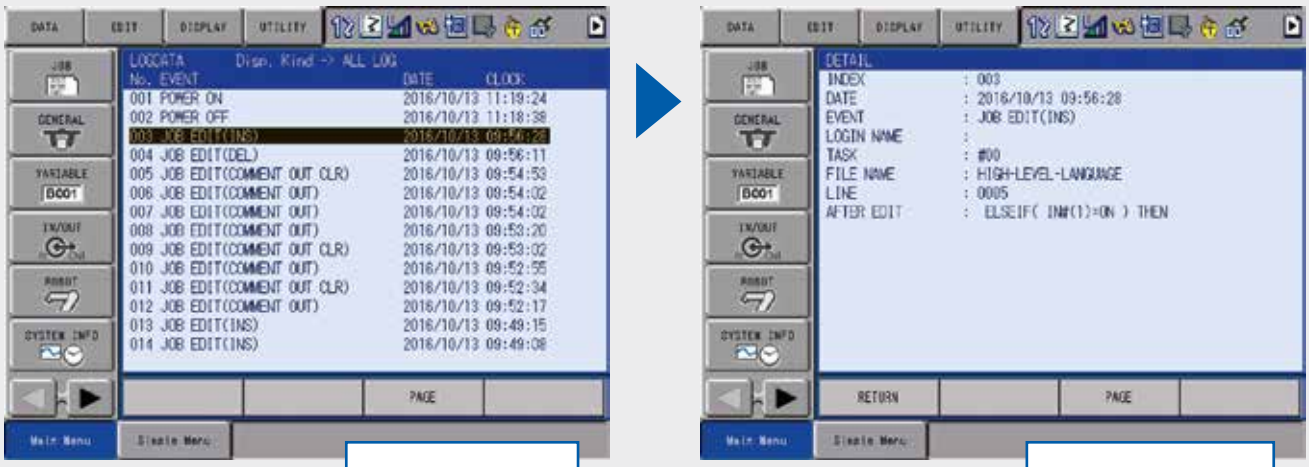
Logging Function

(195343)



This function stores and displays the edit such as editing data of the robot controller program (job) and welding condition and the history (log) of programming pendant operation such as job execution.

This function also facilitates troubleshooting by ensuring the data traceability.

Stores 200 Data edit files (job concurrent IO ladder, various condition files, edit of parameters, variables and others).

Stores 200 Pendant operations (job start, hold, emergency stop external memory load and save, and others).

It is also possible to extract and display only the log of data edit or pendant operation

KEY BENEFITS

- History of programming pendant operation can be checked
- Easy error diagnostic

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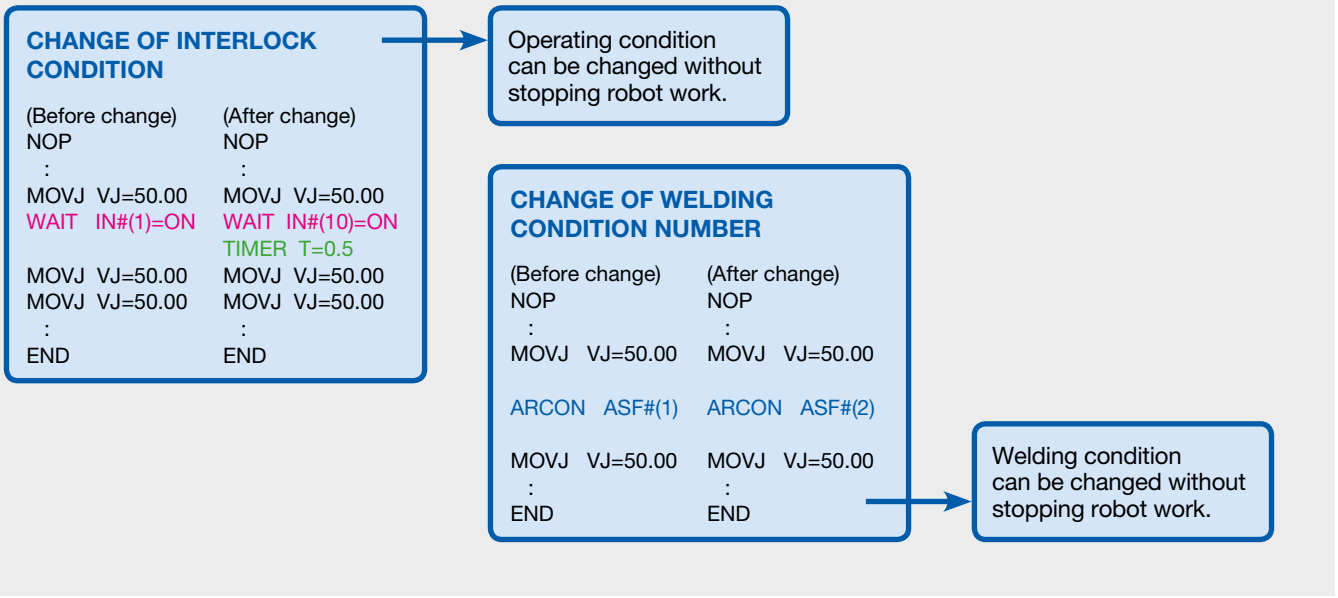
Job Editing during Play

(195345)



Even when the line is in operation, “Job Editing” is possible.

A job can be edited even when the robot is producing or line is in operation, fine adjustment such as changing signal numbers, operating conditions and work conditions without stopping robot work.

KEY BENEFITS

- Cycle time can be reduced
- Operating conditions can be changed without stopping during his working time

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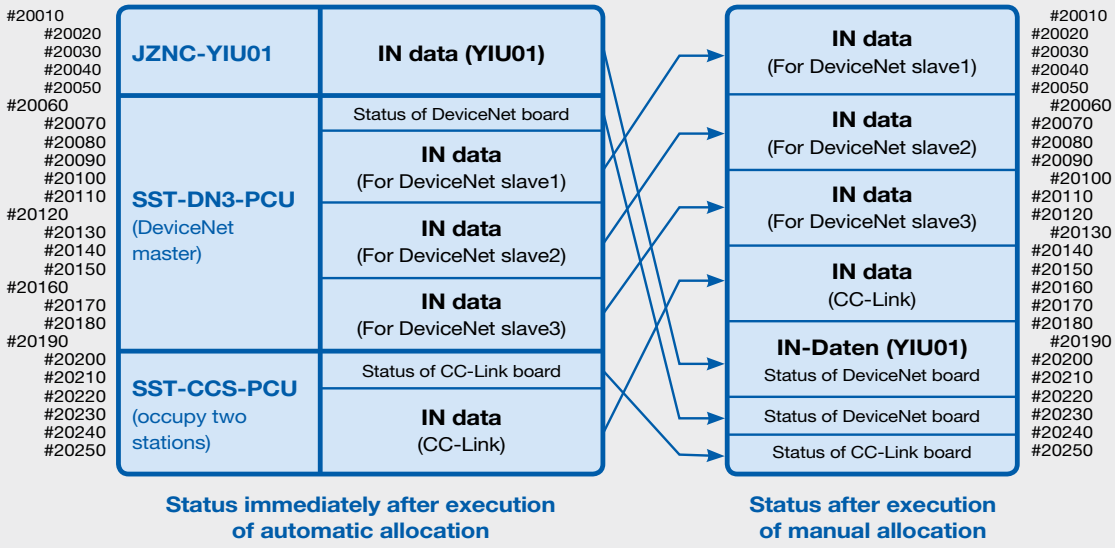
External IO Allocation

(195346)

I/O mapping for each I/O- or fieldbus board possible:



KEY BENEFITS

- I/O area for each I/O board or fieldbus (ProfiNet, DeviceNet etc) can be customized
- Easy to create standard I/O interface depending on application or customer requests

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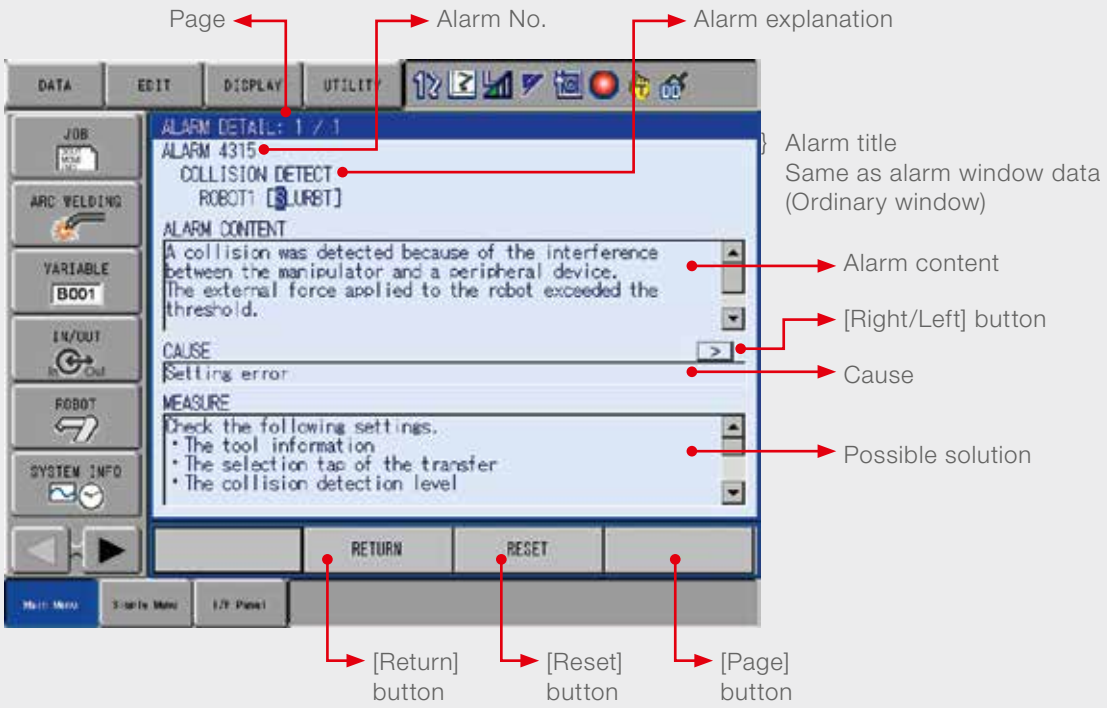
Alarm Detail Displaying

(195349)



User can specify the window to be shown in case of alarm occurrence:

- ALARM window (standard)
  => Press [SELECT] key to show ALARM DETAILS window
- ALARM DETAIL (parameter set)

Displays possible causes of the occurring alarm in descending order of frequency to help users find the countermeasure for each cause immediately.

If there are some possible causes and countermeasures for an alarm, press [Left/Right] buttons or [Left/Right] keys to see next “cause” and “measure”. The “cause” and “measure” are displayed in the order to be executed.

If multiple alarms occur simultaneously, press [Page] button or key to switch to next alarm.

KEY BENEFITS

- Displays possible causes of occurring alarms
- Help user to find the cause of error immediately

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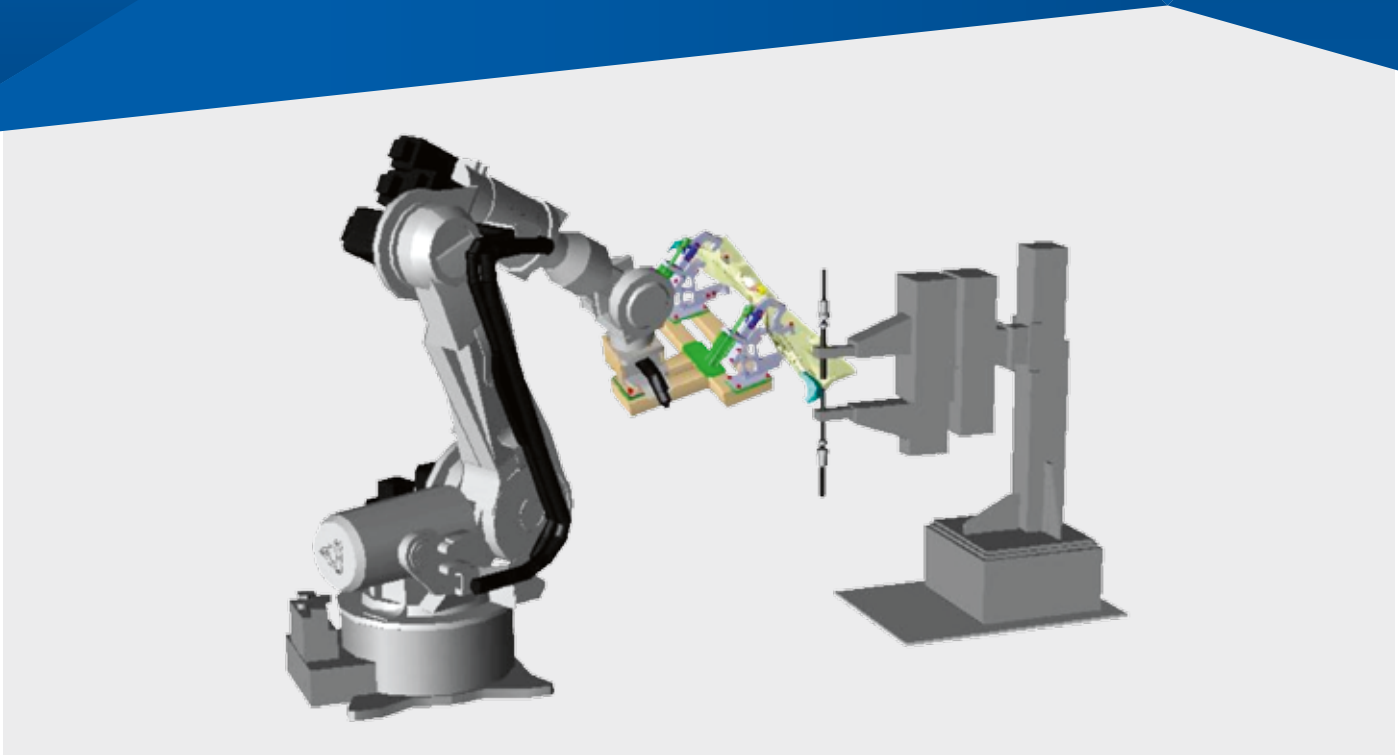
External Reference Point

(195324)



The “External Reference Point” control function performs teaching and playback, regarding one point in space as the control point of the manipulator. This one point in space is called the external reference point. Specifically, the point is used in the cases where sealing in the work piece supporting work or spot welding with the stationary tool is performed. In this case, operation such as changing the posture of a work piece can be easily carried out by setting the tip of tool, nozzle or gun to the reference point. Naturally, during playback, interpolation is performed by controlling the relative speed and relative position between the external reference point and the work piece.

KEY BENEFITS

- Quality is improved even for work piece supporting work with a fixed tool
- Teaching time can be reduced
- Applicable to more than one tool, gun or nozzle (63 external reference point)

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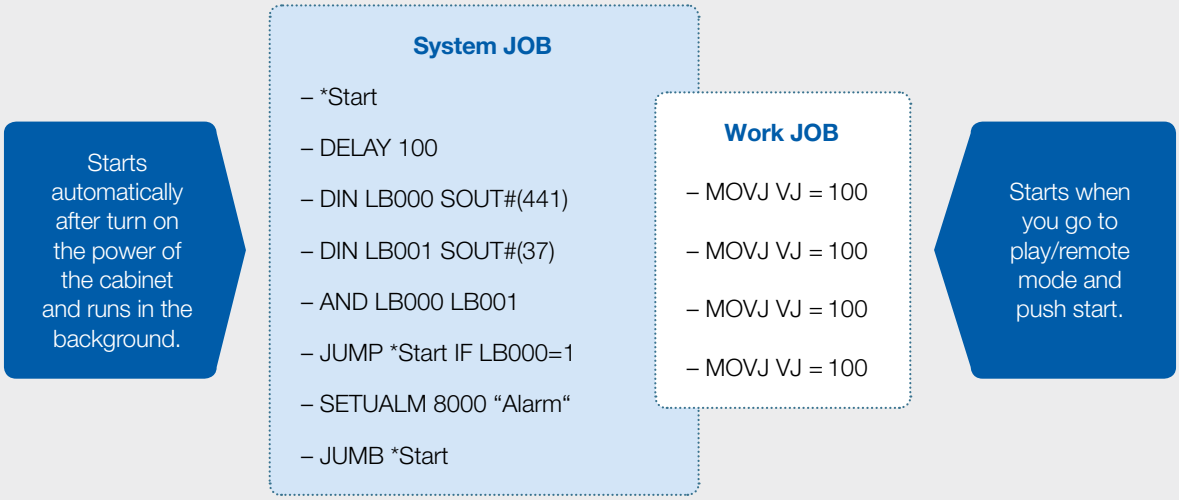
System Job

(195384)



A “System Job” is a task that is started immediately and automatically after the controller has started. In comparison to a normal task (user task) neither start nor a stop is required to control such a task. So it is independent from operation mode (Play/Teach/Operating) and Servo On status. While usually motion or operation sequences (workflow) are programmed in normal tasks a system task is used to process cyclic tasks in the background. One system task can be registered and run simultaneously in addition to normal job tasks.
Programs running in a system task are called system jobs. A system job is very similar to a normal job (user job) using the same Inform programming language but with a limited instruction set.
For example motion commands are not available. On the other side due to its similar characteristics it is sometimes used as a replacement for the internal ladder program. While the access of a ladder program is limited to IOs and registers, system jobs can process all available resources like variables, system variables, IOs and registers. On the other side in contrast to a ladder program the cycle time of a system task is not fixed. So processing time increases with each additional code line and is depending on current CPU Load.

Example:

- You can program a system job including a permanent check of collision detection function status
- When you are in teaching mode and the collision detection is OFF, nothing will happen. But when you are in play mode and the collision detection is OFF you will get an alarm e.g. with a reminder “Please turn ON collision detection while PLAY mode”.

KEY BENEFITS

- Cyclic backround tasks in Inform language
- Auto start and independent from operation status
- Access to all resources
- Cycle time depends on number code lines and CPU load

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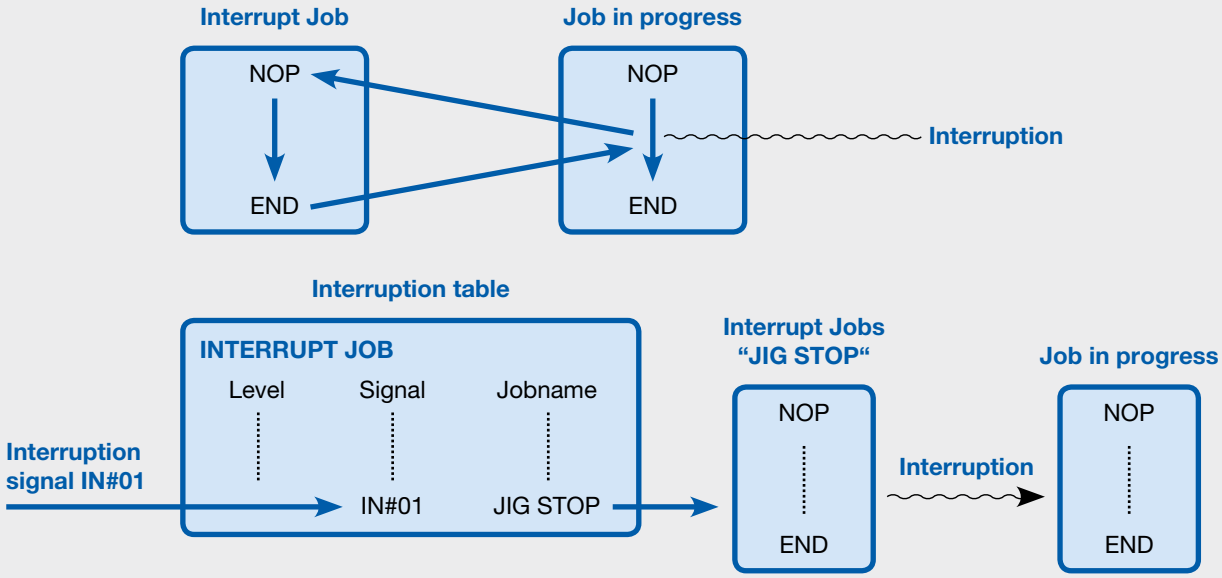
Interrupt Job

(195330)



The "Interrupt Job" function is a kind of call job. When a signal to interrupt the job is sent from a peripheral device or another system, this function momentarily suspends a job in progress, and executes the job corresponding to the signal.

This function is useful when an error occurs in a peripheral device or in another system, or when the manipulator should be withdrawn in an emergency.

Sending a user input signal specified in the interruption table calls a job corresponding to that signal (IN#1 => job A; IN#2 => job B… etc.). When interrupt job is completed, the suspended job is restarted from the instruction line where the cursor was at the time of interruption. The instructions EI (Interrupt enabled) and DI (Interrupt disabled) are necessary to enable the interrupt observation.

KEY BENEFITS

- Interruptions are possible during move instructions as well as timer instructions
- Tact time can be reduced
- You can observe an area from your job
- For each robot you can create 8 interrupt jobs

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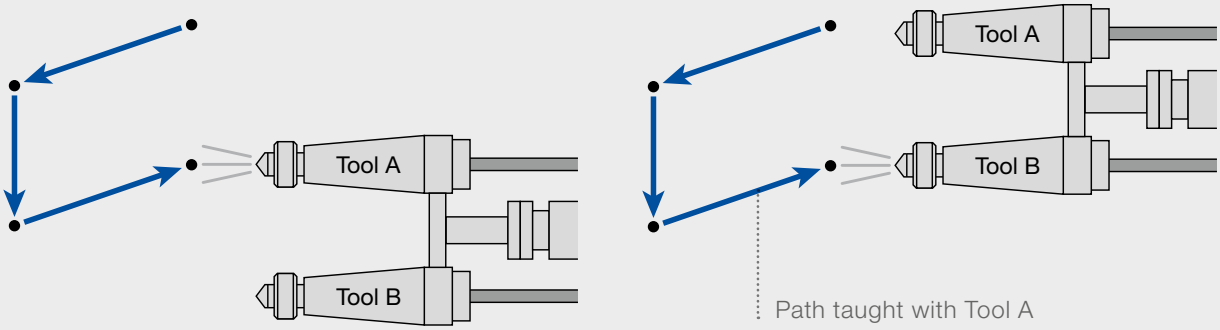
TCP

(195331)



1. After teaching with Tool A, put the undercoat using Tool A

2. With the TCP function, put the top coat using Tool B

The “TCP” function (TCP: Tool Center Point) moves the tool along the track that was taught by another tool.

Quick programming of jobs (example):

- The job copied from the job taught with Tool A, defined a “Job A” can be defined as “Job B”. Add the TCP instructions before and after the sections where Tool B is to be used in Job B. Set a tool file number for Tool B in the “TCPON” instruction.
- One tool is used for undercoat paint operation, the other is used for the top coat paint operation. Teach a path to either one of the two tools, then the teaching for the other tool is not necessary.

KEY BENEFITS

- Reduction of programming time:
  When moving double-tools along the same track, only one-time teaching is applied to each tool, which allows the job creation time to be reduced
- Precise tracking of both tools

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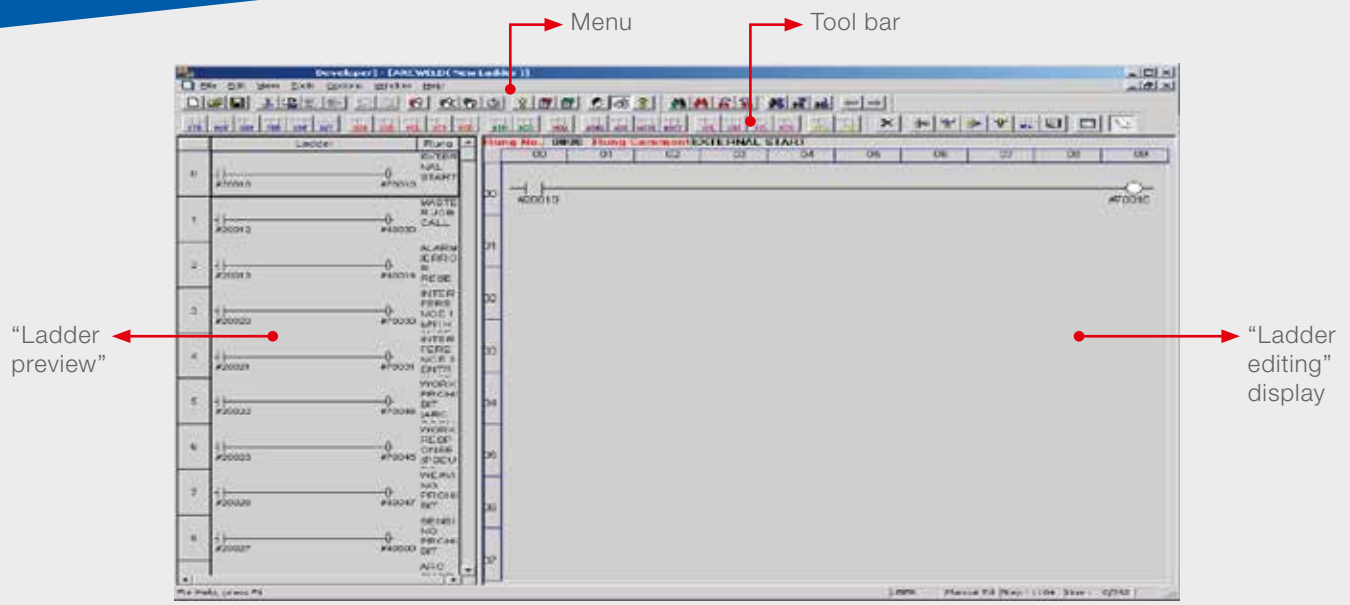
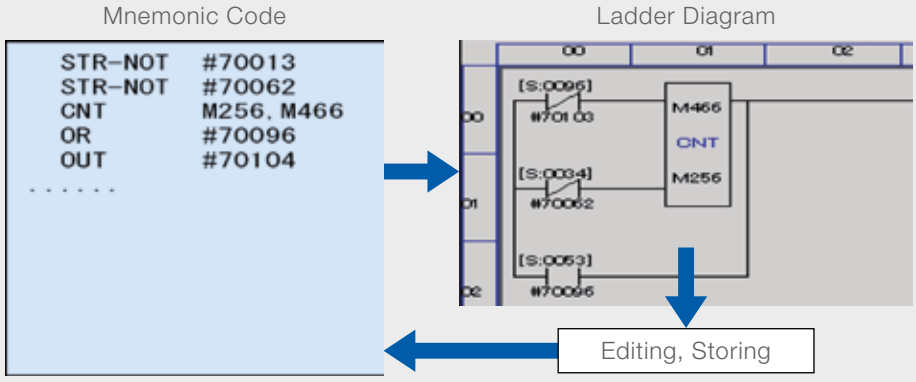
Ladder Editor

(195365)



The robot controller has a concurrent I/O function that processes I/O related control independently from the manipulator, and in parallel with the manipulator operation.

Ladder software is used to graphically display ladder programs with the above function as a signal connection diagram or to edit ladder programs easily such as pasting command parts by a drag- and drop operation using the mouse.



KEY BENEFITS

- Simple drag and drop operation
- Cross reference function is enriched
- History jump function is available
- Print function is enriched

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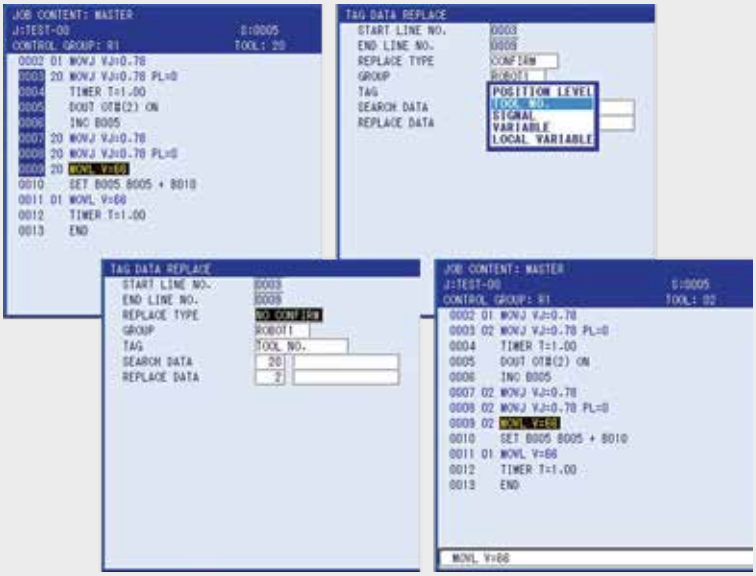
Tag Data Replace

(195354)



This edit function allows you to change data tags in one or more lines of a job at the same time.

Changeable line tags:

- Position level numbers
- Tool numbers
- Signal numbers
- Variable numbers
- Local variable numbers

KEY BENEFITS

- Teaching modification time is significantly reduced
- Tag data can be easily corrected in the window on the programming pendant

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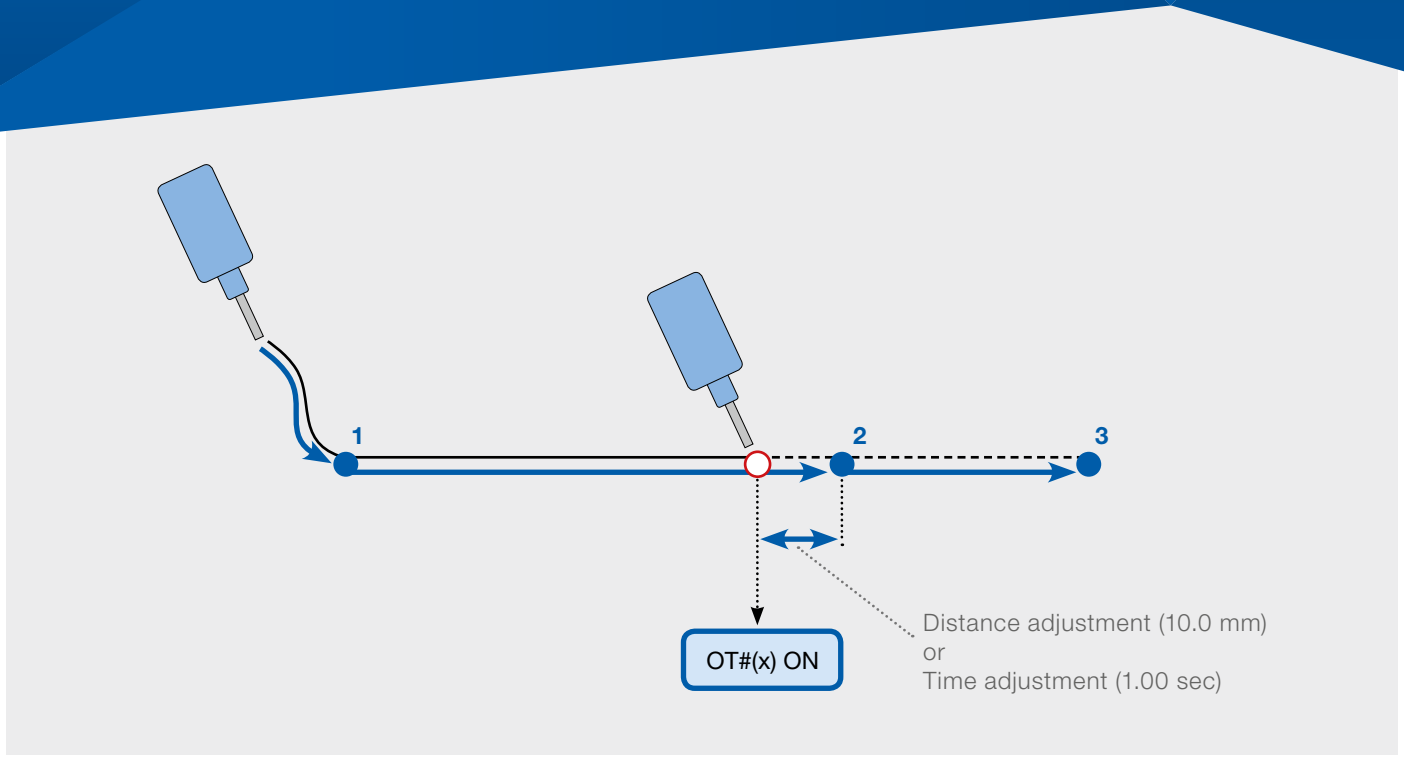
IO Output Timing Control

(195352)



The “IO Output Timing Control” function allows the user to switch an output depending on the distance or time relative to a point.

The instruction is added directly behind the related motion tag.

The instruction is speed independent.

KEY BENEFITS

- Precise IO timing depending on robot position
- Speed independent

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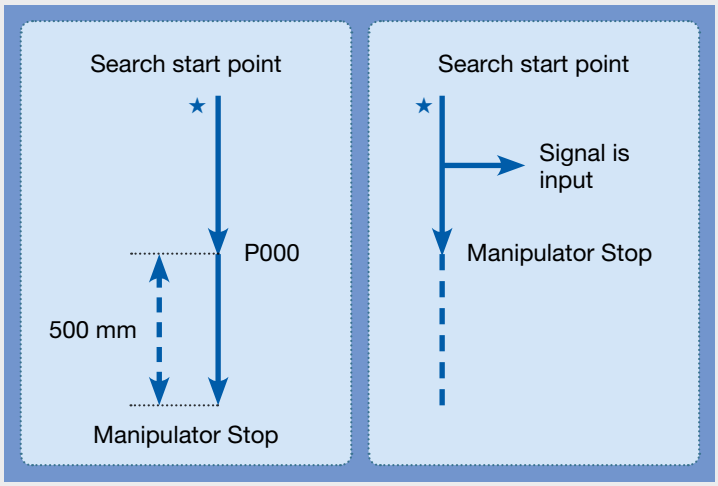
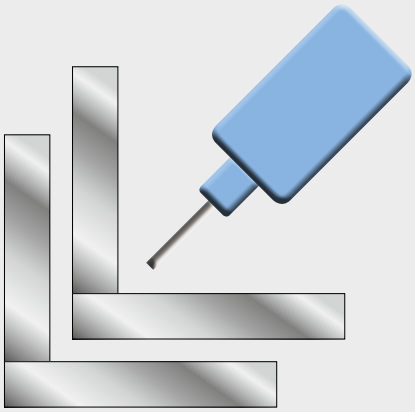
Search Function

(195356)

<Robot Operation>





"Search Function" uses various general detection sensors to stop the robot by the detection signal of the sensor and to allow the robot to operate the next work. That is to say, this function searches the target to be worked.

From the start position (★ mark) to the position defined by the variable P000, the robot operates by linear interpolation at a speed of 10.0 mm/sec. At the same time, after the robot operation starts, the function starts monitoring whether a signal is input to DIRECT IN No.1.

After the operation starts, as soon as there is a signal input, the robot stops. If there is no signal input, the robot stops at a distance of 500 mm ahead of the position defined by P000. In that case, whether the robot stops with or without a signal input can be determined by the value of the system byte status $B02.

KEY BENEFITS

- Although normal programs require a teaching procedure for each work piece, this function allows the robot to move in search of work pieces, which simplifies the program
  (Refer to the program on the left side of this page.)

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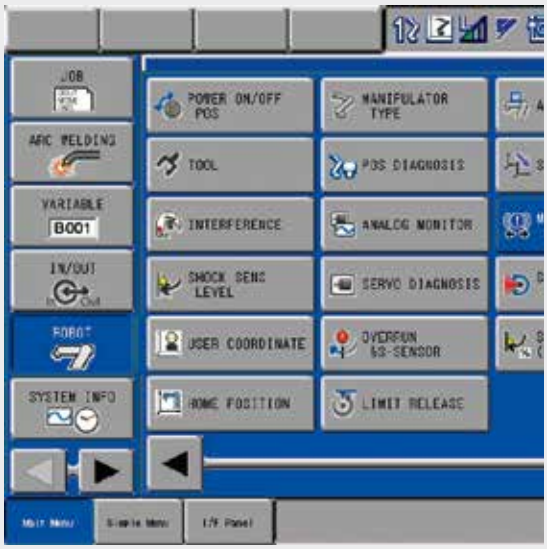
Manual Brake Release

(195348)



The “Manual Brake Release” function allows forcible release of each motor brakes of the manipulator and external axes by programming pendant operation.

KEY BENEFITS

- The robot and external axis can be moved without power connection

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Teaching Point Adjustment

(195334)

The “Teaching Point Adjustment” function modifies the taught position data by entering the numeric number on the programming pendant without operating the manipulator.

This function allows simplified offline teaching with CAD data or others, and allows fine adjustment of position data in any coordinate system without operating the manipulator.

KEY BENEFITS

- Teaching modification time is significantly reduced
- Position can be easily corrected in the window on the programming pendant

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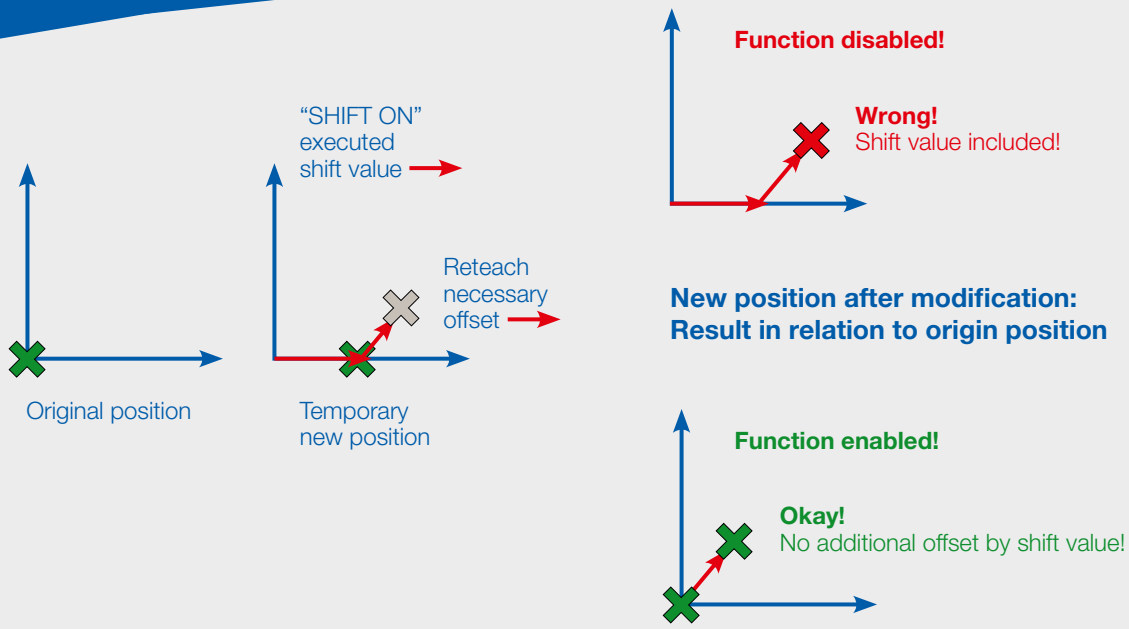
Shift Condition Cancel

(195338)



This function should be always enabled, when "shift on" instruction is used for programming!

It allows to overwrite (reteach) robot positions under consideration of current shift-values.

KEY BENEFITS

- No "master workpiece" with original programming necessary
- Reworks on existing "SHIFT-programmes" are easy and comfortable
- Temporarily shifted points can be overwritten (modified), independently from current shift values

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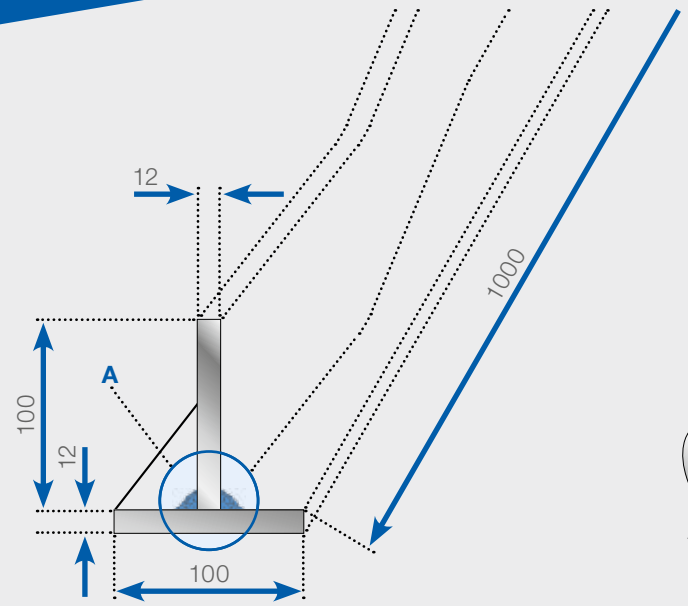
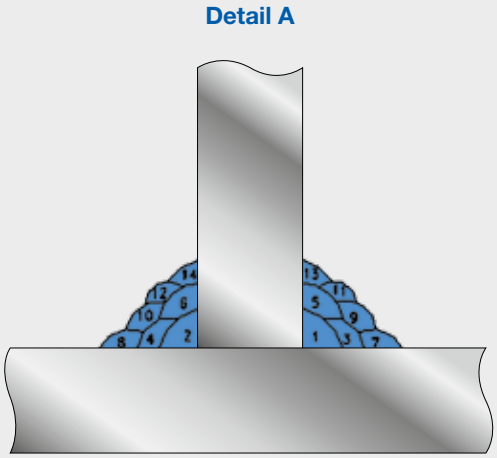
Point Variable (T-Variable)

(195366)





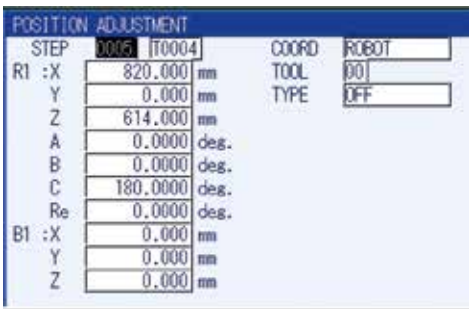
This function is fixed part of Multi-Layer function package. The special type of position variable has been created to simplify the programming of multi-layer welding structures (figures above). All welding passes basically have the same robot position. The only difference is the (variable) shift amount from root pass to current layer. Only the first layer must be taught by moving the robot. These positions will be registered as T-variable and in your JOB you can use same positions as often as necessary (number of layers) without moving the robot again.

The main difference to standard position variable (P-variable) is the “local” character: That means all information are stored in current JOB and each determined T-variable belongs only to the JOB where it has been set. Same T-variable (number) can be used in different JOBs and may have different position information! P-variable on the other hand has “global” character and if it is set once, it is commonly valid in all controller areas.

Using the T-variables is not mandatory but the more layers you have to teach, the more useful these T-variables will become.

KEY BENEFITS

- Simplifies programming on multi-layer seams
- Helps saving memory space
- Substitutes limited P-variables
- Up to 9999 T-variables for each JOB
- Offline editing possible



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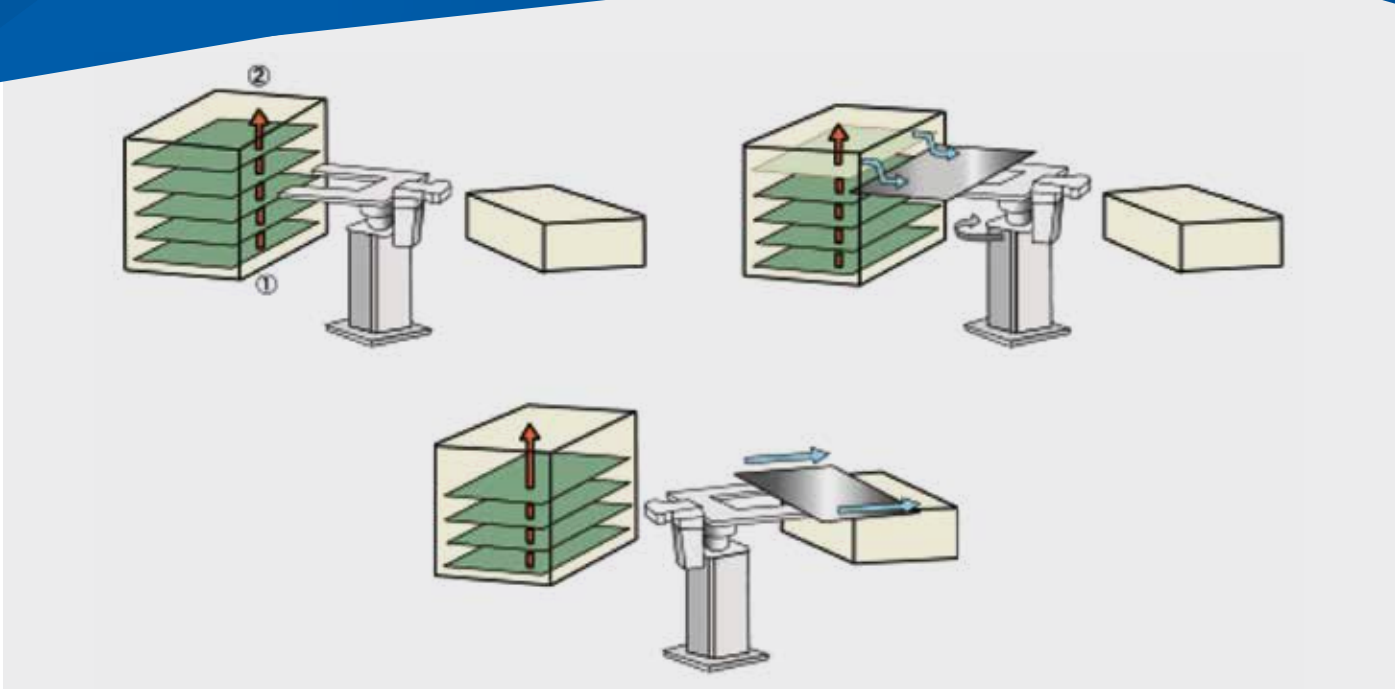
Search Continuous Motion

(195340)



The “Search Continuous Motion” function holds the data of up to 50 positions where the YRC1000 detects digital signals from general sensors during job execution while moving over some parts in one line without stopping the motion.

Detects also the up to 50 positions of circular placed parts with an circular movement.

Programs can be simplified, because normal programs require a searching procedure for each work piece, this function allows the robot to search all the work pieces in one line with only one movement and one NSRCHON command which simplifies the program.

KEY BENEFITS

- Fast possibility to find each position of more parts in one line with only one movement
- Saving cycle time
- Simplified robot job’s, saving programming time

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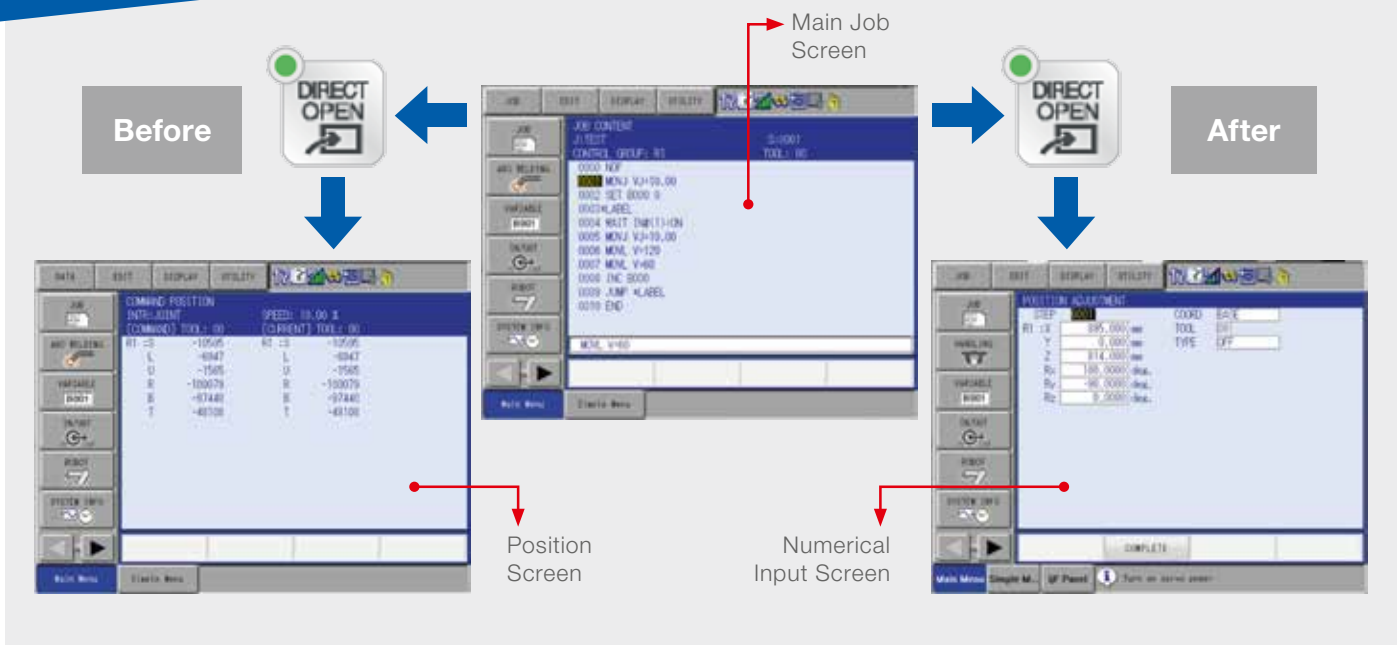
Numerical Input Screen Display with Direct Open

(195335)



The “Numerical Input Screen Display with Direct Open” function by pushing the direct open key immediately shows the registered position data correction screen.

(Note: Only works if option function “Teaching Point Adjustment” is activated).

KEY BENEFITS

- Easier and faster online teaching

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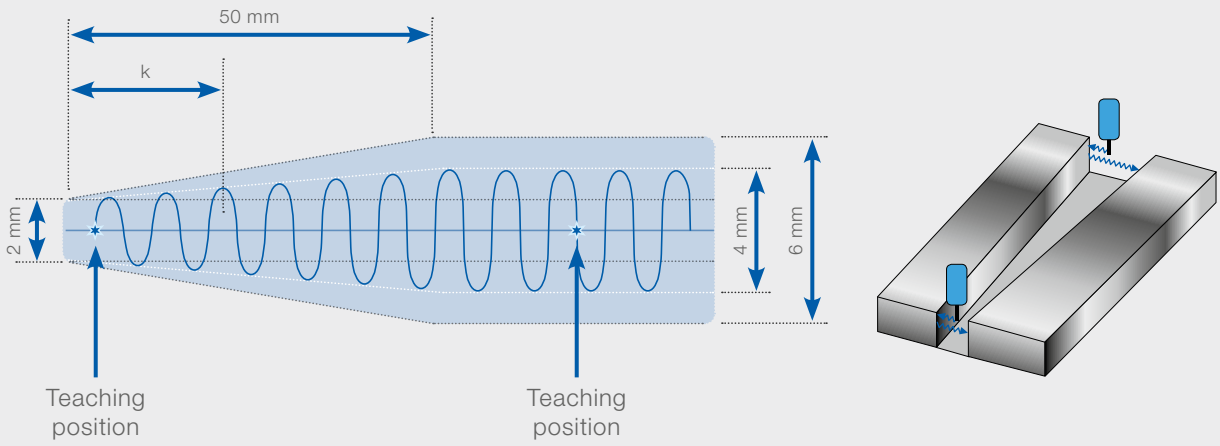
Weaving Adjustment

(195367)



This function can be used to compensate variable conditions in a welding groove by continuous adapting of weaving parameter and speed.

FUNCTION OVERVIEW

- Weaving amplitude will be continuously increased
- Robot speed and weaving frequency can also be adapted if needed

KEY BENEFITS

- Extension of standard weaving function
- Available for application “general” and “arc welding”
- Function is also optional part of adaptive welding routine in MotoEyeLT software (see picture above: gap condition file), if laser seam tracking is used

The information about groove conditions can be set manually as constant values, or can be set automatically by measuring device like touch sensor or any other start point detection unit: Please check feasibility in detail with technical department.

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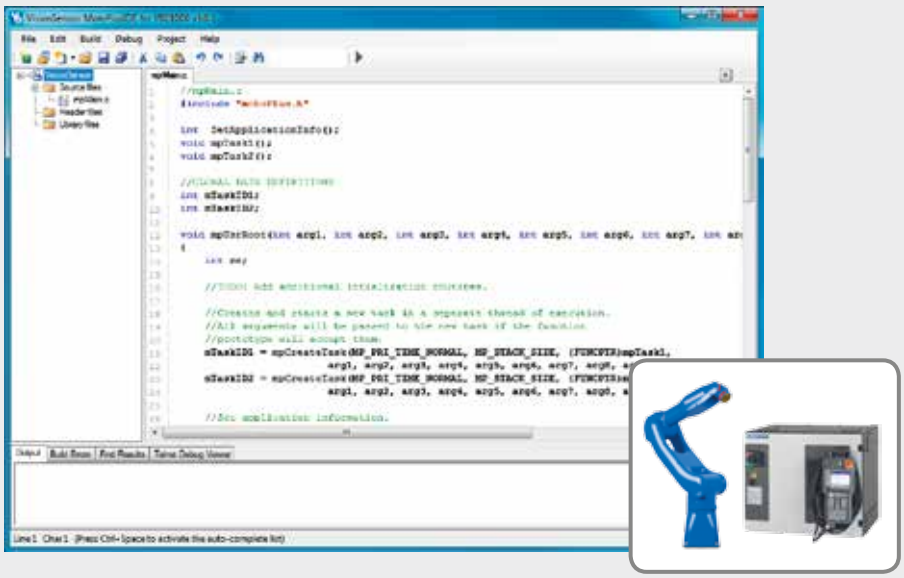
MotoPlus Runtime

(195358)



The “MotoPlus Runtime” is required for running applications built with the MotoPlus SDK. The SDK provides a complete programming environment for creating applications based on the C language that are executed onto the controller. The SDK provides access to the following APIs:

- Task Control API
- Network API
- Serial Communication API
- System Monitor/Control API
- Motion Monitor/Control API
- Sensor API
- File API

KEY BENEFITS

- Required to run applications built with the MotoPlus SDK
- Run multiple MotoPlus applications per controller
- Runtime license required for each controller
- MotoPlus SDK for developing applications

OPTIONAL SOFTWARE

- MotoPlus SDK – Development environment for creating MotoPlus applications
- 181529_F-Pkt YRC1000 MotoGSI – MotoGSI is a development package for creating communication interfaces with inform

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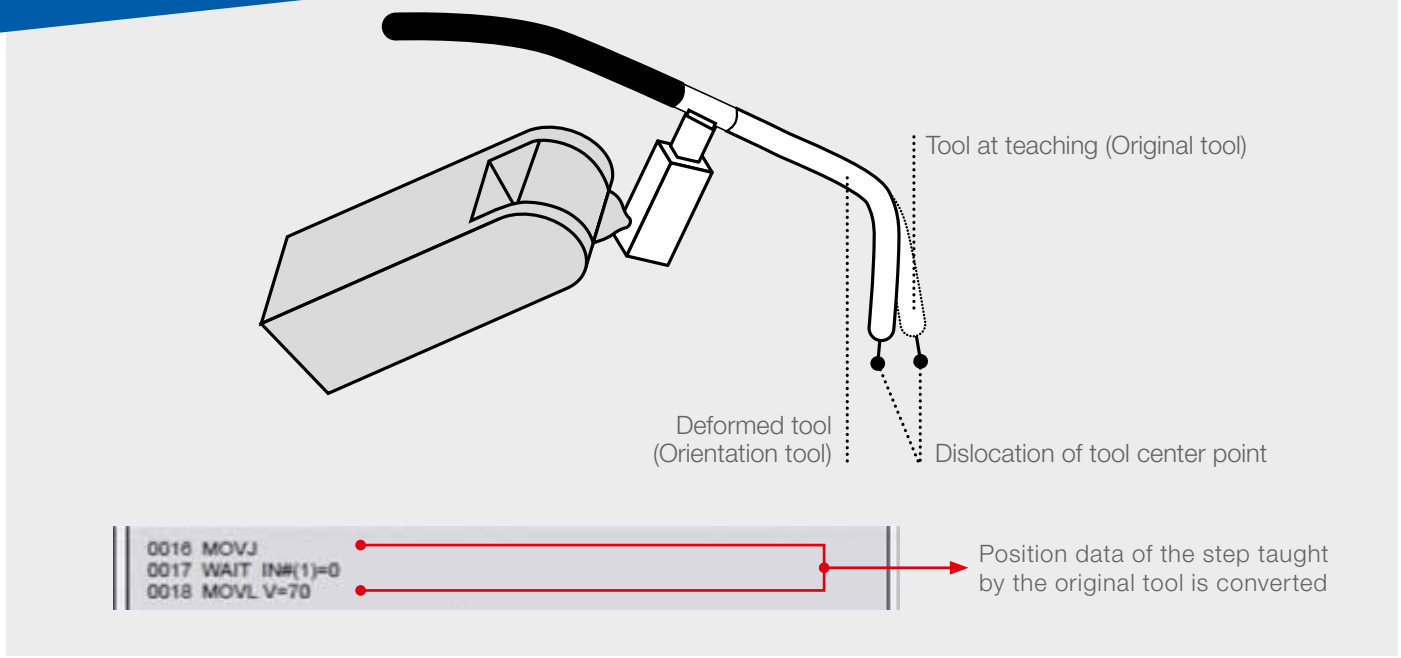
PMT

(195329)



"PMT" function easily and accurately modifies positional data if the tool is deformed. (PMT: Position Modification for Tool deformation: position data modification function for tool deformation).

If the tool accidentally collides with a surrounding jig or wall and is deformed, the control points are shifted. As a result, teaching positions in the job that has been taught are also shifted.

"PMT" function allows time and works for modifying the shift to be reduced. When a job is specified, the position data of the tool dimensions before the deformation (during teaching) is automatically converted to the position data of the tool dimensions after the deformation.

The tool before modification is called the old tool, and the tool after the deformation is called the new tool in "PMT" function.

KEY BENEFITS

- Time and work for teaching modification can be reduced. Teaching modification work can be efficiently performed because position data can be automatically converted from the old tool to the new one.
- Storing tool data record can easily restore original tool data. The original tool data can be easily restored because the change record of the tool constant can be checked in the "Tool Backup" window.

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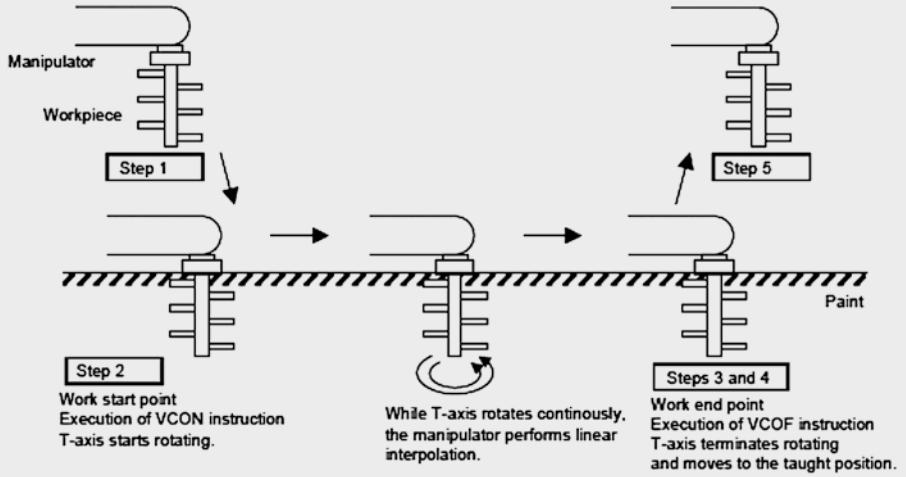
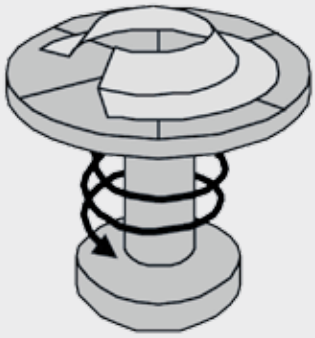
Speed Control

(195361)





With the “Speed Control” function, the T-axis, the end tip axis of the manipulator, or the external axis (hereinafter referred to as the speed control axis), can be continuously rotated according to the specified rotation speed.

During the continuous rotation, the rotation speed of the speed control axis is independently controlled. When operating the manipulator with the “Speed Control” function, the speed control axis rotates at the specified speed disregarding teaching while other axes operate as taught.

Line	Step	INFORM Instruction	Explanation
0000		NOP	
0001	0001	MOVJ VJ=12.50	Moves to the waiting point.
0002	0002	MOVJ VJ=12.50	Moves to the work start point.
0003		VCON ROBOT=1 JOINT=6 RPM=1000	Starts rotation of the T-axis of the manipulator 1. Rotation speed: 10.00 [rotation/min]
0004		TIMER T=0.50	Waits for rotation to start.
0005	0003	MOVL V=100	Moves to work end point by linear interpolation at 100.0 [mm/sec].
0006		VCOF ROBOT=1 JOINT=6	Terminates rotation.
0007	0004	MOVJ VJ=12.50	Moves T-axis to the taught position.
0008	0005	MOVJ VJ=12.50	Moves to the waiting point.
0009		END	

KEY BENEFITS

- Teaching time can be reduced.
- Working efficiency can be improved.
- The speed control axis rotates at the specified speed disregarding teaching

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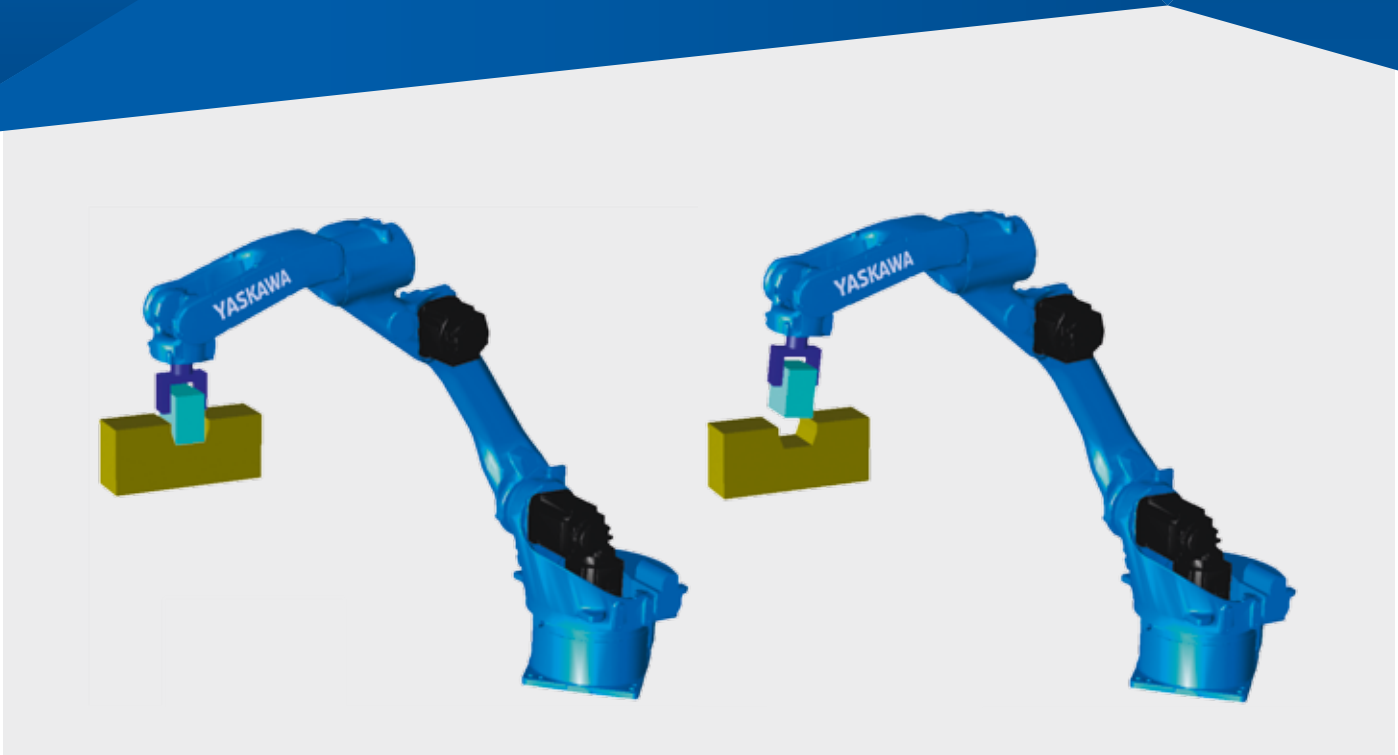
Link Servo Float

(195332)



The “Servo Float” function controls not only the position of the robot but both the position and force of the robot. Normally, even if an outer force is applied to the robot, the robot tries to maintain the current position and does not move because only the robot position is controlled. In that case, the “Servo Float” function provides flexible control on the position and posture of the robot, in response to the force applied from outside. It allows to overwrite (reteach) robot positions under consideration of current shiftvalues.

Link Servo Float function

This function performs the servo float for each axis of the robot, for every robot separately. It is used when a force is applied only to a specific axis or when the servo float is applied to all axes of the robot because the direction in which the force is applied cannot be identified.

KEY BENEFITS

- No additional hardware is required
- **Link Servo Float function**
  Can be activated by programmer for each axis or all together

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Link and Linear Servo Float

(195333)

The “Servo Float” function controls not only the position of the robot but both the position and force of the robot. Normally, even if an outer force is applied to the robot, the robot tries to maintain the current position and does not move because only the robot position is controlled. In that case, the “Servo Float” function provides flexible control on the position and posture of the robot, in response to the force applied from outside. It allows to overwrite (reteach) robot positions under consideration of current shiftvalues.

Link Servo Float function

This function performs the servo float for each axis of the robot. This function is used when a force is applied only to a specific axis or when the servo float is applied to all axes of the robot because the direction in which the force is applied cannot be identified.

Linear Servo Float function

This function performs the servo float for each coordinate axis of coordinate systems such as the robot coordinate, base coordinate, base coordinate, user coordinate, and tool coordinate. This function is used when the force is applied only to the specific direction of each coordinate system.

KEY BENEFITS

- No additional hardware is required
- **Link Servo Float function**
  Can be activated by programmer for each axis or all together
- **Linear Servo Float function**
  Can be activated by programmer for each coordinate system in each direction

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T-axis Endless

(195325)

This function continuously rotates the T-axis a plural number of turns. Although the rotation angle of the T-axis is generally limited within ±360 degrees, this function allows it to rotate endlessly. When executing the move instruction MOVJ with the “number of rotations of the external axis” specified, the T-axis rotates the “specified rotating amount + teaching position pulses” during the movement to the target position. One move command can specify up to ±100 turns.

KEY BENEFITS

- No turn back of the T-axis is neccassary
- Teaching time can be reduced
- Tact time can be reduced

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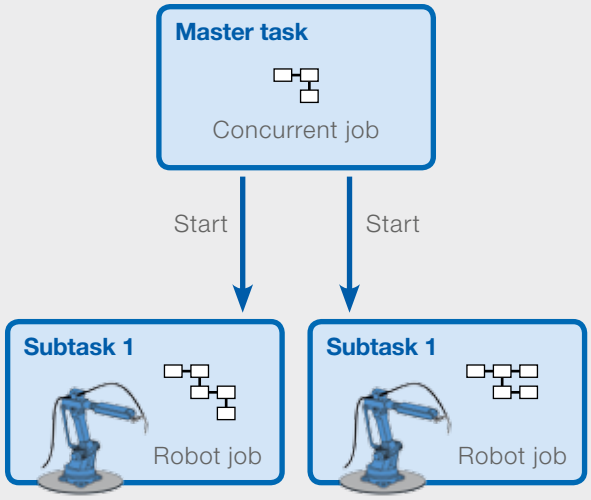
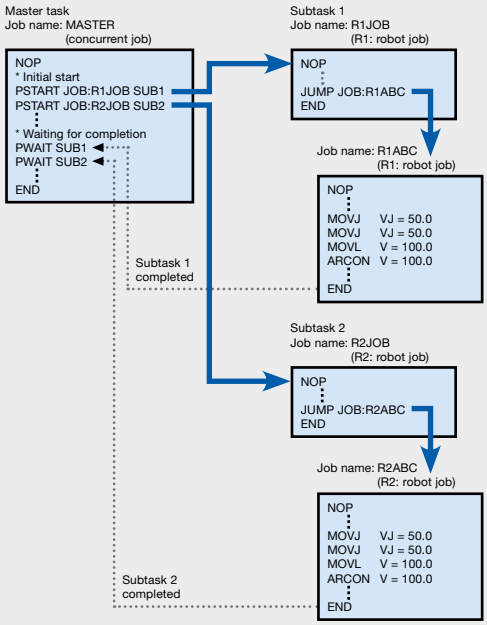
Independent Control

(195326)





The controller can control a maximum of 8 robots and plural stations (jig) through one controller. The “Independent Control” function allows two robots or the robot and jig to operate independently with different programs.

The controller has a function for decoding and executing a maximum of 8 jobs (extendable up to 16 jobs (optional) individually. The multitask control performed in this function is called independent control.

For instance, a two-robot system can be constructed that consists of one welding robot welding the work piece and the other robot transferring unwelded work pieces and welded work pieces.

The system can be freely combined with applications for arc and non arc application. The teachbox key sheets are available on the basis of the master application.

Also, independent operation of the robot and station (external jig) can be performed. As an external axis motor, however, the motor for YASKAWA robot must be used.

KEY BENEFITS

- Multitask of 8 jobs (extendable up to 16 jobs) individually
- Maximum of 8 robots and plural station through one controller
- Freely combined with applications

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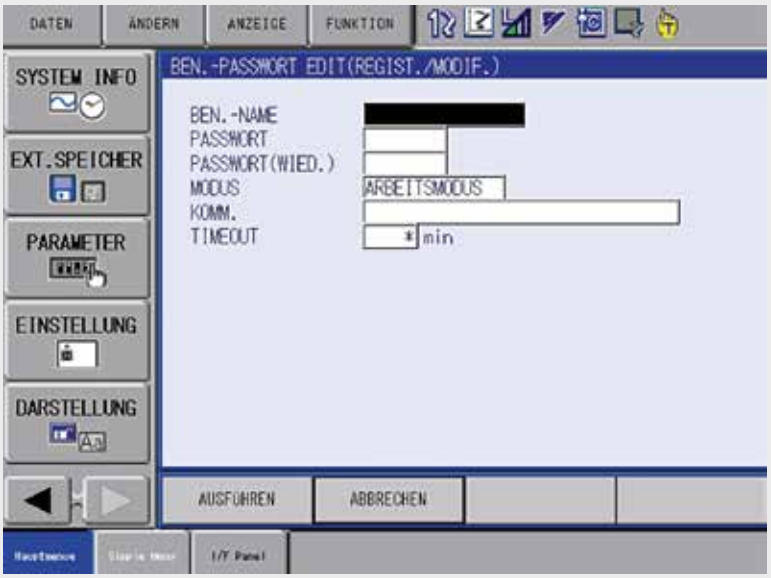
Password Protection

(195347)



The “Password Protection” function helps assure system safety by requiring each user to have a personal authorization registered to access the controller so as to control what operations may be performed by the users.

The system administrator authorizes each user by assigning a login name and password, a security level and a timeout setting, thereby allowing a specific level of controller access.

The administrator can register up to 100 user accounts. The user account information can be stored in a file (USRINFO.DAT).

Only the system administrator can change registered user account information.

The “Password Protection” function also enables to find out, by tracing the alarm history, which user has been logged in at the time of a particular alarm.

KEY BENEFITS

- 100 user accounts
- Alarms with username
- Logbook function with username

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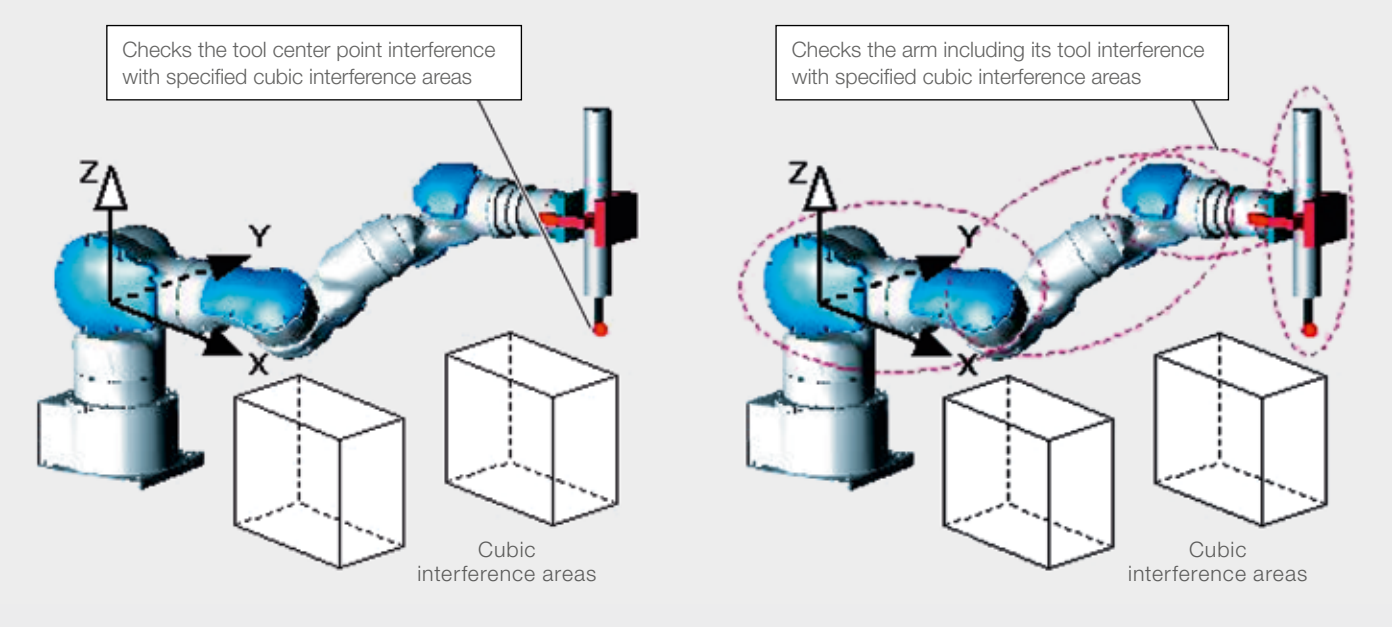
Arm Interference with Specified Cubic Area Check

(195350)



This function turns ON the corresponding system output signals “CUBE INTERFERENCE Signal” when the tool center point interfered with specified cubic areas.

On the other hand, this function turns ON the corresponding system output signals “CUBE INTERFERENCE Signal” when the manipulator’s arm including its tool center point interfered with specified cubic areas.

Up to 8 areas can be registered as interference areas to the arm.

Alarm occurs and the manipulator stops immediately when the robot arm including the tool center point interferes with the already specified cubic interference areas.

The manipulator’s tool part shape must be registered by the customer because its tool shape varies depending on the work that the manipulator performs. The shape can be registered with TOOL INTERFERE file. Function “Arm interference check” must be activated.

KEY BENEFITS

- This function can prevent collisions between robots/tools and cubics

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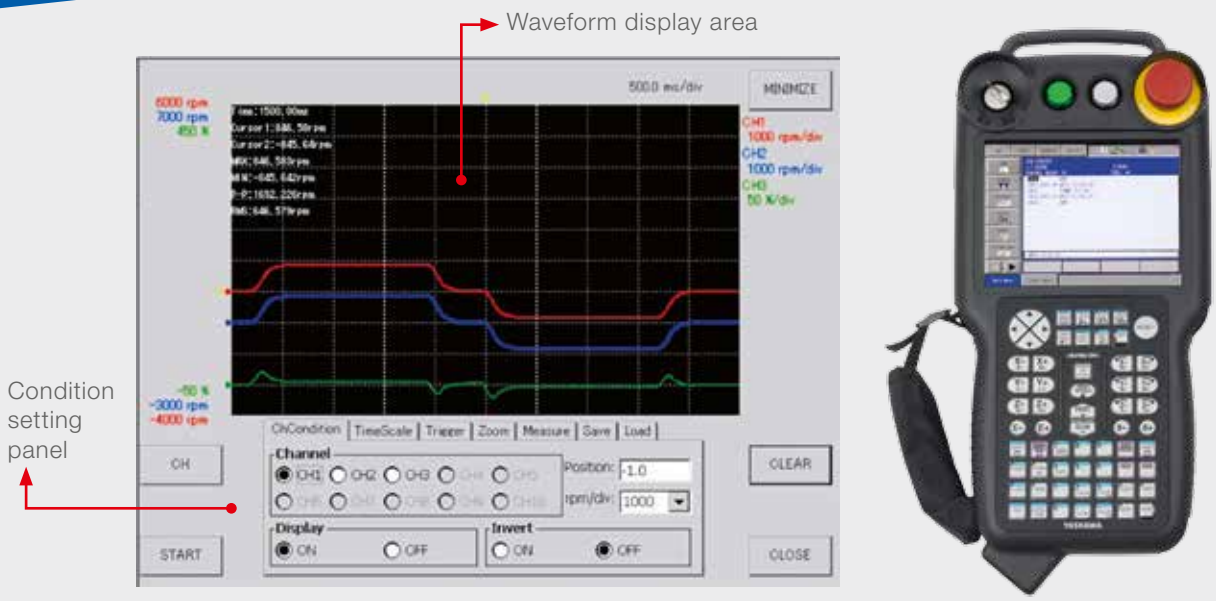
Pendant Oscilloscope

(195351)



The “Pendant Oscilloscope” function is a monitoring function for visualizing the speed and torque of each robot axis and the status of concurrent I/O signals on the Programming Pendant. The “Pendant Oscilloscope” is configured by a user interface, which requires no additional hardware components. Equipped with an integral display screen containing the waveform display window and the condition setting panel, the PP oscilloscope application enables to perform several processes from condition setting to measurement operations at the same time.

THE FOLLOWING FEATURES ARE INCLUDED

- Channel selective triggering and trigger level adjustment
- Cursor measurement function, for measuring certain distances in waveforms or between peaks after the data acquisition
- Zoom function for displaying the data in a magnified view
- Manual and auto saving mode for storing the data in CSV format
- Time scale adjustment

KEY BENEFITS

- No external oscilloscope is needed
- The servo conditions can easily be monitored and recorded
- Simple configuration of all relevant measuring parameters
- Data can be logged in a CSV file for easy analysis on PC

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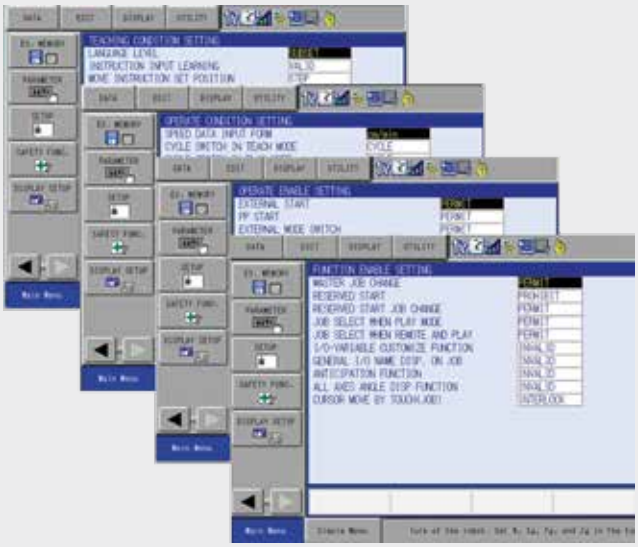
Configuration Parameter

(195353)



- Recommended standard settings
- YASKAWA standard system configuration
  e.g. The behavior of programming pendant, setup menu settings, comfort settings, etc.
- These settings can be adjusted by the customer in the controller itself

KEY BENEFITS

- Recommended standard settings
- Customized configuration

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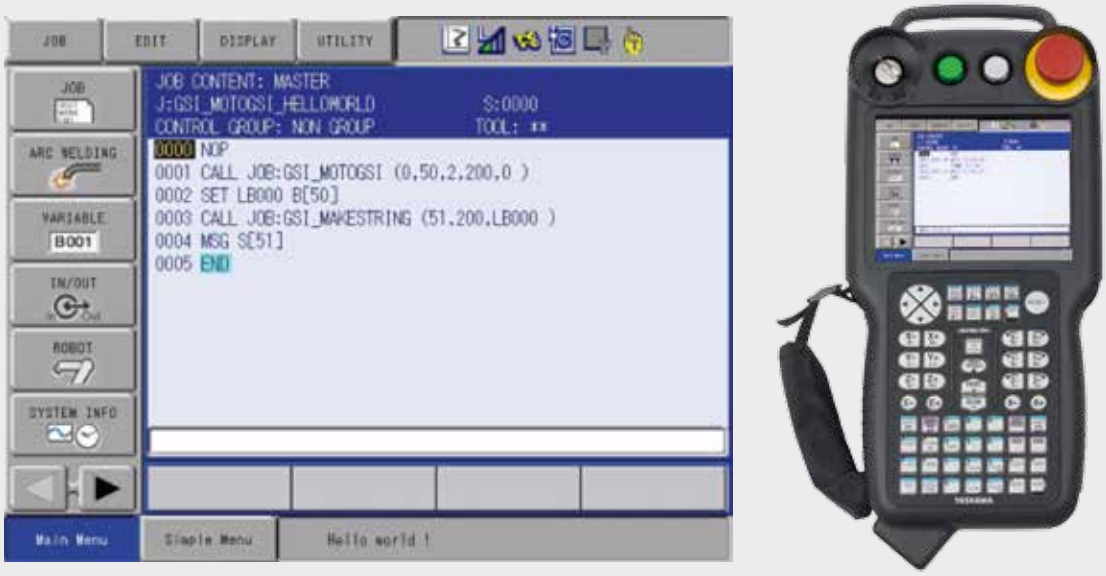
Ethernet Standard GSI

(195379)



MotoGSI extends the communication capabilities of YRC1000 controller by adding general socket communication instructions to the INFORM language, which makes it possible for the standard robot programmer to solve a wide range of communication tasks.

MAIN FUNCTIONS

- Extends the INFORM language by socket communication functions based on Ethernet/TCP, Ethernet/UDP or RS232
- No additional hardware required. Communication is done using the standard Ethernet or RS232 port of the controller
- Communication with nearly every external device that supports on Ethernet/TCP, Ethernet/UDP or RS232
- Additional PP App for debugging GSI jobs

KEY BENEFITS

- Extends the INFORM Language
- Implementing of specific protocols based on Ethernet/TCP, Ethernet/UDP or RS232
- Set of helper functions to process and convert datastreams
- Pattern based search in the input datastream
- Easy to integrate in own inform jobs
- Based on MotoPlus

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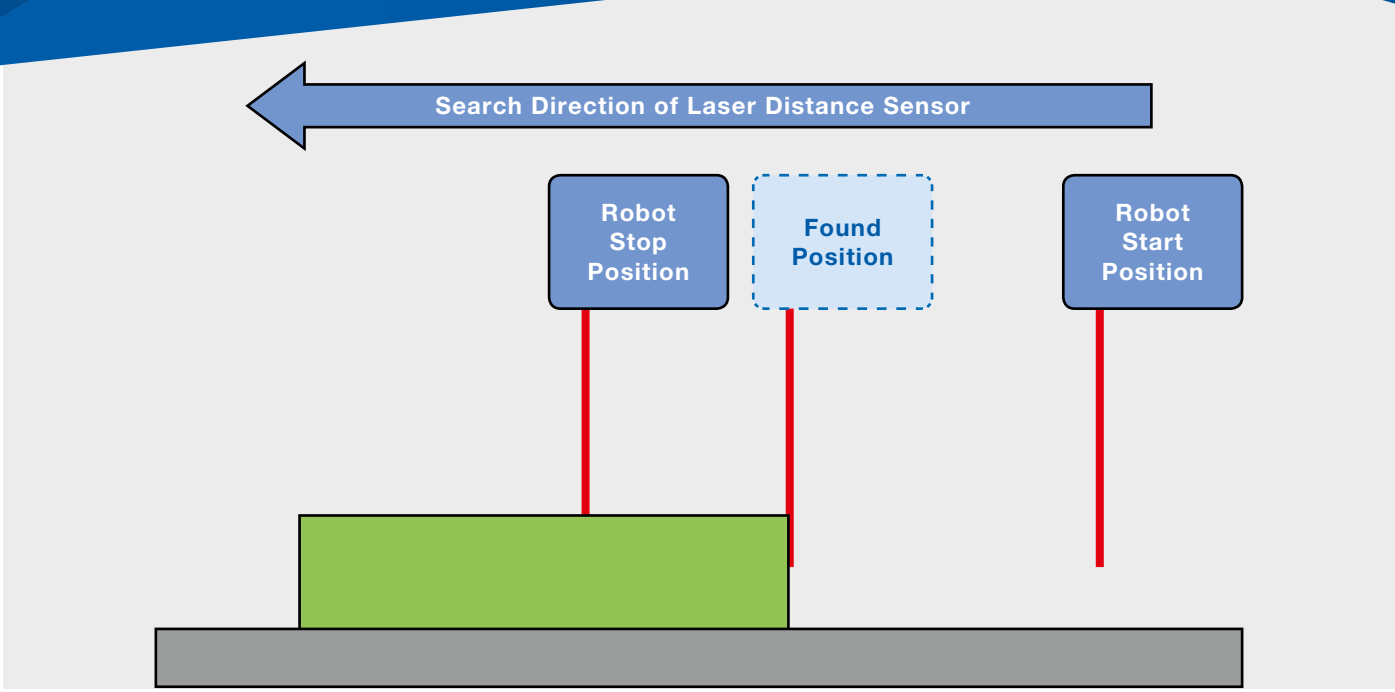
Search Function – Soft Stop

(195328)



The “Search Function – Soft Stop” uses various general detection sensors to stop the robot by detection signal of the sensor and to allow the robot to operate the next working steps, so this function searches the target to be worked on.

If the robot detects a sensor signal, the controller stores the found position and the robot stops the movement with deceleration (soft stop).

High speed searching with contactless sensors is possible.

KEY BENEFITS

- Robot stops the movement with deceleration
- High speed searching
- Save speed reducer lifetime
- Applicable for searching the height of stacks

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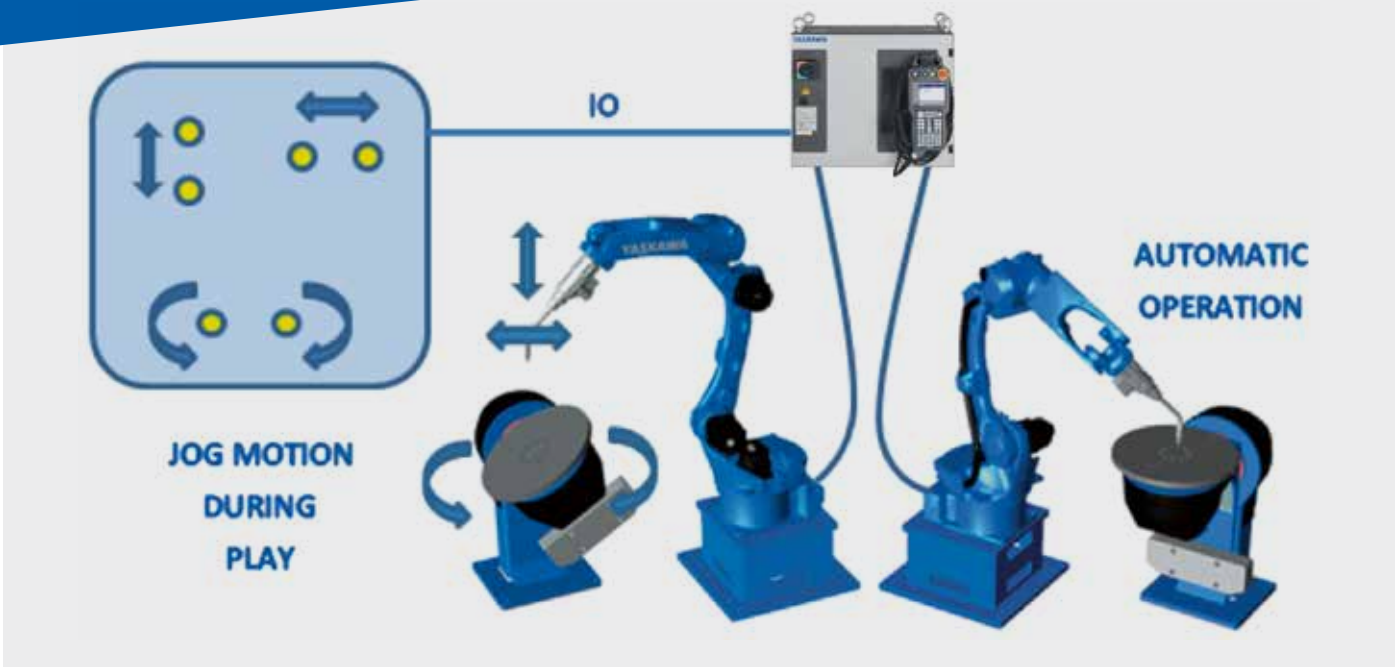
I/O JOG Operation in Play-mode

(195337)



The “I/O JOG Operation in Play-Mode” function performs axis operation for robot and external axes using universal input signals instead of the programming pendant.

Axis operation (JOG Operation) of a robot or station control group that is not registered in the job in playback operation can be executed using the allocated general-purpose input signals.

General-purpose inputs are also used to select the motion velocity. Five levels or individual speeds are possible.

In the event of a call or jump to a job that includes the station that is active in the current I/O JOG operation, an alarm is triggered to stop operation of the robot and the station.

We recommend connecting each robot or station to a power-on unit. It is also advisable to turn off the servo for the control group that is not in operation.

KEY BENEFITS

- Robot or external axes can be moved without stopping the production line
- This function makes it possible to operate currently unused robots and external axes, check the quality of a workpiece or perform additional preparatory work on it
- “I/O JOG Operation in Play Mode” software is necessary
- This function cannot be used with Twin-Drive stations

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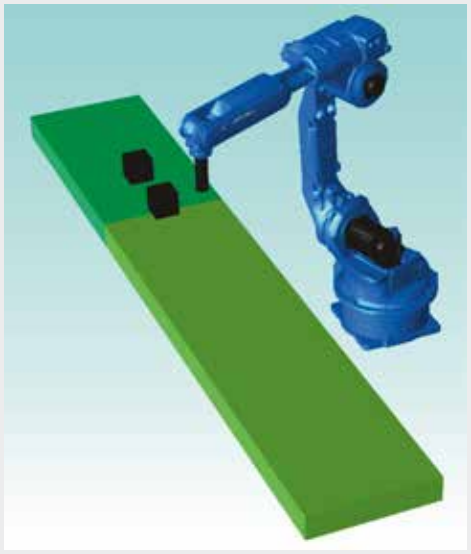
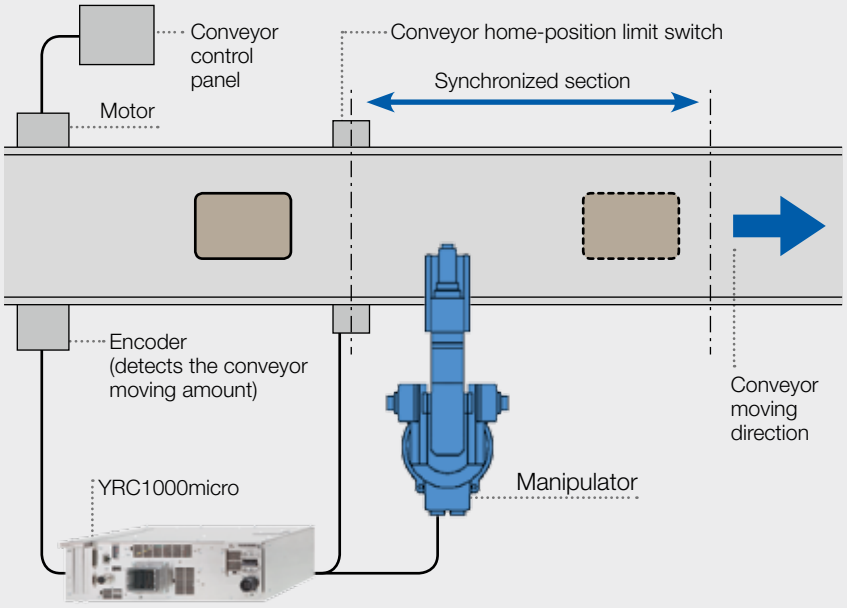
Conveyor Synchronized

(195375)





"Conveyor Synchronized" means that the manipulator operations are synchronized with the conveyor.

The manipulator works at the workpiece while the conveyor is moving.

There are three types of conveyor tracking motion: robot-axis tracking, base-axis tracking, and circular tracking.

Conveyor tracking function uses the travel distance of the conveyor. This means that the velocity of the manipulator relative to the workpiece is always constant.

KEY BENEFITS

- Robot operations are synchronized with the conveyor
- The velocity of the robot relative to the workpiece is always constant
- The conveyor tracking function can process a single workpiece from the input of the limit switch signal through to the robot tracking operation

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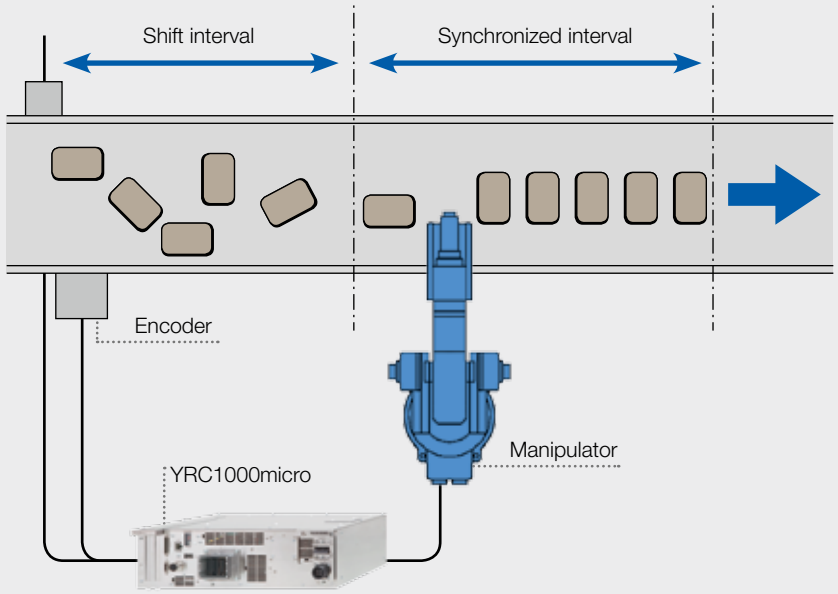
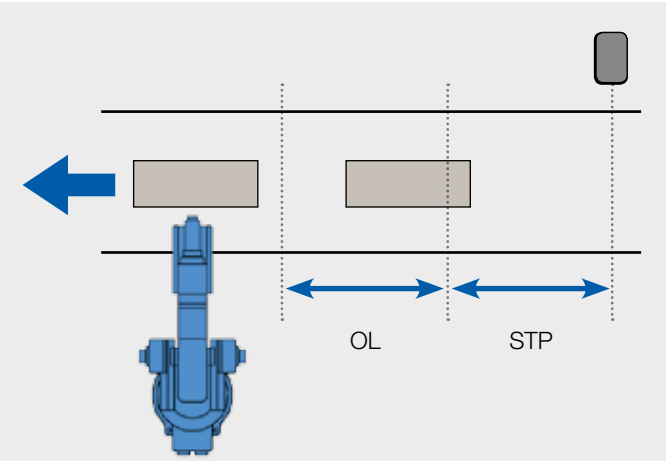
Conveyor Synchronized with Shift

(195376)



The “Conveyor Synchronized with Shift” function temporally stores information on multiple work pieces to enable the tracking process depending on each work piece.

This function is used when a large number of work pieces simultaneously flow between the limit switch and the manipulator.



Example:
When a part reaches the STP (start position) the robot starts the synchronization. If another part reaches the STP, the robot will first finish the running Job at the current part. Then the robot returns to the home position and starts the synchronization at the second part while it is located within the OL (over limit) range.

KEY BENEFITS

- Robot operations are synchronized with the conveyor
- The function can be applied to linear conveyor, circular conveyor, and revolving table
- The function can also be applied to the case where plural work pieces flow within the shift interval (a maximum of 99 pieces)

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Advanced PP Customization Runtime

(195357)

"Advanced PP Customization Runtime" is required for running applications developed with "Advanced PP Customization SDK". SDK is a collection of modules for creating customized user interfaces for the programming pendant. The customized UI is overlaid on the standard UI, so it is possible to perform important control operations, access information more easily, and create a unique interface concept across multiple devices.

SDK provides different function modules, which can be easily adapted in customized applications. These modules provide functionalities such as event-based variable access, logging, multi-language support, custom UI elements, etc.

KEY BENEFITS

- Custom UI elements
- Multi-language support
- Event-based variable handling. Notification when a variable changes
- Visualization of the state of variables by connecting them to custom UI elements
- Support for different user levels
- Logging
- Template for creating new applications
- Application is based on .NET 3.5 compact framework
- Visual Studio 2008 required for development
- Sample application which implements all available features

REQUIRED SOFTWARE SDK

- "Advanced PP Customization Runtime" – Runtime is required for each controller that is running a customized UI. 1 Runtime license is already included in "Advanced PP Customization SDK".

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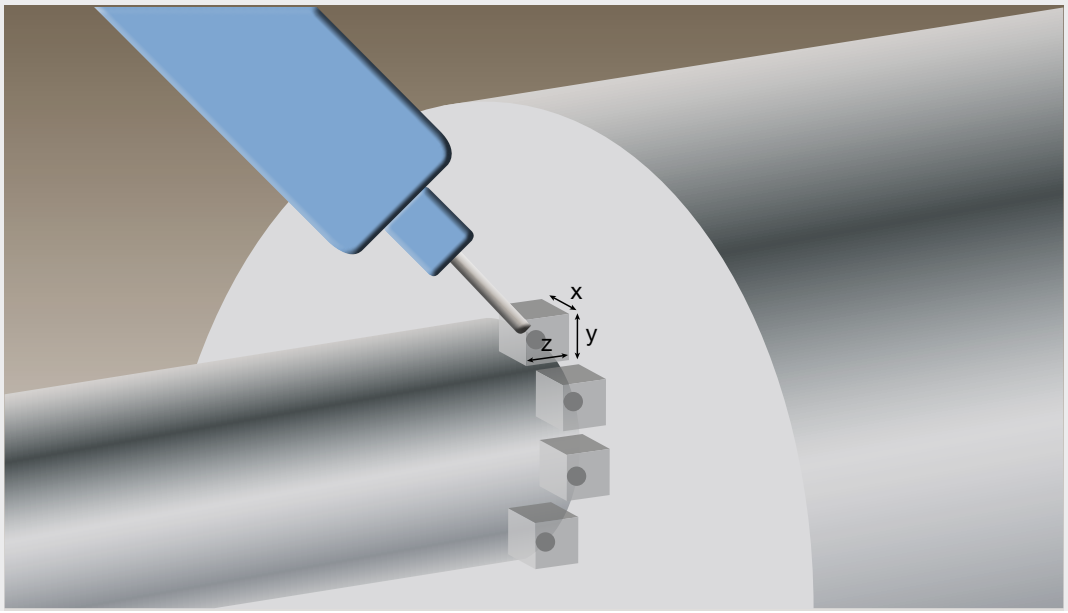
Safety Re-teach

(195378)



With this function the programmer can control the plant, the area in which the system operator can make some adjustment of the program.

KEY BENEFITS

- Quality improvement through rapid adaptation
- Re-teaching is already possible by the operator

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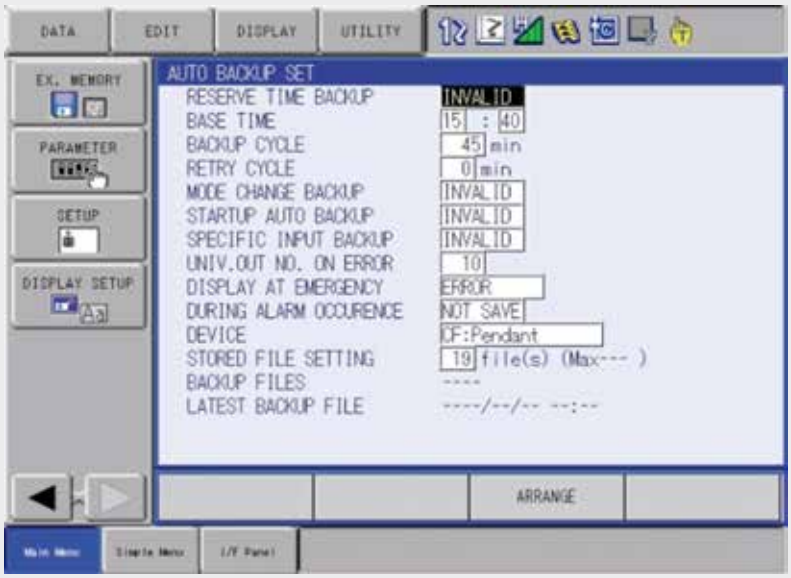
Automatic Backup

YRC1000micro Ethernet Standard
(195355)



The system data can be collectively backed up so that the data can be immediately loaded and restored in case of an unexpected trouble such as data loss.

The automatic backup function offers a variety of modes to support different backup strategies.

KEY BENEFITS

- Backups the whole system data in a single file
- Backup modes: Scheduled backups, backup on mode switch, backup on controller start, backup by IO
- Various backup locations supported (Pendant CF card, internal CF card, internal RAM, internal USB)
- Retain an adjustable number of previous versions of the backed-up files
- Remote access to the backup by FTP or HighSpeedEthernetServer
- Get a notification when a new backup is available

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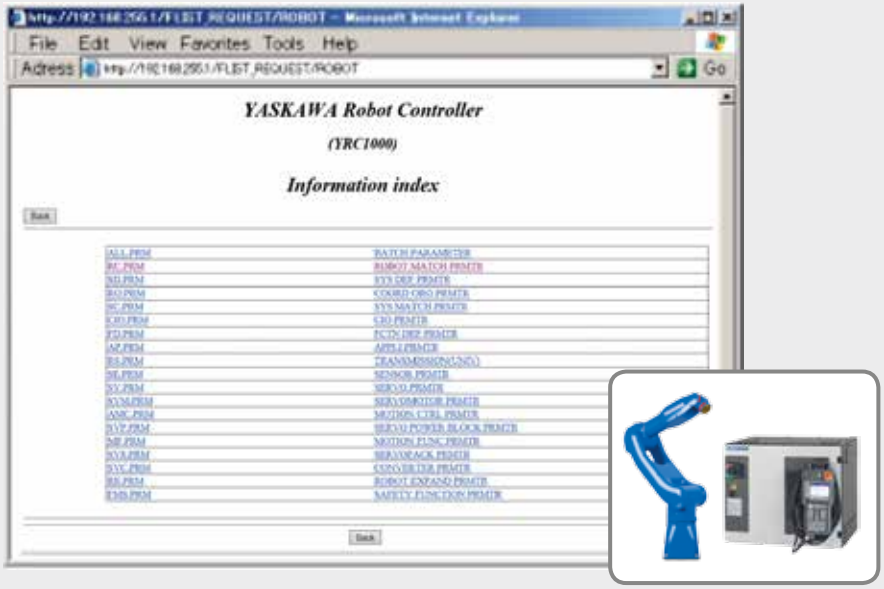
Ethernet WWW

YRC1000micro Ethernet Standard
(195355)



The “Ethernet WWW” function allows to access the internal data of the YRC1000 controller by any web browser.

FUNCTIONALITY OVERVIEW

- Browsing the internal data of YRC1000
- View jobs, parameters and system files by any web browser

KEY BENEFITS

- Easy access to YRC1000 internal data
- Uses the standard Ethernet Port. No additional hardware required

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Head

(xxxxxx)

Text

KEY BENEFITS

- Text

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