

IX SCARA COMMANDS

DFTL (Define tool coordinate system)

Expansion (LD, A, 0, AB, OB)	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	DFTL	Tool coordinate No.	Position No.	CP

[Function] The Position specified in operand 2 is used to define the Tool Coordinate specified in operand 1.

(note 1) Tool coordinate No.=0 causes "Error No. B71 coordinate system No. error".

(note 2) The GRP instruction is incompatible with this command.

Example

DFTL 5 10 Tool Coordinate 5 is set equal to the contents of Position 10

SLTL (Select tool coordinate system)

Expansion LD, A, 0, AB, OB	Condition I/0, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	SLTL	Tool Coordinate No.	Prohibit	CP

[Function] The execution of this command will declare the Tool Coordinate specified in operand 1, to be active for all movements thereafter.

(note 1) Setting operand 1 = 0 will declare the Tool Coordinates to inactive for all movements, thereafter.

Example- Omission

GTTL (Get tool coordinate system)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	GTTL	Tool Coordinate No.	Position No.	CP

[Function] The Position specified by operand 2 will be set equal to the contents of the Tool Coordinate specified by operand 1.

(note 1) Tool coordinate No.=0 causes "Error No. B71 coordinate system No. error".

(note 2) The GRP instruction is incompatible with this command.

Example

GTTL 5 10 Position 10 is set equal to the contents of Tool Coordinate 5.

DFWK (Define work coordinate system)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	DFWK	Work coordinate No.	Position No.	CP

[Function] The Work Coordinate specified in operand 1 will be set to the contents of the Position specified in operand 2.

(note 1) Work coordinate No.=0 causes "Error No. B71 coordinate system No. error".

(note 2) The GRP instruction is incompatible with this command.

Example

DFWK 5 10 Work Coordinate 5 is set equal to the contents of Position 10.

SLWK (Select work coordinate system)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	SLWK	Work coordinate No.	Prohibit	CP

[Function] Execution of this command will make the Work Coordinate specified in operand 1 to active for all movements thereafter.

(note 1) Setting operand 1 = 0 will declare the Work Coordinates to inactive for all movements, thereafter.

Example- Omission

GTWK (Get work coordinate system)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	GTWK	Work coordinate No.	Position No.	CP

[Function] The Position specified by operand 2 is set equal to the contents of the Work Coordinate specified by operand 1.

(note 1) Work coordinate No.=0 causes "Error No. B71 coordinate system No. error".

(note 2) The GRP instruction is incompatible with this command.

Example

GTWK 5 10 Position 10 is set equal to the contents of Work Coordinate 10.

DFIF (Definition of interference zone coordinates)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	DFIF	Interference Zone No.	Position No. (2 Consecutive Positions)	CP

[Function] Two Points will define an Interference Zone. Operand two specifies the first of the two points. Operand 1 specifies the Zone No. (1-10).

Specified points must have valid data. Each point must have at least one coordinate to be considered valid. If not valid, "Error No. C30 axis pattern error" may occur.

(note 1) The Interference Zone is defined by the normal IX coordinate system that does not implement any Work or Tool offsets.

(note 2) There is a 5ms scan time to check the robots location and the defined Interference Zone.

(note 3) The GRP instruction is incompatible with this command.

Example - Omission

SOIF (Select interference zone output)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	SOIF	Interference Zone No.	Output, Global Flag	CP

[Function] Defines the output or global flag specified by operand, 1 to be used with a selected Interference Zone, which is specified by operand 2.

(note 1) Different Interference Zones may use the same output. This may cause constant changing of the output that may become irregular and unreliable.

Example - Omission

SEIF (Select interference zone error type)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	SEIF	Interference Zone No.	0, 1 or 2 (error class)	CP

[Function] Selects the level of error to occur when the robot is in the defined interference zone specified by operand 2.

Error type levels:

0:No-error

1:Message level error (non-fatal)

2:Operation release level error (fatal)

(note 1)

Example- Omission

GTIF (Get interference zone coordinates)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	GTIF	Interference Zone No.	Position No. (2 Consecutive Positions)	CP

[Function] Get the information from the Interference Zone specified by operand 1, and copies the information into the Position Table. The information is copied to two consecutive points, the first of which is specified by operand two.

(note 1) The Interference Zone coordinates are based on the normal coordinate system of the robot, that does not make use of Work or Tool Coordinate offsets.

(note2) The GRP instruction is incompatible with this command.

Example- Omission

VELS (speed ratio setting)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	VELS	Ratio	Prohibited	CP

[Function] The value of operation 1 is assumed to be a ratio to PTP speed MAX, and the PTP operation instruction movement speed (It is a corner speed excluding Z axis) is set. Operation 1 is set by the integer (unit %).

(note 1)

Example- Omission

ACCS (setting compared with acceleration)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	ACCS	Ratio	Prohibi	CP

[Function] The value of operation 1 is assumed to be a ratio to PTP acceleration MAX, and the PTP operation instruction movement acceleration (It is a corner acceleration excluding Z axis) is set. Operation 1 is set by the integer (unit %).

(note 1)

Example- Omission

DCLS (setting compared with deceleration)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	DCLS	Ratio	Prohibit	CP

[Function] The value of operation 1 is assumed to be a ratio to PTP deceleration MAX, and the PTP operation instruction movement deceleration (It is a corner deceleration excluding Z axis) is set. Operation 1 is set by the integer (unit %).

(note 1)

Example- Omission

RIGH (Right Arm mode – movement command)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	RIGH	Prohibit	Prohibit	PE

[Function] Declares the robot to be in the right arm mode. If the robot is not currently in the right arm orientation, the arm will straighten, pivoting only at the elbow.

(note 1)

Example- Omission

LEFT (Left Arm Mode – movement command)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	LEFT	Prohibit	Prohibit	PE

[Function] Declare the robot to be in the left arm mode. If the robot is not currently in the left arm orientation, the arm will straighten, pivoting only at the elbow.

(note 1)

Example- Omission

PTPR (PTP right arm mode – declaration command)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	PTPR	Prohibit	Prohibit	CP

[Function] Declares the robot to be in the right arm mode. This is not a movement command. The robot will not move into the right arm mode if it is not currently in the right arm mode. This command will disallow movements that require the robot to change arm mode to reach them.

(note 1)

Example - Omission

PTPL (PTP Left Arm Mode – declaration command)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	PTPL	Prohibit	Prohibit	CP

[Function] Declares the robot to be in the left arm mode. This is not a movement command. The robot will not move into the left arm mode if it is not currently in the left arm mode. This command will disallow movements that require the robot to change arm mode to reach them.

(note 1)

Example - Omission

PTPD (PTP Disable)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	PTPD	Prohibit	Prohibit	CP

[Function] The execution of the command will not allow the robot to change arm mode to reach points that require the robot to do so. Instead, a fatal error will occur.

(note 1)

Example- Omission

PTPE (PTP enable)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	PTPE	Prohibit	Prohibit	CP

[Function] The execution of the command will allow the robot to change arm mode to reach points that require the robot to do so, without causing a fatal error.

(note 1)

Example- Omission

TMPI (Tool Move to Point Incrementally)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	TMPI	Position No.	Prohibit	PE

[Function] Operation, position, data, present location, movement, amount, tool,
coordinate system, interpolation, provide, operation, relativity, move.

(note 1) The geometric transformation rounding error margin etc. accumulate when an
incremental (relativity) march order is repeatedly used.

Example- Omission

TMLI (tool coordinate system position relative interpolation movement)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	TMLI	Position NO.	Prohibit	PE

Function The position data of operation 1 is assumed to be an amount of the movement from present location, and relativity moves while taking the interpolation on the tool coordinate system (= CP operation).

(note 1) The geometric transformation rounding error margin etc. accumulate when an incremental (relativity) march order is repeatedly used.

Example- Omission

PTRQ (Torque limit parameter change)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	PTRQ	Axis pattern	Ratio (%)	CC

[Function] The torque limit parameter for the axis (only Z axis can be specified) specified by operand 1 is changed to the value of operand 2. Operand 2 is set by an integer (unit is %).

"Ots torque limit when driver card parameter No.33 is positioned" is rewritten temporary by the PTRQ instruction.

(note 1) When the torque limit is not set by the PTRQ instruction, it by default will use the value of the parameter "Ots torque limit when driver card parameter No.33 is positioned".

(note 2) Even if the program ends, the torque limit parameter will retain it's set value.

(note 3) The value changed by the PTRQ instruction is lost when the controller is rebooted.

(note 4) In the PTRQ instruction,, Driver, card, parameter, No., position, torque, limit, driver, EEPROM, volatilize, memory, value, write, change, thing, provide.

Example - Omission

GARM (Get arm mode)

Expansion LD, A, O, AB, OB	Condition I/O, Flag	Command			Post Output, Flag
		Command	Operand 1	Operand 2	
Optional	Optional	GARM	Variable No.	Prohibit	CP

[Function] Set a variable specified in operand 1, with the current arm mode of the robot.

Possible variable values:

Irregular = 0

Right Arm mode = 1

Left Arm mode = -1

(note 1)

Example - Omission