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Find the *Yamaha Robotics DRCX2005* at our website: ***Click HERE***

2 axes
robot controller

DRCX

Usable for cartesian robots of XY-X series and Multi Flip-X series. High performance 2 axes controller available at a reasonable cost.



DRCX

Features

1 Completely absolute

Compatible with absolute position detector resolvers. A function to backup the multi-rotation amount data is provided thereby realizing a completely absolute model.

2 Applicability to network

CC-Link, DeviceNet, Profibus, and Ethernet are available options for the DRCX controller for easy communication.

3 Two roles with one unit

As a BASIC-like programming language is used, even first-time users can easily program the data. A simple usage method, with no need for programming is possible, by carrying out only point teaching and using movement commands with I/O from the sequencer.

4 Large number of points

Provided with the multitask function supported by up to as many as 1000 points and up to 16/13 points general purpose input/output.

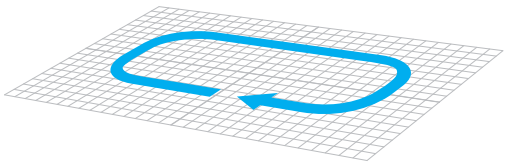
5 Arch motion function

This function enables movement with the direction changed before reaching the intermediate target position so that the pick & place operation in air is executed quickly. The direction changing point can be set freely by using a parameter.



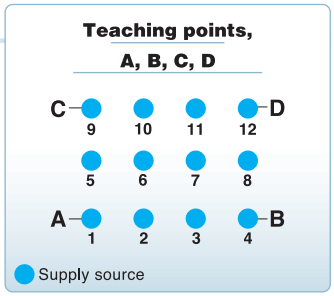
6 Two-dimensional linear and circular interpolation control function

Capable of controlling two-dimensional linear and circular interpolation ARC (XY plane).

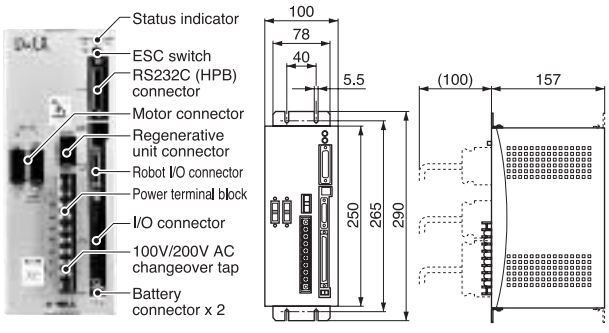


7 Palletizing function

Only by inputting 4 corner positions on the pallet as teaching points, it is possible to define up to 32 types of pallets easily. For palletizing operation, specify the defined pallet No. and execute the matrix movement command.



DRCX part names / dimensions



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DRCX ordering method

MXYx- C - A1 -125- 65 - 3L -DRCX- 20 10 - E - R - CC - B1

- Model – Cable – Combination of robot arms – X-axis stroke – Y-axis stroke – Cable length – Applicable controller – X-axis driver – Y-axis driver – Usable for CE – Regenerative unit – Network – Battery
- Note 1 (Model to Cable length)
- X-axis driver / Y-axis driver: **05** : 100W or less; **10** : 200W; **20** : 400 to 600W
- Usable for CE: **No entry** : Standard; **E** : CE specification
- Regenerative unit: **No entry** : None; **R** : Regenerative unit RGU2 Note 2
- Network: **No entry** : None; **CC** : CC-Link; **DN** : DeviceNet; **PB** : Profibus; **EN** : Ethernet
- Battery: **B1** : 700mAh; **B2** : 2000mAh

Note 1 : For details of the mechanical section, refer to Yamaha FLIP-X or XY-X catalog.
Note 2 : The regenerative unit RGU2 (option) is required when operating a model designated by YAMAHA or a load with a large inertia.

DRCX basic specifications

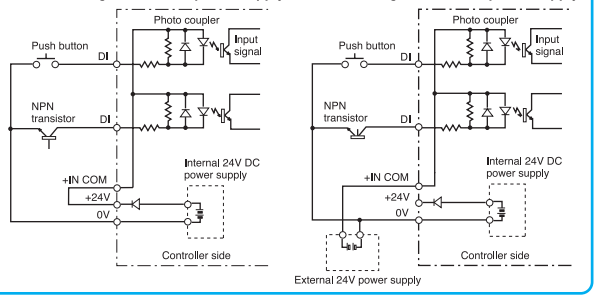
	Item / Model	DRCX		
Axis control	Applicable motor output	Driver model Note 1	X axis	Y axis
		0505	100W or less	100W or less
		0510	100W or less	200W
		0520	100W or less	400W to 600W
		1005	200W	100W or less
		1010	200W	200W
		1020	200W	400W to 600W
		2005	400W to 600W	100W or less
		2010	400W to 600W	200W
		2020	400W to 600W	400W to 600W
	Number of controllable axes	2 axes		
	Number of controllable robots	One 2-axis robot, two single-axis robots		
	Control system	AC full-digital servo		
	Position detection method	Resolver with a multi-revolution data backup function		
	Position setting unit	Cartesian coordinates system: mm, joint coordinate system: degree		
	Operation system	PTP (synchronous arrival of each axis), CP Note 2, ARCH Note 2		
	Interpolation control Note 2	Linear interpolation, 2-dimensional circular interpolation		
	Speed setting	1 to 100% in 1% increments		
	Acceleration setting	1) Automatically set according to robot type and transfer amount. 2) Setting with acceleration/deceleration parameter, 1 to 100% in 1% increments		
Program	Program language	Yamaha robot language, multitask function : 4 tasks maximum, I/O control during axis movement, multiple robot control		
	Number of programs	100 programs		
	Number of program steps	255 steps per program, 3000 steps in total		
	Number of points	1000 points in total		
	Point-data input method	Manual data input (coordinates input), remote teaching, direct teaching, off-line programming with PC		
External input/output	Input / output	16/13 general-use points, 8/3 dedicated points		
	External communication	RS-232C : 1CH (for communication with HPB / HPB-E or PC)		
	Power supply for external drive	24VDC/900mA (horizontal specification)		
	Brake output	2-point relay type		
Protective function	Abnormality detection items	Over-current check, over-load check, case temperature check, motor open-circuit check, encoder open-circuit check, software limit over, system malfunction, communication error, battery malfunction		
General specifications	Power	0505/0510/0520/1005/1010/2005 driver : Single phase AC 100 to 115V/ AC 200 to 230V +/-10%, 50/60Hz 1020/2010/2020 driver : Single phase AC 200 to 230V +/-10%, 50/60Hz		
	Power consumption (Max.)	1600VA (variable depending on robot models)		
	Dimensions / Weight	W100 x H250 x D157mm / 2.1kg		
	Ambient temperature / Ambient humidity	0℃ to 40℃ / 35 to 85%RH (non-condensing)		
	Storage temperature	-10℃ to 65℃		
	Noise resistance capacity	IEC61000-4-4 level 2		
	Ni-Cd battery charging method	Trickle charging		
	Accessories	I/O connector (48-pin) (1 pc)		
Options	Mandatory options	Battery B1 or B2 for absolute data backup		
	Selective options	HPB / HPB-E, PC supporting software POPCOM, Communication cable for PC supporting software (3.5m), I/O checker, Regenerative unit RGU2 (Basic weight : 1.1kg) Note 1		

Note 1 : The regenerative unit RGU2 (option) is required when operating a model designated by YAMAHA or a load with a large inertia.
Note 2 : Applicable only with cartesian robots.

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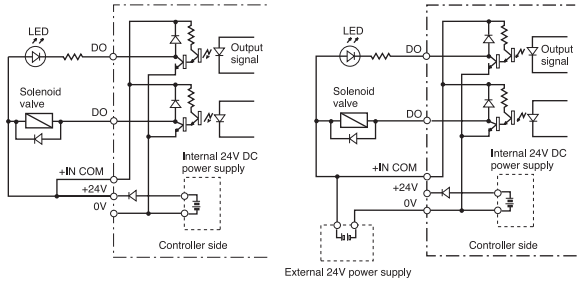
DRCX example of input signal connection

● When using internal 24V power supply ● When using external 24V power supply



DRCX example of output signal connection

● When using internal 24V power supply ● When using external 24V power supply



DRCX command list

Command	Function
TON	Start a specified task
TOFF	End a specified task
MOVA	Move to a specified point (absolute position movement)
MOVI	Move to a specified point (relative position movement)
MOVF	Move until the specified DI number is entered
SHFT	The position is shifted by the coordinate value of the specified point data
JMP	Jump to a specified label of the program
JMPF	Jump to a specified label of the program when conditional jump input matches the set value
JMPB	Jump to a specified label of the program when a DI number input matches the condition
CALL	Call another program
DO	Turn general output and internal memory output ON/OFF
WAIT	Wait until the input/output condition is entered
TIMR	Set the standby time
L	Set the location label
P	Set the execution point number
P +	Add 1 to the execution point number
P -	Subtract 1 from the execution point number
ORGN	Return all or specified axes to the origin
SRVO	Turn servo of all or specified axes ON/OFF
STOP	Halt execution of the program
JMPP	Jump to a label designated by axis positioning
MAT	Define the pallet matrix
MSEL	Select the pallet number
MOVM	Move to a the designated pallet work position
CSEL	Select the array number of counter array variable C
C	Set the value at counter array variable C
C +	Add a specified value to counter array variable C
C -	Subtract a specified value from counter array variable C
D	Set the value at counter array variable D
D +	Add a specified value to counter array variable D
D -	Subtract a specified value from counter array variable D
JMPC	Jump to a specified label when the counter array variable C matches with the set value
JMPD	Jump to a specified label when the counter variable D matches with the set value
MOVC	Move in a circular interpolation through a specified point
MOVL	Move in a linear interpolation to a specified point
ACHA	Set the arch position of a specified axis (absolute position from the origin)
ACHI	Set the arch distance of a specified axis (relative position from the current position)
DRVA	Move a specified axis to a specified point
DRVI	Move a specified axis from the current position by a specified point value

DRCX connector signals

Terminal number	Signal name	Function
A-1	ABS-PT	Move the point from the origin position
B-1	INC-PT	Move the point from the current position
A-2	AUTO-R	Start automatic operation
B-2	STEP-R	Start step operation
A-3	ORG-S	Return to the origin
B-3	RESET	Reset
A-4	SERVO	Return to servo on
B-4	LOCK	Interlock
A-5	DI 0	General input 0
B-5	DI 1	General input 1
A-6	DI 2	General input 2
B-6	DI 3	General input 3
A-7	DI 4	General input 4
B-7	DI 5	General input 5
A-8	DI 6	General input 6
B-8	DI 7	General input 7
A-9	DI 8	General input 8
B-9	DI 9	General input 9
A-10	DI 10	General input 10
B-10	DI 11	General input 11
A-11	DI 12	General input 12
B-11	DI 13	General input 13
A-12	DI 14	General input 14
B-12	DI 15	General input 15
A-13	+ IN COM	Controller external +24V power input
B-13	+ IN COM	Controller external +24V power input
A-14	+ 24V	Controller internal +24V power output
B-14	+ 24V	Controller internal +24V power output
A-15	0V	Input/output standard 0V
B-15	0V	Input/output standard 0V
A-16	DO 0	General output 0
B-16	DO 1	General output 1
A-17	DO 2	General output 2
B-17	DO 3	General output 3
A-18	DO 4	General output 4
B-18	END	End normal execution
A-19	BUSY	Executing the command
B-19	READY	Ready for operation
A-20	DO 5	General output 5
B-20	DO 6	General output 6
A-21	DO 7	General output 7
B-21	DO 8	General output 8
A-22	DO 9	General output 9
B-22	DO 10	General output 10
A-23	DO 11	General output 11
B-23	DO 12	General output 12
A-24	ENG 1	Emergency stop input 1, used with EMG2 as a pair
B-24	ENG 2	Emergency stop input 2, used with EMG1 as a pair

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