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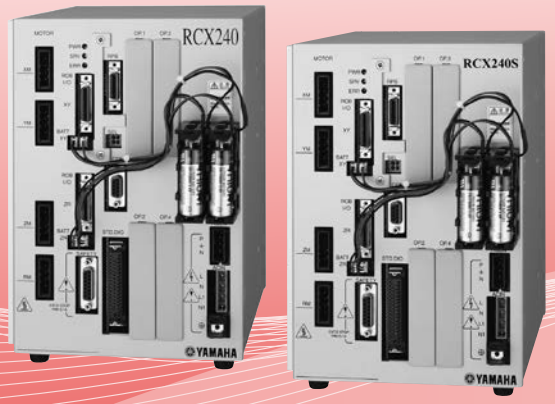
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RCX240/RCX240S

Robot controller with advanced functions

An advanced multi-axial controller newly developed based on long years of actual results! Along with a full range of functions, great engineering also makes it extremely easy to use.



RCX240

RCX240S

Main functions ▶ P.64



Programming box
▶ RPB/RPB-E
P.562



Support software for PC
▶ VIP+
P.556

Basic specifications

	Item		Model: RCX240 / RCX240S
Basic specifications	Number of controllable axes		4 axes maximum (Control simultaneously: 4 axes)
	Controllable robots		Single-axis robot FLIP-X, Linear motor single-axis robot PHASER, Cartesian robot XY-X, SCARA robot YK-XG, Pick & place robot YP-X
	Maximum power consumption		2500VA (RCX240) / 1500VA (RCX240S)
	Capacity of the connected motor		1600W (RCX240) /800W (RCX240S)
	Dimensions		W180 × H250 × D235mm
	Weight		6.5kg
	Input power supply	Control power supply	Single phase AC200 to 230V +/-10% maximum (50/60Hz)
		Motor power supply	Single phase AC200 to 230V +/-10% maximum (50/60Hz)
Axis control	Drive method		AC full-digital software servo
	Position detection method		Multi-turn resolver with data backup function, Magnetic linear scale
	Operating method		PTP (Point to Point), Linear interpolation, Circular interpolation, ARCH
	Coordinate system		Joint coordinates, Cartesian coordinates
	Position indication units		Pulses, mm (millimeters), deg (degrees)
	Speed setting		1% to 100% (In units of 1%. However speed is in units of 0.01% during single-axis operation by DRIVE statement.)
	Acceleration setting		1. Automatic acceleration setting based on robot model type and end mass parameter 2. Setting based on acceleration and deceleration parameter (Setting by 1% unit)
	Origin search method		Incremental, Absolute, Semi-absolute
Program	Program language		YAMAHA BASIC (Conforming to JIS B8439 SLIM Language)
	Multitasks		8 tasks maximum
	Sequence program		1 program
	Point-data input method		Manual data input (coordinate value input), Direct teaching, Teaching playback
Memory	Memory capacity		364KB (total capacity of program and points) (available program capacity during use of maximum number of points is 84KB)
	Programs		100 program (Max.) 9,999: maximum lines per program 98KB: maximum capacity per program
	Points		10,000 points: maximum numbers of points
	Memory Backup battery		Lithium metallic battery (service life 4 years at 0°C to 40°C)
	Internal flash memory		512KB (ALL data only)

Controllable robot	XY-X P.239	YK-X P.367	FLIP-X P.169	PHASER P.215	YP-X P.427
CE marking	◯	Field networks	CC-Link DeviceNet EtherNet/IP Ethernet PROFIBUS		

Model Overview

Name	RCX240/RCX240S
Controllable robot Note	Cartesian robot XY-X / SCARA robot YK-X / Single-axis robot FLIP-X / Linear motor single-axis robot PHASER / Pick & place robot YP-X
Input power	Single phase : AC200V to 230V +/-10% maximum (50/60Hz)
Operating method	Programming / Remote command / Operation using RS-232C communication
Maximum number of controllable axes	4 axes maximum
Origin search method	Incremental/Absolute

Note. For details, please refer to the controller model selection table on the next page.

Ordering method

RCX240
RCX240S

Controller Note1	Usable for CE	Regenerative unit Note2	Option I/O	Network Option	iVY System Option board	Light/Tracking	Gripper	Battery
RCX240: Standard model RCX240S: Low capacity model	No entry: Standard E: CE marking K: KCs	No entry: None R: RGU-2 R3: RGU-3 Note3	N, P: Standard I/O 16/8 N1, P1: 40/24 points N2, P2: 64/40 points N3, P3: 88/56 points N4, P4: 112/72 points	No entry: None CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet EP: EtherNet/IP™ YC: YC-Link Note5	No entry: None VY: iVY (VISION)	No entry: None TR: Light+Tracking LC: Light	No entry: None GR: Gripper	No entry: None Note8 B: 2pcs Note7 BB: 4pcs Note8

Note 1. The RCX240S controller is limited to use with robots that handles 200W or lower on each axis. Check the following controller selection table to find the matching model.
Note 2. The regenerative unit (option) is required when operating a model designated by YAMAHA or a load with a large inertia. Please refer to the following regenerative unit selection table.
Note 3. YK500XG to YK1000XG are for RGU-3.
Note 4. Use N to N4 when NPN is selected on the I/O board, and P to P4 when PNP is selected.
Note 5. Available only for the master. (The YC-Link system controls an SR1 series single-axis controller in accordance with communications received from an RCX series multi-axis controller. Using the YC-Link system allows control of up to 8 axes (or up to 6 axes with synchronous control)).
Note 6. Use battery-less model if connecting to all-axis linear motor, or to incremental models.
Note 7. If any or Single-axis among the XY axes are absolute specifications then 2 batteries are required.
Note 8. If any or Single-axis among the ZR axes are absolute specifications then 2 batteries are required.

☆ Please note that:

The current sensor on the RCX240S cannot be set to 20A.
As a controller stocked for maintenance, please order an RCX240 that can be set to any of 05A, 10A and 20A.

	Item		Model	RCX240 / RCX240S	
External input/output	STD.DIO	I/O input		Dedicated input 10 points, General input 16 points (NPN / PNP specifications selectable)	
		I/O output		Dedicated output 11 points, General output 8 points	
	SAFETY			Emergency stop input (Relay contact), Service mode input (NPN/PNP specification is set according to STD. DIO setting), Enabling switch input (Enabled only when the RPB-E is used.)	
	Brake output			Relay contact	
	Origin sensor input			Connectable to DC 24V normally-closed contact sensor	
	External communications			RS-232C: 1CH D-SUB9 (female) RS-422: 1CH (Dedicated RPB)	
	Regenerative unit connection			RGEN connector	
	Options	Slots		4	
		Type		Optional input/output (NPN/PNP)	General input 24 points, General output 16 points
				CC-Link	Dedicated input 16 points, Dedicated Output 16 points, General input 96 points, General output 96 points (4 nodes occupied)
				DeviceNet™	Dedicated input 16 points, Dedicated Output 16 points, General input 96 points, General output 96 points
				PROFIBUS	Dedicated input 16 points, Dedicated Output 16 points, General input 96 points, General output 96 points
				Ethernet	IEEE802.3 10Mbps (10BASE-T)
				EtherNet/IP™	Dedicated input 16 points, dedicated output 16 points, General-purpose input 96 points, general-purpose output 96 points Conforms to Ethernet (IEEE 802.3) 10Mbps/100Mbps.
				iVY	Camera input (2ch), camera trigger input, PC connection input
				Tracking	AB phase input, lighting trigger input, lighting power supply input/output
				Lighting control	Lighting trigger input, lighting power supply input/output
				Gripper control	No. of axes: 1 axis, Position detection method: Optical rotary encoder, Min. setting distance: 0.01mm
Options	Programming box			RPB, RPB-E (with enable switch)	
	Support software for PC			VIP+	
	Regenerative unit			RGU-2, RGU-3	
General specifications	Operating temperature			0°C to 40°C	
	Storage temperature			-10°C to 65°C	
	Operating humidity			35% to 85%RH (non-condensing)	
	Absolute backup battery			Lithium metallic battery 3.6V 5400mAH (2700mAH × 2)	
	Absolute data backup period			1 year (in state with no power applied)	
	Noise immunity			IEC61000-4-4 Level 3	
	Protective structure			IP10	

RCX240/RCX240S

Controller model selection table

The RCX240S controller is limited to use with robots that handles 200W or lower on each axis and is partly modified such as for optimizing the IPM, but it is fully compatible with RCX240 operation and functions, and peripheral equipment can be used by both models.

	XY-X								
	PXYX	FXYX	FXYBX	SXYX	SXYBX	NXY	MXYX	HXYX	HXYLX
RCX240						●	●	●	●
RCX240S	●	●	●	●	●				

	YK-X																		
	YK500TW	YK120XG	YK150XG	YK180X/XG	YK220X	YK250XG	YK350XG	YK400XG	YK500XGL	YK500XG	YK600XGL	YK600XG	YK700XG	YK800XG	YK900XG	YK1000XG	YK1200X	YK300XGS	YK400XGS
RCX240	●									●		●	●	●	●	●	●		
RCX240S		●	●	●	●	●	●	●	●		●							●	●

	YK-X																	
	YK500XGS	YK600XGS	YK700XGS	YK800XGS	YK900XGS	YK1000XGS	YK250XGP	YK350XGP	YK400XGP	YK500XGLP	YK500XGP	YK600XGLP	YK600XGP	YK600XGHP	YK700XGP	YK800XGP	YK900XGP	YK1000XGP
RCX240	●	●	●	●	●	●					●		●	●	●	●	●	●
RCX240S							●	●	●	●		●						

	CLEAN											
	YK180XGC	YK220XC	YK250XGC	YK350XGC	YK400XGC	YK500XGLC	YK500XC	YK600XGLC	YK600XC	YK700XC	YK800XC	YK1000XC
RCX240							●		●	●	●	●
RCX240S	●	●	●	●	●	●		●				

Multi-robot: Driver list for each model

For "multi-robots" that are used in combination with one or more single-axis robots, the RCX240S can be used unless the divers for the combined models include a 20A model.

		FLIP-X																				PHASER					
		T4LH	T5LH	T6L	T9	T9H	F8/F8L/F8LH	F10	F14	F14H	GF14XL	F17/F17L	GF17XL	F20/F20N	N15	N18	B10	B14/B14H	R5	R10	R20	MR12	MF7	MF15	MF20	MF30	MF75
Driver	05A	●	●	●	●		●	●	●								●	●	●	●		●					
	10A					●				●	●										●		●	●	●		
	20A											●	●	●	●	●										●	●

Regenerative unit selection table

	XY-X					
	FXYx 3 axes	SXYx 3,4 axes	NXY 3,4 axes	NXY 6 axes	MXYx 3,4 axes	HXYx 3,4 axes
No entry (None)	●	○				
R (RGU-2)		○	●	●	●	●
R3						

	YK-XG																		
	YK120XG	YK150XG	YK180XG	YK180X	YK220X	YK250XG	YK350XG	YK400XG	YK500XGL	YK500XG	YK600XGL	YK600XG	YK600XGH	YK700XG	YK800XG	YK900XG	YK1000XG	YK1200X	YK300XGS
No entry (None)	●	●	●	●	●	●	●	●	●		●								●
R (RGU-2)																		●	
R3										●		●	●	●	●	●	●		

	YK-XG																		
	YK400XGS	YK500XGS	YK600XGS	YK700XGS	YK800XGS	YK900XGS	YK1000XGS	YK250XGP	YK350XGP	YK400XGP	YK500XGLP	YK500XGP	YK600XGLP	YK600XGP	YK600XGHP	YK700XGP	YK800XGP	YK900XGP	YK1000XGP
No entry (None)	●							●	●	●	●		●						
R (RGU-2)																			
R3		●	●	●	●	●	●					●		●	●	●	●	●	●

	Clean											
	SXYxC 3 axes	SXYxC 4 axes	YK180XC	YK220XC	YK250XCH	YK350XCH	YK400XCH	YK500XC	YK600XC	YK700XC	YK800XC	YK1000XC
No entry (None)	●	●	●	●	●	●	●					
R (RGU-2)								●	●	●	●	●
R3												

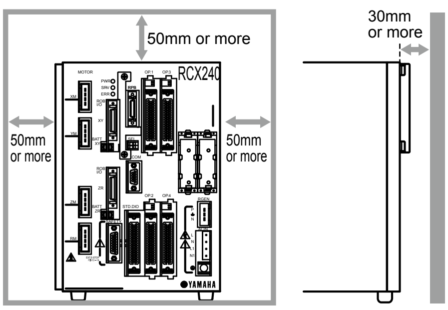
● : Required ○ : If Z axis is 200W specifications then regenerative unit RGU-2 is required.

Conditions where regenerative unit is needed on multi robots

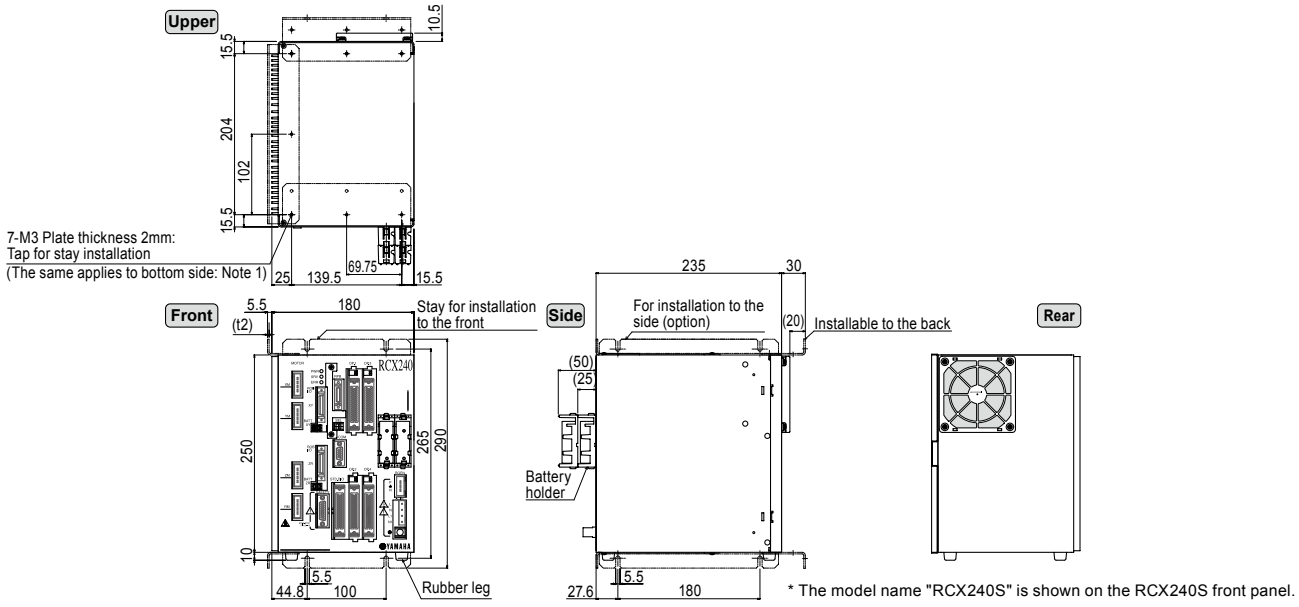
- Motor capacity exceeds a total of 450W.
- Motor capacity for perpendicular axis exceeds a total of 240W.
- B14H which maximum speed exceeds 1250mm per second.
- The following conditions apply when perpendicular axis capacity is 240W or less.
  - perpendicular axis is 200W.
  - perpendicular axis is 100W and stroke is 700mm or more.
  - there are 2 perpendicular axes at 100W, and includes leads of 5mm.

Installation conditions

- Install the RCX240/RCX240S inside the control panel.
- Install the RCX240/RCX240S on a flat, level surface.
- Install the RCX240/RCX240S in a well ventilated location, with space on all sides of the RCX240/RCX240S (See fig. at right.).
- Do not block the heat-sink on the side panel.
- Do not block the fan on the bottom of the controller.
- Ambient temperature : 0 to 40˚C
- Ambient humidity : 35 to 85% RH (no condensation)



Dimensions



* The model name "RCX240S" is shown on the RCX240S front panel.

Power supply capacity and heat emission

The required power supply capacity and heat emission will vary depending on the robot type and number of axes.
Using the following table as a general guide consider the required power supply preparation and control panel size, controller installation, and cooling method.

(1) When connected to SCARA robot

Robot type					Power capacity (VA)	Generated heat amount (W)
Standard type	Clean type	Dust-proof & drip-proof type	Wall-mount / Ceiling-mount / inverse type	Orbit type		
YK180X, 220X	–	–	–	–	500	63
YK250XG, 350XG, 400XG, 500XGL, 600XGL	YK250XGC, 350XGC, 400XGC, 500XGLC, 600XGLC	YK250XGP, 350XGP, 400XGP, 500XGLP, 600XGLP	YK300XGS, 400XGS	–	1000	75
–	YK500XC, 600XC	–	–	–	1500	88
YK550X, 500XG, 600XG	–	YK500XGP, 600XGP	YK500XGS, 600XGS	–	1700	93
–	YK700XC, 800XC, 1000XC	–	–	–	2000	100
YK600XGH, 700XG, 800XG, 900XG, 1000XG, 1200X	–	YK600XGHP, 700XGP, 800XGP, 900XGP, 1000XGP	YK700XGS, 800XGS, 900XGS, 1000XGS	YK350TW, YK500TW	2500	113

(2) When connected to 2 axis (Cartesian robot and/or multi-axis robot)

Axial current sensor value Note		Power capacity (VA)	Generated heat amount (W)
X axis	Y axis		
05	05	600	65
10	05	800	70
10	10	1000	75
20	05	1100	78
20	10	1300	83
20	20	1700	93

(3) When connected to 3 axis (Cartesian robot and/or multi-axis robot)

Axial current sensor value Note			Power capacity (VA)	Generated heat amount (W)
X axis	Y axis	Z axis		
05	05	05	700	68
10	05	05	900	73
10	10	05	1000	75
10	10	10	1200	80
20	05	05	1200	80
20	10	05	1300	83
20	10	10	1500	88
20	20	05	1600	90
20	20	10	1800	95
20	20	20	2000	95

(4) When connected to 4 axis (Cartesian robot and/or multi-axis robot)

Axial current sensor value Note				Power capacity (VA)	Generated heat amount (W)
X axis	Y axis	Z axis	R axis		
05	05	05	05	800	70
10	05	05	05	1000	75
10	10	05	05	1100	78
10	10	10	05	1300	83
10	10	10	10	1400	85
20	05	05	05	1200	80
20	10	05	05	1400	85
20	10	10	05	1500	88
20	10	10	10	1700	93
20	20	05	05	1600	90
20	20	10	05	1800	95
20	20	10	10	2000	100
20	20	20	05	2100	103
20	20	20	10	2200	105
20	20	20	20	2500	113

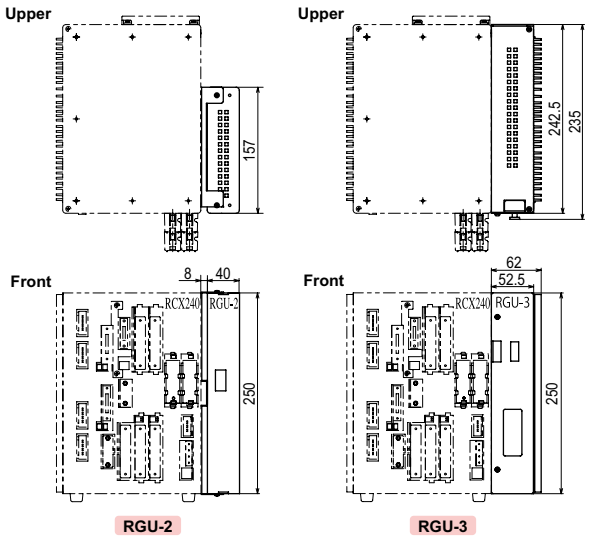
Note. Even if axial current sensor values for each axis are interchanged no problem will occur.

Note. Motor capacity vs. current sensor table

Connected motor capacity	Current sensor
100W or less	05
200W	10
400W or more	20

Note. Motor output of the B14H is 200W but the current sensor is 05.

Regenerative unit



RGU-2 basic specifications



Item	RGU-2
Model	KX0-M4107-20 (including cable supplied with unit)
Dimensions	W40 × H250 × D157mm
Weight	0.9kg
Regenerative voltage	Approx. 380V or more
Regenerative stop voltage	Approx. 360V or less
Accessory	Cable for connection with controller (300mm)

Note. Always leave an empty space (gap of about 20mm) between this unit and the adjacent controller. Also, always use the dedicated cable when connecting the controller.

RGU-3 basic specifications

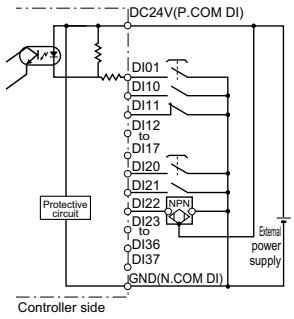


Item	RGU-3
Model	KX0-M4107-30 (including cable supplied with unit)
Dimensions	W62 × H250 × D242.5mm
Weight	3.7kg
Regenerative voltage	Approx. 380V or more
Regenerative stop voltage	Approx. 360V or less
Accessory	Cable for connection with controller (300mm)

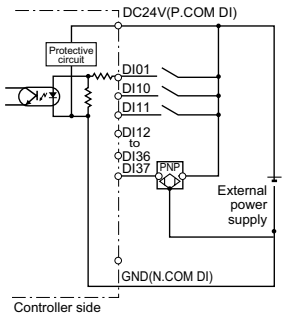
Note. Cannot be installed as a separate unit.

Example of input signal connection

NPN specification

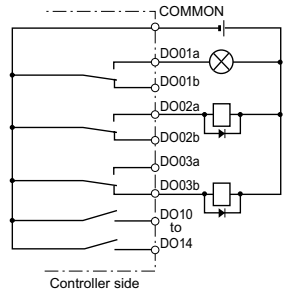


PNP specification

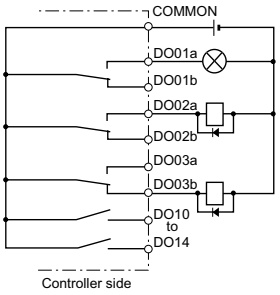


Example of output signal connection

NPN specification

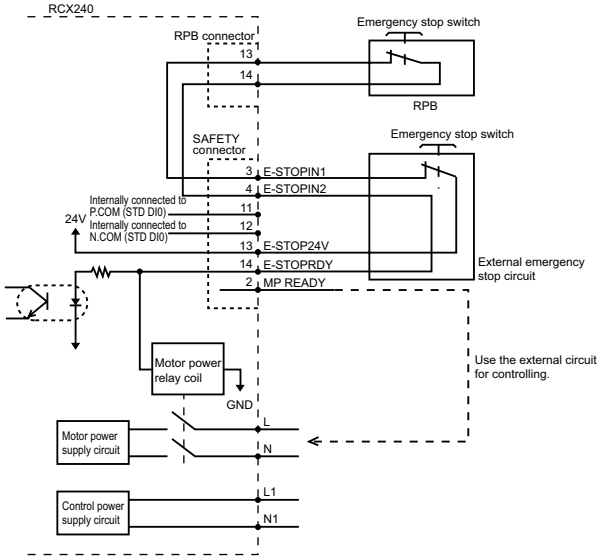


PNP specification

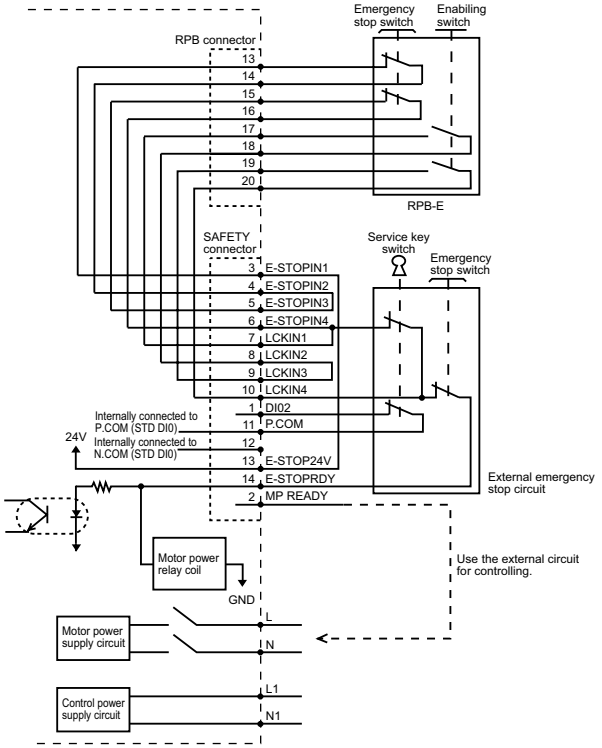


Emergency input signal connections

Connection when using the standard RPB with an external emergency stop circuit.



Connections using the RPB-E enabling switch compatible programming unit with external emergency stop circuit (PNP specification)



Installing an external safety circuit will satisfy safety category class 4 standards. See P.615 for more information.

Connector input / output signals

PIN	I/O No.	Name	Note
1	DI05	I/O command execution trigger input	Common terminal : P.COMDI N.COMDI (Photo-coupler input) NPN specification : Source type PNP specification : Sink type
2	DI01	Servo ON input	
3	DI10	Sequence control	
4	DI11	Interlock	
5	DI12	Program start	
6	DI13	AUTO mode input	
7	DI14	Return-to-origin	
8	DI15	Program reset	
9	DI16	MANUAL mode input	
10	DI17	Absolute reset / Return-to-origin	
11	DI20	General input 20	
12	DI21	General input 21	
13	DI22	General input 22	
14	DI23	General input 23	
15	DI24	General input 24	
16	DI25	General input 25	
17	DI26	General input 26	
18	DI27	General input 27	
19	DI30	General input 30	
20	DI31	General input 31	
21	DI32	General input 32	
22	DI33	General input 33	
23	DI34	General input 34	
24	DI35	General input 35	
25	DI36	General input 36	
26	DI37	General input 37	

PIN	I/O No.	Name	Note
27	COMMON	Relay common	(Relay output) Maximum capacity of each terminal (resistance load) : DC 24V 0.5A Common terminal : COMMON
28	DO01b	CPU_OK (B contact)	
29	DO01a	CPU_OK (A contact)	
30	DO02b	Servo ON output (B contact)	
31	DO02a	Servo ON output (A contact)	
32	DO03b	Alarm (B contact)	
33	DO03a	Alarm (A contact)	
34	DO10	AUTO mode output	
35	DO11	Return-to-origin complete	
36	DO12	Sequence program in-progress	
37	DO13	Robot program in-progress	
38	DO14	Program reset	
39	DO20	General output 20	(Transistor output) NPN specification or PNP specification Maximum capacity of each terminal (resistance load) : 0.1A +Common terminal : DC+24V - Common terminal : GND
40	DO21	General output 21	
41	DO22	General output 22	
42	DO23	General output 23	
43	DO24	General output 24	
44	DO25	General output 25	
45	DO26	General output 26	
46	DO27	General output 27	
47	DC24V	DC+24V (P.COMDI)	External power supply input
48			
49	GND	GND (N.COMDI)	
50			

Note. When using the CC-Link, DeviceNet™, EtherNet/IP™, or PROFIBUS, the dedicated inputs other than the interlock signal (DI11) of the STD.DIO that are provided on the RCX240 controller are disabled.
Additionally, when the external 24V monitor control of the system parameters is set disabled, the interlock signal (D11) becomes disabled.

SAFETY connector signals

Terminal number	RPB connected		RPB-E connected	
	I/O No.	Name	I/O No.	Name
1	DI02	SERVICE mode	DI02	SERVICE mode
2	MP READY	Motor power ready signal	MP READY	Motor power ready signal
3	E-STOPIN 1	Emergency stop input 1	E-STOPIN 1	Emergency stop input 1
4	E-STOPIN 2	Emergency stop input 2	E-STOPIN 2	Emergency stop input 2
5	NC	NC	E-STOPIN 3	Emergency stop input 3
6	NC	NC	E-STOPIN 4	Emergency stop input 4
7	NC	NC	LCKIN 1	Enabling switch input 1
8	NC	NC	LCKIN 2	Enabling switch input 2
9	NC	NC	LCKIN 3	Enabling switch input 3
10	NC	NC	LCKIN 4	Enabling switch input 4
11	P.COM	DC+24V (P.COM DI)	P.COM	DC+24V (P.COM DI)
12	N.COM	GND (N.COM DI)	N.COM	GND (N.COM DI)
13	E-STOP 24V	Emergency stop input supply	E-STOP 24V	Emergency stop input supply
14	E-STOPRDY	Emergency stop READY signal	E-STOPRDY	Emergency stop READY signal
15	NC	NC	NC	NC

Standard functions of the controller

Function	Description
Operation mode	Automatic mode (main task: execution of program, execution of step), Program mode (main task: creation of program), Manual mode (main task: jog movement, point teaching), System mode (main task: parameter editing, data initialization), Utility mode (main task: operation of motor power source)
Command	Array declarator command (DIM statement), Assignment command (numeric value assignment statement, character string assignment statement, point definition statement), Movement related command (MOVE statement, DRIVE statement, PMOVE statement), Condition branching command (IF statement, FOR statement, WHILE statement), External output command (DO statement, MO statement, LO statement, TO statement, SO statement), Parameter command (ACCEL statement, OUTPOS statement, TOLE statement), Task related command (START statement, SUSPEND statement, CUT statement), Condition wait command (WAIT statement), etc.
Function	Arithmetic function (SIN function, COS function, TAN function), Character string function (STR$ function, LEFT$ function, MID$ function, RIGHT$ function), Point function (WHERE function, JTOXY function, XYTOJ function), Parameter function (ACCEL statement, OUTPOS statement, TOLE statement), etc.
Variable	Simple variable (integer type variable, real number type variable, character string type variable), Array variable (integer type variable, real number type variable, character string type variable), Point variable, Shift variable, Element variable (point element variable, shift element variable), Input/output variable, etc.
Operator	Arithmetic operator (+, -, *, /, MOD), Logical operator (AND, OR, XOR), Comparison operator (=, <, >, <>, <=, >=)
Monitor	Monitor of input/output (200ms interval)
On-line command	Key operation command (AUTO, RUN, RESET, STEP), Data handling command (READ, WRITE, ?VER, ?CONFIG), Utility command (COPY, ERA, INIT), Robot language command (independently executable command)
Data file	Program, Point, Parameter, Shift, Hand, All, Error history, etc.
Internal timer	10ms interval
Program break point	4 points at maximum

Robot Language Table

General commands

Language	Function
DECLARE	Declares that a label or sub-procedure is in an external program.
DEF FN	Defines a function that is available to the user.
DIM	Declares the name of an array variable and the number of elements.
EXIT FOR	Terminates a FOR statement to NEXT statement loop.
FOR to NEXT	Controls repetitive operations
GOSUB to RETURN	Jumps to a subroutine with the label specified by a GOSUB statement and executes the subroutine.
GOTO	Unconditionally jumps to the line specified by a label.
HALT	Stops a program and resets it.
HOLD	Pauses a program.
IF	Allows control flow to branch according to conditions.
LET	Executes a specified assignment statement.
ON to GOSU	Jumps to a subroutine with each label specified by a GOSUB statement according to conditions and executes the subroutine.
ON to GOTO	Jumps to each line specified by a label according to conditions.
REM	All characters that follow REM or an apostrophe (') are viewed as comments.
SELECT CASE to END SELECT	Allows control flow to branch according to conditions.
SWI	Switches the currently executed program to a specified program, and executes from the first line after compiling.
WHILE to WEND	Controls repetitive operations.
Label statement	Defines "labels" in program lines.

Robot operation

Language	Function
ABSRST	Performs return-to-origin along robot absolute motor axes.
DRIVE	Performs an absolute movement of each axis in the main group.
DRIVEI	Performs a relative movement of each axis in the main group.
MOVE	Performs an absolute movement of the main robot axes.
MOVEI	Performs a relative movement of the main robot axes.
ORIGIN	Performs return-to-origin on an incremental mode axis or absolute search on a semi-absolute mode axis.
PMOVE	Performs a pallet movement of the main robot axes.
SERVO	Controls the servo ON/OFF of the specified axes in the main group or all axes (in main group and sub group).

I/O control

Language	Function
DELAY	Waits for the specified length of time (ms).
DO	Outputs the specified value to the DO ports.
LO	Outputs the specified value to the LO port to prohibit axis movement or permit axis movement.
MO	Outputs the specified value to the MO ports.
OUT	Turns ON the bits of the specified output ports and the command statement ends.
RESET	Turns OFF the bits of the specified output ports.
SET	Turns ON the bits of the specified output ports
SO	Outputs the specified value to the SO port.
TO	Outputs the specified value to the TO port.
WAIT	1. Waits until the condition in DI/DO conditional expression are met. 2. Waits until positioning on the robot axes is complete (within the tolerance range).

Coordinate control

Language	Function
CHANGE	Switches the hand of the main robot.
HAND	Defines the hand of the main robot.
RIGHTY / LEFTY	Selects whether the main robot will be "right-handed" or "left-handed" when moving to a point specified on a Cartesian coordinate system.
SHIFT	Sets the shift coordinates for the main robot by using the shift data specified by a shift variable.

Condition change

Language	Function
ACCEL	Changes the acceleration coefficient parameter of the main group.
ARCH	Changes the arch position parameter of the main group.
ASPEED	Changes the automatic movement speed of the main group.
AXWGHT	Changes the axis tip weight parameter of the main group.
DECEL	Changes the deceleration rate parameter of the main group.
ORGORD	Sets the axis sequence parameter to perform return-to-origin and absolute search in the main group.
OUTPOS	Changes the OUT position parameter of the main group.
PDEF	Defines the pallet used to execute a pallet movement command.
SPEED	Changes the program speed for the main group.
TOLE	Changes the tolerance parameter of the main group.
WEIGHT	Changes the tip weight parameter of the main robot.

Communication control

Language	Function
ONLINE / OFFLINE	Changes communication mode and initialize the communication port.
SEND	Sends the read file data into a write file.

Screen control

Language	Function
PRINT	Displays the value of specified variable on the MPB/RPB screen.

Key control

Language	Function
INPUT	Assigns a value to the variable specified from the MPB/RPB.

Procedure

Language	Function
CALL	Calls up sub-procedures defined by the SUB and END SUB statements.
EXIT SUB	Terminates the sub-procedure defined by the SUB and END SUB statements.
SHARED	Does not permit variables declared with a program written outside a subprocedure (SUB to END SUB) to be passed on as dummy arguments, but allows them to be referred to with a sub-procedure.
SUB to END SUB	Defines a sub-procedure.

Task control

Language	Function
CHGPRI	Changes the priority of the specified task.
CUT	Terminates a task currently being executed or temporarily stopped.
EXIT TASK	Terminates its own task currently being executed.
RESTART	Restarts a task that is temporarily stopped.
START	Sets the task number and priority of the specified task and starts that task.
SUSPEND	Temporarily stops another task being executed.

Error control

Language	Function
ON ERROR GOTO	If an error occurs during program execution, this command allows the program to jump to the error processing routine specified by the label without stopping the program, or stops the program and displays the error message.
RESUME	Resumes the program execution after recovery from an error. This command is used in the error processing routine.
ERL	Gives the line number where an error occurred.
ERR	Gives the error code number when an error occurred.

PATH control

Language	Function
PATH	Sets the PATH motion on the main robot axis.
PATH END	Terminates the path setting for PATH motion.
PATH SET	Starts the path setting for PATH motion.
PATH START	Starts the PATH motion.

Torque control

Language	Function
DRIVE (with torque limit option)	Executes an absolute movement command on each axis in the main group.
TORQUE	Changes the maximum torque instruction for the specified main group axis.
TRQTIME	Sets the current limit time-out period on the specified main group axis when using a torque limit setting option in the DRIVE statement.
TRQTIME	Sets the current limit time-out period on the specified main group axis when using a torque limit setting option in the DRIVE statement.

Accessories and part options

RCX240/RCX240S



Standard accessories

Power connector + wiring connection lever



Model	KAS-M5382-00

LCC140 TS-X TS-P SR1-X SR1-P RCX221 RCX222 RCX240/S RCX340

Safety connector



Model	KX0-M5163-00

RCX240/S

RPB terminator (dummy connector)

Attach this to the RPB connector during operation with the programming box RPB removed.



Model	KAS-M5163-30

RCX221 RCX222 RCX240/S

Standard I/O (STD.DIO) connector



Model	KX0-M533G-00

RCX240/S

L type stay (for installing front side, rear side.)

Use to install the controller.



Model	KX0-M410H-00

Note. Model No. is for a single bracket (L type stay). (Two are required to install one controller.)

RCX240/S

Absolute battery

Battery for absolute data back-up.

Basic specifications

Item	Absolute battery
Battery type	Lithium metallic battery
Battery capacity	3.6V/2,750mAh
Data holding time	About 1 year Note1 (in state with no power applied)
Dimensions	ϕ17 × L53mm
Weight Note2	22g



Model	KAS-M53G0-11

Note 1. When using two batteries for each two axes.
Note 2. Weight of battery itself.
Note. The absolute battery is subject to wear and requires replacement.
If trouble occurs with the memory then remaining battery life is low so replace the absolute battery. The battery replacement period depends on usage conditions. But generally you should replace the battery after about 1 year counting the total time after connecting to the controller and left without turning on the power.

SR1-X RCX222 RCX240/S

Important **Absolute battery installation conditions**

1 to 2 batteries are required for each 2 axes.
- 1 battery.....Data storage time of approximately 6 months (with no power applied)
- 2 batteries...Data storage time of approximately 1 year (with no power applied)

Note. Absolute battery is not required for either of the 2 axes if using incremental or semi-absolute specifications.

Battery case

This is the absolute battery holder.



Model	KBG-M5395-00

SR1-X RCX222 RCX240/S

See next page for optional parts

Options

L type stay (for side surface installation)

Use to install the controller.



Model	KX0-M410H-10

Note. Model No. is for a single bracket (L type stay).

RCX240/S

Programming box RPB/RPB-E

P.562

This device can perform all operations such as manual robot operation, program entry and edit, teaching and parameter settings.



	RPB	RPB-E
Model	KBK-M5110-10	KBK-M5110-00
Enable switch	–	3-position
CE marking	Not supported	Applicable

RCX221
RCX222
RCX240/S

Support software for PC VIP+

P.556

VIP+ is a simple to use application software that makes tasks such as robot operation, writing-editing programs, and point teaching easy to visually understand.



VIP+ software model	KX0-M4966-00

RCX221
RCX222
RCX240/S

Environment

OS	Microsoft Windows 2000 / XP / Vista (32bit / 64Bit) / 7 (32bit / 64Bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	40MB of available space required on installation drive.
Communication method	RS-232C, Ethernet Note. For Ethernet communication, Ethernet unit for RCX series controller is required.
Applicable robot controllers	RCX221 / RCX222 / RCX141 / RCX142 / RCX240 / RCX240S

Note. Microsoft and Windows are registered trademarks of Microsoft Corporation.
Note. ADOBE and ADOBE READER are registered trademarks of Adobe Systems Incorporated.
Note. Ethernet is a registered trademark of Xerox Corporation.

Data cables

Communication cable for VIP+.
Select from USB cable or D-sub cable.



Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM+, VIP+, RCX-Studio Pro.
Note. USB driver for communication cable can also be downloaded from our website.

LCC140
ERCD
SR1-X
SR1-P
RCX221
RCX222
RCX240/S
RCX340

YC-Link board

Model	KX0-M4400-A1

RCX240/S

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