

Single axis

RDX/RDP

- Robot driver
- Only for pulse train control

As the size is small and weight is light, it is easy to include in the automated unit.



RDX RDP

Main functions ▶ P.35

Features

1 Dedicated pulse train control

Driver functions by dedicated pulse train control which yields a compact body and a low price!

2 Cost reduction to a large extent is possible in designing the system

Driver easily assembles into automated equipment so a drastic amount of effort needed for tasks such as design, part selection and settings can be eliminated and a huge cost reduction achieved!

3 Compact

Compact design of H160 × W57 × D130mm.

4 Command input: Line driver signal (2Mpps)

5 Command output: ABZ phase output (with divider function)

6 Analog monitor output function

Monitor can show analog outputs such as for speed or electrical current giving the operator a real-time look at operating status.

Dedicated support software TOP can be used to show fully graphic displays.

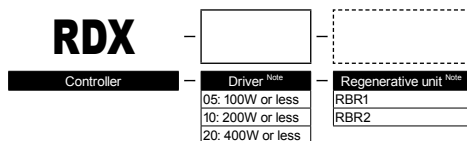
Model Overview

Name	RDX	RDP
Power	<ul style="list-style-type: none"> ● Main power supply 3-phase 200 to 230V +10% to -15% (50/60Hz +/-5%) ● Control power supply Single phase 200 to 230V +10% to -15% (50/60Hz +/-5%) 	
Operating method	Pulse train control	
Maximum number of controllable axes	Single-axis	
Position detection method	Incremental	
Controllable robot	Single-axis robot FLIP-X ^{Note1}	Linear motor single-axis robot PHASER
Support software for PC	TOP	

Note 1. Exclude T4 / T5 / C4 / C5 / YMS

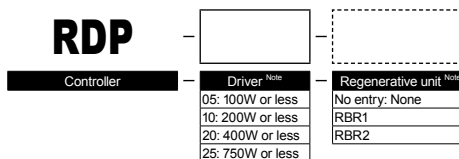
Ordering method

● RDX



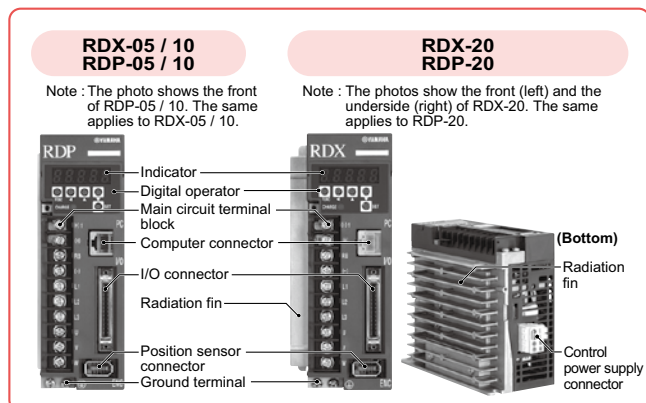
Note. Driver selection and regenerative unit selection depends on the robot type. See the selection table on the next page for selecting the driver/regenerative circuit.

● RDP

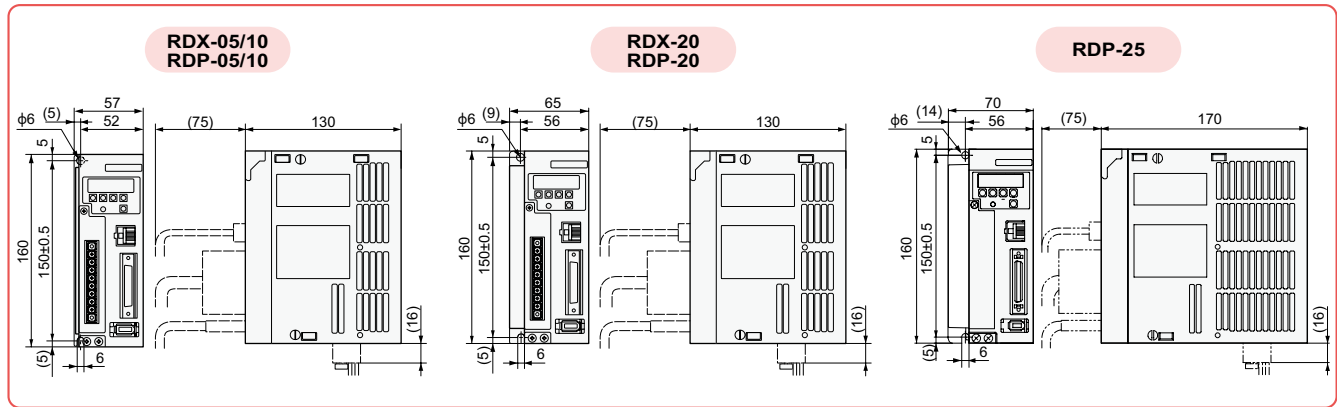


Note. Driver selection and regenerative unit selection depends on the robot type. See the selection table on the next page for selecting the driver/regenerative circuit.

Part names



Dimensions



Driver / regenerative unit selection table

RDX

Driver selection			FLIP-X																											
			T4LH/C4LH	T5LH/C5LH	T6L/C6L	T9	T9H	F8/C8	F8L/C8L	F8LH/C8LH	F10/C10	F14/C14	F14H/C14H	F17/C17	F17L/C17L	F20/C20	F20N	N15	N18	N15D	N18D	B10	B14	B14H	R5	R10	R20			
Driver selection	RDX	05	●	●	●		●	●	●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		10					●							●	●	●	●	●	●	●	●									
		20												●	●	●	●	●	●	●	●								●	
Regenerative unit	No entry (None)		●	●																										
		RBR1			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		RBR2												●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

● If placed horizontally the RBR1 is required, if placed vertically then RBR2 is required.

RDP

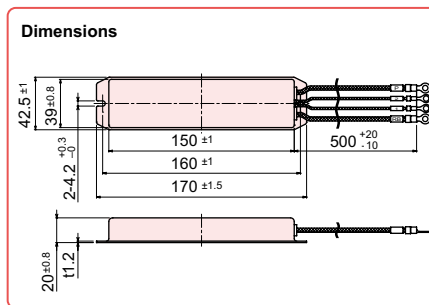
Driver selection			PHASER					
			MR12/MR12D	MF7/MF7D	MF15/MF15D	MF20/MF20D	MF30/MF30D	MF75/MF75D
Driver selection	RDP	05	●					
		10		●				
		20			●	●	●	
		25						●
Regenerative unit	No entry (None)		●		●	●		
		RBR1		●			●	
		RBR2						●

Regenerative unit RBR1 / RBR2 dimensions

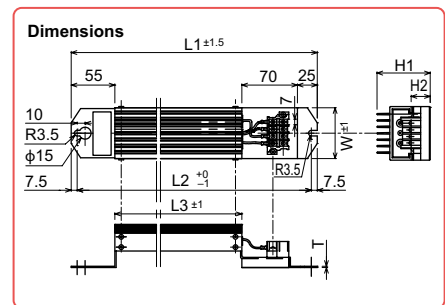
The regenerative unit is a device that converts the braking current generated when the motor decelerates into heat. Regenerative unit is required for specified Yamaha models and for operation with loads having large inertia.



Regenerative unit RBR1



Regenerative unit RBR2



Regenerative unit RBR1 / RBR2 basic specifications

Item	RBR1	RBR2
Model	KBH-M5850-00	KBH-M5850-10
Capacity type	120W	200W
Resistance value	100Ω	100Ω
Permissible braking frequency	2.5%	7.5%
Permissible continuous braking time	12 sec.	30 sec.
Weight	0.27kg	0.97kg

Note. The internal thermal contact point capacity is AC250V, 2A max. ON (b contact point) in the normal state.
 Note. The built-in thermal fuse prevents abnormal heat generation which occurs by an erroneous use. (not resettable)
 Note. When the thermal relay has worked, reduce the regeneration energy by either stopping the servo amplifier or making the deceleration time longer.
 Note. With the regenerative unit, specifications and whether or not required may vary depending on each robot and its operation conditions.

APPLICATION
TRANSMISSION
FLIP-X
PHASER
XY-X
YK-XG
YP-X
CLEAN
CONTROLLER
INFORMATION
Robot positioner
Pulse string driver
Robot controller
IVY
Electric gripper
Option

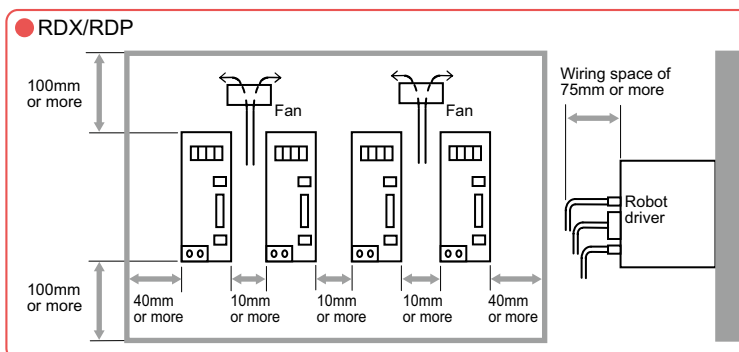
Basic specifications

Item	Model	RDX			RDP			
Driver model		RDX-05	RDX-10	RDX-20	RDP-05	RDP-10	RDP-20	RDP-25
Number of controllable axes	Single-axis							
Controllable robots	Single-axis robot FLIP-X				Linear motor single-axis robot PHASER			
Basic specifications	Capacity of the connected motor	200V 100W or less	200V 200W or less	200V 400W or less	200V 100W or less	200V 200W or less	200V 400W or less	200V 750W or less
	Maximum power consumption	0.3kVA	0.5kVA	0.9kVA	0.3kVA	0.5kVA	0.9kVA	1.3kVA
Dimensions		W57 × H160 × D130mm		W65 × H160 × D130mm	W57 × H160 × D130mm		W65 × H160 × D130mm	W70 × H160 × D170mm
	Weight	0.8kg		1.0kg	0.8kg		1.0kg	1.4kg
Input power supply	Control power supply	Single phase 200 to 230V+10%, -15%, 50/60Hz +/-5%						
	Motor power supply	3-phase 200 to 230V+10%, -15%, 50/60Hz +/-5%						
Axis control	Position detection method	Resolver			Magnetic linear scale			
	Control system	Sine-wave PWM (pulse width modulation)						
	Control mode	Position control						
Maximum speed		5000rpm			3.0m/s			
	Position command input	Line driver signal (2M pulses/s or less) (1) Forward pulse + reverse pulse (2) Sign pulse + Command pulse (3) 90-degree phase difference 2-phase pulse command (maximum frequency: 500k pulses/s.) One of (1) to (3) is selectable.						
Input/output related function	Input signal	24V DC contact point signal input (usable for sink/source) (24V DC power supply incorporated) (1) Servo ON (2) Alarm reset (3) Torque limit (4) Forward overtravel (5) Reverse overtravel (6) Origin sensor (7) Return-to-origin (8) Pulse train input enable (9) Deviation counter clear						
	Output signal	Open collector signal output (usable for sink/source) 1) Servo ready 2) Alarm 3) Positioning completed						
	Relay output signal	Braking cancel signal (24V 375mA)			-			
Position output		Phase A, B signal output: Line driver signal output Phase Z signal output: Line driver signal output / open collector signal output N/8192 (N=1 to 8191), 1/N (N=1 to 64) or 2/N (N=3 to 64)						
	Monitor output	Selectable items: 2ch, 0 to +/-3V voltage output, speed detection value, torque command, etc.						
Internal function	Built-in operator	5-digit number indicator, key input x 5						
	External operator	PC software "TOP" monitoring function, parameter setting function, operation tracing function, trial operation function, etc. RS232C port in use, PC with Windows 95/98/Me, Windows NT/2000/XP can be connected						
	Regenerative braking circuit	Included (but without braking resistor)	Included	Included (but without braking resistor)	Included			
Dynamic brake		Included (Operation conditions can be set.) (No DB resistor, connection: 2-phase short circuit)						Included (Operation conditions can be set.) (with DB resistor, connection: 2-phase short circuit)
	Protective function	Open type (IPOO)						
Protective functions		Over-current, overload, braking resistor overload, main circuit overvoltage, memory error, etc.						
	Support software for PC	TOP						
General specifications Options	Operating temperature	0°C to +40°C						
	Storage temperature	-10°C to +70°C						
	Operating humidity	20% to 90%RH (non-condensing)						
	Vibration	5.9m/s ² (0.6G) 10 to 55Hz						

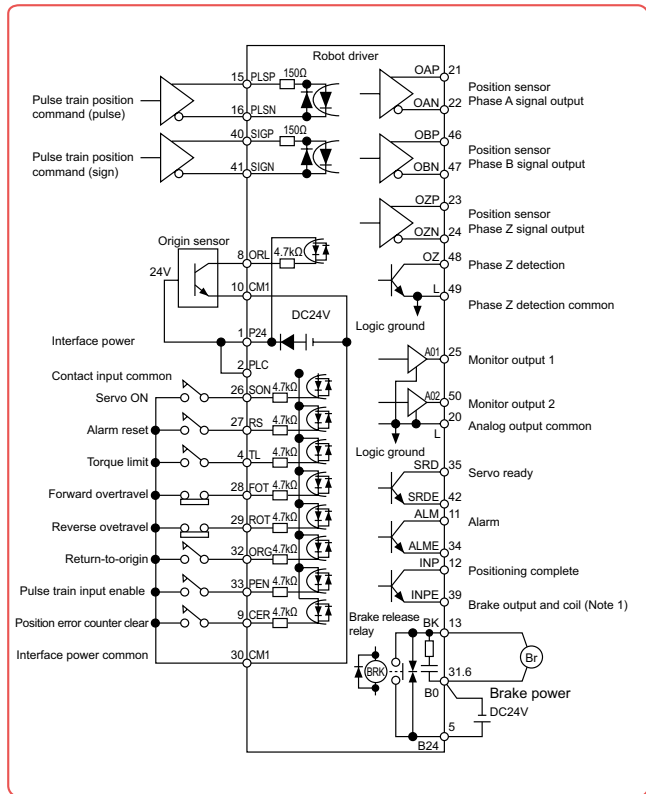
Note 1. These data are parameters and calculation range in controlling the robot driver and do not indicate the capacity of the robot at the maximum speed.
 Note 2. GXL-8FB (made by SUNX) or FL7M-1P5B6-Z (made by YAMATAKE) is used for the origin sensor. The power consumption of the origin sensor is 15mA or less (at open output) and only 1 unit of the origin sensor is connected to each robot driver. (future specification)
 Note 3. Use the dynamic brake for emergency stop. Note that the braking may be less effective depending on the robot model.
 Note 4. JEM1030 is used as the base for the protection method.
 Note 5. Storage temperature applies to the temperature during transportation.
 Note 6. The JIS C0040 test method is used as the base.

Installation conditions

- Install the RDX/RDP on a vertical metal wall.
- Install the RDX/RDP in a well ventilated location, with space on all sides of the RDX/RDP.
- Ambient temperature : 0 to 40°C
- Ambient humidity : 20 to 90% RH (no condensation)
- When placing two or more robot drivers in one operating panel, install them as shown in the figure on the right.



Input / output signal connection diagram



List of RDP / RDX terminal functions

Type	Terminal symbol	Terminal name	Description	
Input signal	P24	Interface power	Supplies 24V DC for contact inputs. Connecting this signal to the PLC terminal allows using the internal power supply. Do not use for controlling external equipment connected to the robot driver, such as brakes	
	CM1	Interface power common	This is a ground signal for the power supply connected to P24. If using the internal power supply then input a contact signal between this signal and the contact-point signal.	
	PLC	Intelligent input common	Connect this signal to the power supply common contact input. Connect an external supply or internal power supply (P24).	
	SON	Servo ON	Setting this signal to ON turns the servo on (supplies power to motor to control it). This signal is also used for estimating magnetic pole position when FA-90 is set to OFF or OFF2.	
	RS	Alarm reset	After an alarm has tripped, inputting this signal cancels the alarm. But before inputting this reset signal, first set the SON terminal to OFF and eliminate the cause of the trouble.	
	TL	Torque limit	When this signal is ON, the torque limit is enabled.	
	FOT	Forward overtravel	When this signal is OFF, the robot will not run in forward direction. (Forward direction limit signal)	
	ROT	Reverse overtravel	When this signal is OFF, the robot will not run in reverse direction. (Reverse direction limit signal)	
	ORL	Origin sensor	Input an origin limit switch signal showing the origin area.	
	ORG	Return-to-origin	Inputting this signal starts return-to-origin operation.	
	PEN	Pulse train input enable	When this signal is turned on, the pulse train position command input is enabled.	
	CER	Position error counter clear	Inputting this signal clears the position deviation (position error) counter. (Position command value is viewed as current position.)	
	Analog common	L	Analog common	This is the ground for the analog signal.
	Output signal	SRD SRDE	Servo ready	This signal is output when the servo is ready to turn on (with main power supply turned on and no alarms tripped.)
		ALM ALME	Alarm	An alarm signal is output when an alarm has tripped. (This signal is ON in normal state and OFF when an alarm has tripped.)
INP INPE		Positioning complete	This signal is output when the deviation between the command position and current position is within the preset positioning range.	
Relay output	BK (B24) (Note 1)	Brake release output	When the servo is ON, this terminal outputs a signal to allow releasing the brake. (FLIP-X series only)	
Monitor output	AO1	Monitor output 1	Outputs speed detection values, torque commands, etc. as analog signal voltages for monitoring. These signals are only for monitoring. Do not use for control.	
	AO2	Monitor output 2		
	L	Monitor output common	This is the ground for the monitor signal.	
Position command	PLSP PLSN	Position command pulse (pulse signal)	Select one of the following signal forms as the pulse-train position command input. (1) Command pulse + direction signal	
	SIGP SIGN	Position command pulse (sign signal)	(2) Forward direction pulse train + reverse direction pulse train (3) Phase difference 2-phase pulse	
	OAP OAN	Position sensor Phase A signal	Outputs monitor signal obtained by dividing "phase A" signal of position sensor.	
	OBP OBN	Position sensor Phase B signal	Outputs monitor signal obtained by dividing "phase B" signal of position sensor.	
	OZP OZN	Position sensor Phase Z signal	Outputs monitor signal for position sensor "phase Z" signal.	
Position sensor monitor	OZ L	Phase Z detection Phase Z detection common	Outputs monitor signal for position sensor "phase Z" signal.	
	B24 (Note 1) B0 (Note 1)	Brake power input Brake power common	Input 24V DC brake power to this terminal. Common terminal input for brake power.	

Note 1. B24, B0 and BK are available only with RDX, and not with RDP.

Standard accessories

I/O connector (no brake wiring)



Model KBH-M4420-00

I/O connector (with brake wiring)



Model KBH-M4421-00

Control power supply connector



Model KBH-M4422-00