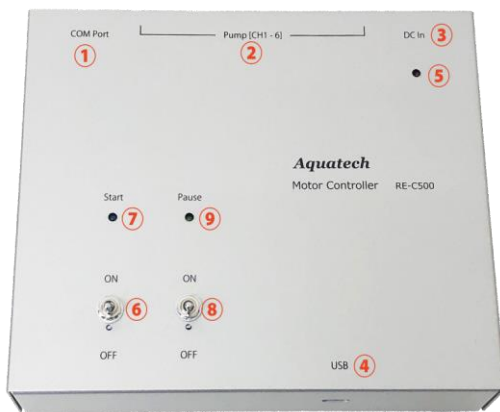


RE-C500 / RE-C501 Controller Specifications for Ring Pump series RP-Q-B / RP-Q-C / RP-TX / RP-HX Bi-polar Stepper Motors

Product Name	Low voltage bi-polar stepper motor controller
Model Number	RE-C500 : Master controller unit RE-C501 : Slave controller unit
Applicable Pumps	Ring Pump RP-Q-B series, RP-Q-C series Ring Pump RP-TX series Ring Pump RP-HX series
Drive Voltage	RP-Q-B / RP-Q-C Series: VM=3.0 V DC24V RP-TX / RP-HX Series : VM=2.6 V DC24V
Input Voltage	RE-C500 / RE-C501 : DC5V, 3.0 A (AC-DC adaptor of AC100-240V 50/60Hz is included as accessory)
Control Method	Voltage drive method for bi-polar coil
Excitation Method	1/4 microstep drive method
Motor Speed	1 - 2,000 pps (4 - 8,000 Hz) Digital frequency division
Functions	Various controls using PC software Program-Mode

Connection Terminals: RE-C500 (Size: 180 x 150 x 42 mm)



- ① COM Port Terminal (Connect to Slave Unit)
- ② Pump Connection Terminals (Ch 1-6)
- ③ DC-IN Connection Terminal (AC Adaptor: Included as accessory)
- ④ USB Connection Terminal (USB A-microB: Included as accessory)
- ⑤ Power-LED (RED)
- ⑥ Start Switch
- ⑦ Start-LED (BLUE)
- ⑧ Pause-Switch
- ⑨ Pause-LED (GREEN)

Connection Terminals: RE-C501 (Size: 180 x 150 x 42 mm)



- ① COM Port Terminal (Connect to Master Unit: COM Port connection)
- ② Pump Connection Terminals (Ch 7-12)
- ③ DC-IN Connection Terminal (AC Adaptor: Included as accessory)
- ④ Power-LED (RED)

- Accessories Included:**
- RE-C500:
 - Type A-micro B USB Cable
 - USB Memory Stick (PC Software)
 - AC-DC Adapter
 - RE-C501:
 - COM Port Connection Cable
 - AC-DC Adapter

Motor Speed (PPS) and Motor Rotation for Each Series

RP-Q-B Series (1/150 gear ratio motor specification)

Motor Speed PPS	1	5	10	50	100	200	300	400	500	800	1000	1100	1200
Motor Rotation rpm	0.02	0.10	0.20	1.00	2.00	4.00	6.00	8.00	10.00	16.00	20.00	22.00	24.00

RP-Q-C Series (1/50 gear ratio motor specification)

Motor Speed PPS	1	5	10	50	100	200	300	400	500	800	1000		
Motor Rotation rpm	0.06	0.30	0.60	3.00	6.00	12.00	18.00	24.00	30.00	48.00	60.00		

RP-TX Series (1/135.8 gear ratio motor specification)

Motor Speed PPS	1	5	10	50	100	200	300	400	500	800	1000	1500	2000
Motor Rotation rpm	0.02	0.11	0.22	1.10	2.21	4.42	6.63	8.84	11.05	17.68	22.10	33.15	44.20

RP-HX Series (1/50 gear ratio motor specification)

Motor Speed PPS	1	5	10	50	100	200	300	400	500	800	1000		
Motor Rotation rpm	0.06	0.30	0.60	3.00	6.00	12.00	18.00	24.00	30.00	48.00	60.00		

Special Notes:

- a) Discharge Rate: Please input "Discharge Rate per Rotation ($\mu\text{L}/\text{rev}$)".
(Refer to data included with the pumps)
- b) Control the motors within the range to prevent motor stepping-out (or motor stopping or vibrating).

PROGRAM

Max 12 pump programs can be set on each settings.

* Main Control Box (Master) + Additional Control Box (Slave) can get up to 12 pump connections.

RE-C500-SYSTEM-V17TA-20220417TA

HELP

<OPERATING TIME CONTROL PANEL>

① CHANNEL.No. ⑬ POS.No. REPEAT ⑭ <WAIT>TIME (h:m) ⑮

CH-1 1 1 0 0

⑤ Resolution ⑥ Flow Rate ⑧ DIRECTION <ON>TIME (h:m:s) ⑨

17.15 800 CW CCW 0 0 0

⑦ ENTER <OFF>TIME (h:m:s) ⑩

0 0 0

▶	POS.	FLOW RATE	PPS(Hz)	RPM	DIRECTION	<ON> TIME	<OFF> TIME
▶	1	800	777	46.65	CCW	00:00:30	00:00:00
	2	--	--	--	--	--:--:--	--:--:--
	3	--	--	--	--	--:--:--	--:--:--
	4	--	--	--	--	--:~:~:~	--:~:~:~
	5	--	--	--	--	--:~:~:~	--:~:~:~

⑪ POS-CLEAR ⑫ RESET

CH-1 CH-4 CH-7 CH-10 CH-SET ⑬-2 ⑭-1 ⑮-1

CH-2 CH-5 CH-8 CH-11 WRITE

CH-3 CH-6 CH-9 CH-12 CONNECTION -OK-

MODEL ⑯ RP-Q-C ⑰

VOLTAGE ⑱ VM 3.0V

< FF >

START ⑲

FF DIRECTION ⑳ CW ㉑

START ㉒

PAUSE ㉓

EXIT ㉔

<Initial Settings>

- ① Channel Selection Click the "v" (drop down) and select the channel. (Select between CH1 to CH12)
- ② Pump Selection Click the "v" (drop down) and select the pump.
RP-Q-B RP-Q-C
RP-TX RP-HX
Operating Voltage: VM value is selected automatically.
RP-Q-B/RP-Q-C VM = 3.0V (fixed)
RP-TX/RP-HX VM = 2.6V (fixed)
- ③ Fast Forward Operation - 1 Click the "v" (drop down) and rotating direction. (Clockwise CW or Counter-Clockwise CCW)
- ④ Fast Forward Operation - 2 START/STOP the optimal high speed pump operation to supply the media (solution).
* Click START to supply media (solution) for each pump on each channel. Once the media (solution) flows to the tip of the discharge tube, click STOP.

<PROGRAM Settings>

- ⑤ Input Resolution "μL/rev" Input the value from "Discharge Volume per Rotation (μL/rev)" that comes attached with the pump.
- ⑥ Specify Flow Rate "μL/min" Input desired flow rate (μL/min).
- ⑦ ENTER Click ENTER to fix the "Resolution" and "Flow Rate" settings. The optimal "PPS" and "RPM" values will be automatically displayed.
- ⑧ Select DIRECTION Select between Clockwise (CW) or Counter-Clockwise (CCW)
- ⑨ Operation Time Set operation (ON) time
* Setting range between 00h 00m 01s to 99h 59m 59s
- ⑩ Stop Time Set stop (OFF) time
* Setting range between 00h 00m 01s to 99h 59m 59s

- ⑪ POS-CLEAR Select between POS 1 to POS 5 (⑬) and click POS-CLEAR to clear setting for that POS. (To reset settings)
- ⑫ RESET RESET all settings in POS 1 to POS 5.
- ⑬ Specify POS Click the "▼" (drop down) and select POS.
Allows up to 5 different program condition settings in POS 1 to POS 5.
Program is reflected on the POS by repeating ⑥ to ⑩.
(⑥ Flow Rate, ⑦ ENTER, ⑧ DIRECTION, ⑨ Operation Time, ⑩ Stop Time)
- ⑭ REPEAT Input number of repeat operation for specified program table (POS 1 to POS 5).
Initial setting is "1". Can input value between 1 to 99.
- ⑮ WAIT TIME (h:m) If needed, specify the wait time before the START time for each each channel. (Input h:m)

<WRITE Settings>

- ⑯ WRITE Click WRITE to input the PROGRAM settings to controller's ROM (memory). (During WRITE, it will be in WAIT mode)
- ⑰-1 CH Select CH to select the pump that needs operation (CH 1 to 12), and the letters turn grey to black.
- ⑰-2 CH-SET Click CH-SET to input the CH selection to controller's ROM (memory).

<Operation Settings>

"Controller Switch - START"

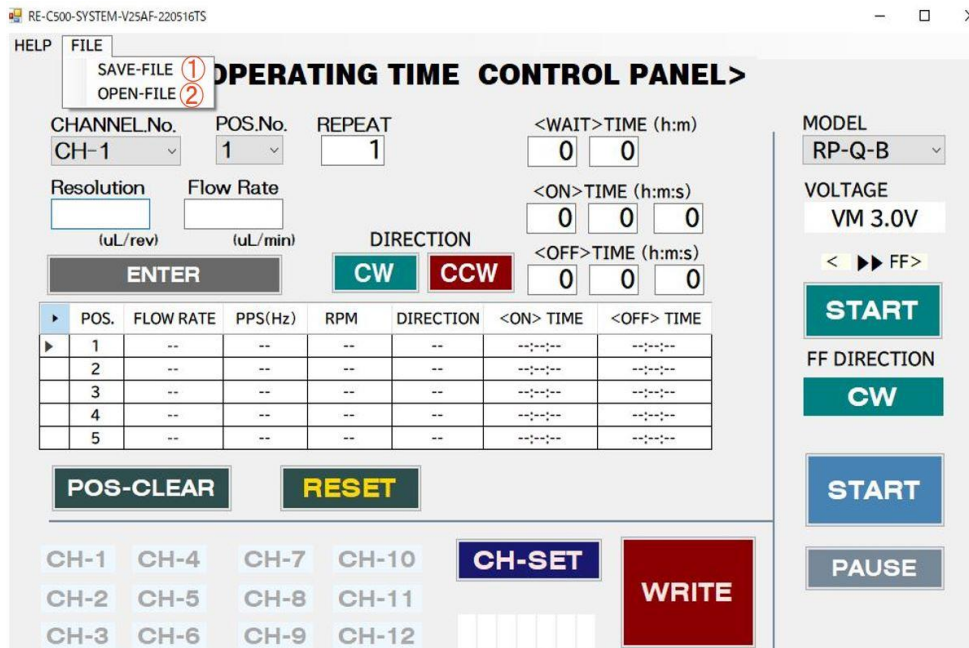
Use the controller's switch to START / STOP / PAUSE without the PC.

"PC-START"

- ⑱ START START / STOP button while connected to the PC (computer) with USB.
* Each click will change between START ⇒ STOP.
- ⑲ PAUSE PAUSE button while connected to the PC (computer) with USB.
* Each click will change between PAUSE ⇒ RESTART ⇒ PAUSE.
- ⑳ EXIT Disconnect from PC (computer).

NB. When controlling from PC side, "START" and "Pause" of main unit SW must be set to <OFF> position to prevent possible unstable operation.

SAVE-FILE / OPEN FILE



- ① SAVE-FILE Click on SAVE-FILE to save the PROGRAM setting (Type in file name)
- ② OPEN-FILE Click on OPEN-FILE to open saved PROGRAM setting.
* Once the PROGRAM setting is opened, click WRITE to save it in the computer ROM.
* Click all the CH that needs to operate (letters turn from grey to black), and click CH-SET to save it in the computer ROM (memory).