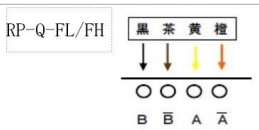
RE-C602 Controller Specifications for
Ring Pump RP-Q-F Bi-polar Stepper Motors

Product Name	**Low voltage bi-polar stepper motor controller**
Model Number	**RE-C602 : controller unit**
Applicable Pumps	**Ring Pump RP-Q-F**
Drive Voltage	**RP-Q-FL Series: VM=3.3 V (RP-QII/IIIF1.5S-2P6A-DC3.3VS)** **RP-Q-FH Series: VM=4.3 V (RP-QII/IIIF1.5S-3P6A-DC4.3VS)**
Imput Voltage	**RE-C602 : DC5V, 1.0 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** **SINGL-MODE** **Program-Mode**

Connection Terminals: RE-C602 **(Size: 100 x 100 x 34 mm)**

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

Pump wiring to motor connection terminal



Accessories Included: RE-C602 :
- **Type A-micro B USB Cable**
- **USB Memory Stick (PC Softwre)**
- **AC-DC Adapter**

Motor Speed (PPS) and Motor Rotation for Each Series

RP-Q-F Series (1/21.06 gear ratio motor specification) VM＝4.3V

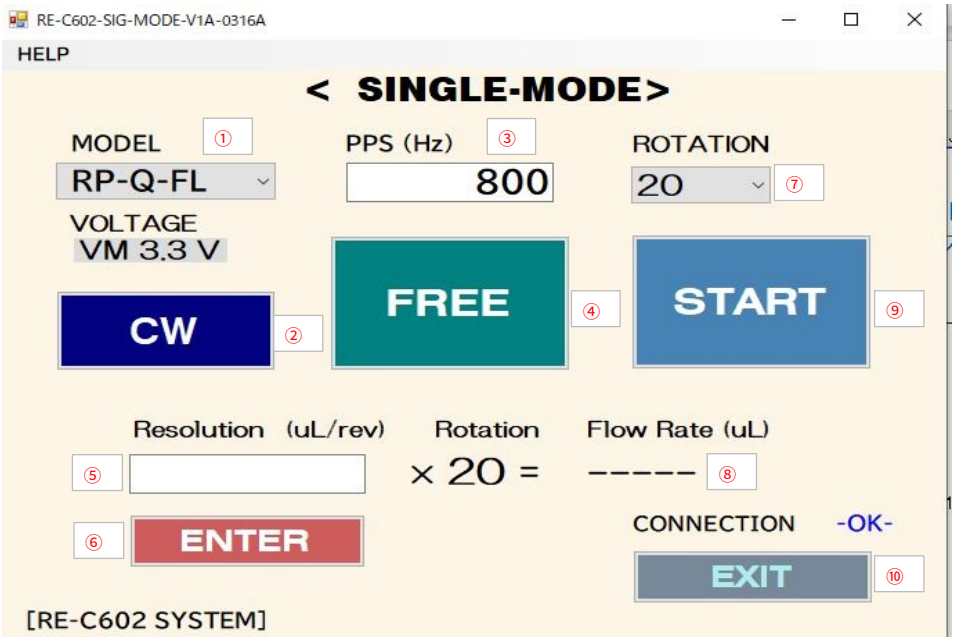
Motor Speed PPS	1	5	10	50	100	200	300	500	800	1000	1100	1200	1400
Motor Rotation rpm	0.14	0.71	1.42	7.12	14.25	28.49	42.74	71.23	113.96	142.45	156.75	171.00	199.43

Special Notes:

a) Discharge Rate: Please input "Discharge Rate per Rotation (μL/rev)".
(Refer to data incuded with the pumps)

b) Control the motors within the range to prevent motor stepping-out (or motor stopping or vibrating).

SINGLE



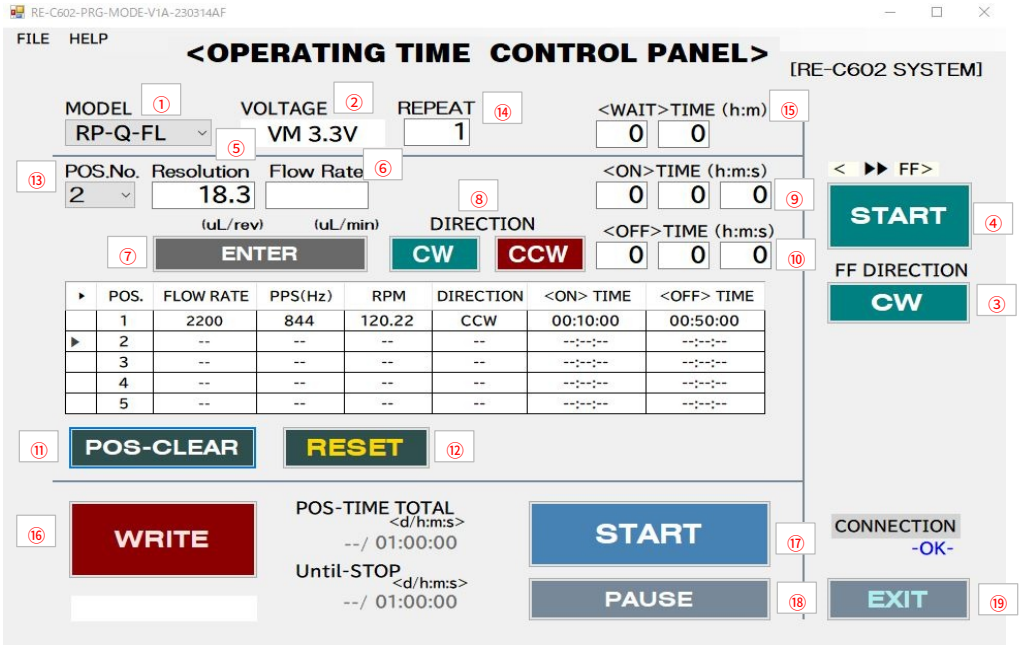
<Single Settings>

①	Pump Selection	Click the "▼" (drop down) and select the pump. RP-Q-FL RP-Q-FH Operating Voltage: VM value is selected automatically. RP-Q-FL VM = 3.3V (fixed) RP-Q-FH VM = 4.3V (fixed)
②	DIRECTION	rotating direction. (Clockwise CW or Counter-Clockwise CCW)
③	Pump Speed	1～2000PPS (Limit:1400)
④	FREE	Click FREE to supply media (solution) for pump 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	ENTER	Click ENTER to fix the "Resolution" settings.
⑦	ROTATION	1～30
⑧	Flow Rate (uL)	「uL/rev」＊「ROTATION」＝Floe Rate (uL)
⑨	START	START button while connected to the PC (computer) with USB. * Auto Stop
⑩	EXIT	Disconnect from PC (computer).

PROGRAM



<Initial Settings>

①	Pump Selection	Click the "▾" (drop down) and select the pump. RP-Q-FL RP-Q-FH
②	VOLTAGE	Operating Voltage: VM value is selected automatically. RP-Q-FL VM = 3.3V (fixed) RP-Q-FH VM = 4.3V (fixed)
③	Fast Forward Operation - 1	Click the "▾ "(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 automaticaly 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 (3)
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)

<Operation Settings>

"Controller Switch - START"

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

"PC-START"

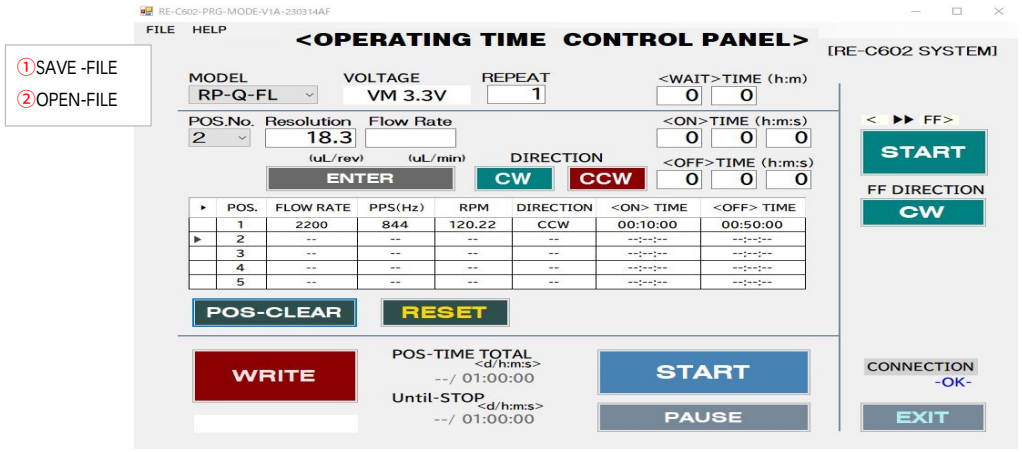
⑰ START — START / STOP button while connected to the PC (computer) with USB.
* Each click will change between START ⇒ STOP.

⑱ PAUSE — PAUSE button while connected to the PC (computer) with USB.
* Each click will change between PAUSE ⇒ RESTART ⇒ PAUSE.

⑲ 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).