Specifications   of new stepper motor controller RE-C200, RE-C201 for Ring Pump RP-HX & RP-TX & RP-Q-Type

Product name	**Low voltage bipolar stepper motor controller**
Model number	**RE-C200 : Master controller unit**
	RE-C201 : Slave controller unit
Applicable pumps	**Ring Pump RP-HX series RP-Q-B series**
	Ring Pump RP-TX series RP-Q-C series
	RP-HX (D20 motor type - custom spec.)
Drive voltage	**RP-HX VM-4.3V Default VM) / VM-2.6V**
	RP-TX/Q-Type VM-2.6V only
Input voltage	**RE-C200 : DC5V 0.5A (USB supply)**
	RE-C201 : DC5V 3.0A (AC-DC Adaptor : Accessory)
Control method	**Voltage drive method for bipolar coil.**
Excitation method	**1/4 Microstep drive method.**
Motor speed	**1 to 2,000 PPS (4Hz to 8,000Hz) Digital frequency division.**
Function	**Various controls using PC software**
	1. SINGLE-MODE
	2. PROGRAM-MODE

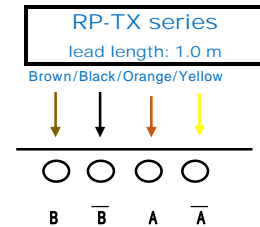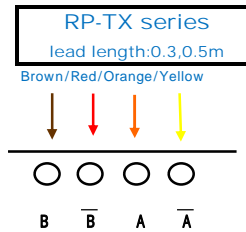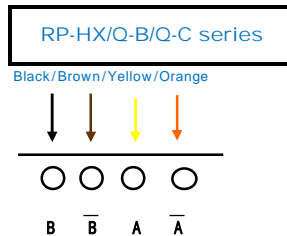**Connection terminal   RE-C200   Size : 100 x 100 x 35mm**

Motor connection terminals (CH1) : B/B /A/A

USB : USB mini-Type B terminal (connected to PC with cable bundled.)

Power : LED indicating USB connection

I2C : OUT terminal for connection with slave unit RE-C201

Pump wiring to motor connection terminal

RP-HX/Q-B/Q-C series	RP-TX series lead length:0.3,0.5m	RP-TX series lead length: 1.0 m
Black/Brown/Yellow/Orange	Brown/Red/Orange/Yellow	Brown/Black/Orange/Yellow

Connection terminal   RE-C201   Size : 100 x 160 x 45mm

Address switching SW (A : CH2 to CH5) - (B : CH6 to CH9)

-   Motor connection terminal (4CH) :   /B /A/A

I2C : IN terminal for connection with main unit RE-C200 (I2C connection cable)

DC-IN terminal for connection with AC-DC adaptor bundled.

Power : LED indicating power on.

I2C : OUT terminal for connection with slave unit RE-C201

Accessories	**RE-C200 :**	**Type_A-mini_B USB cable**
		USB memory (PC software)
	RE-C201:	**AC-DC adaptor**
		I2C connection cable

Motor speed(PPS) and motor rotation by each model

RP-HX series

Motor speed PPS	1	5	10	50	100	200	300	400	500	750	1000		
Motor rotation rpm	0.06	0.30	0.60	3.00	6.00	12.00	18.00	24.00	30.00	45.00	60.00		

RP-TX series

Motor speed PPS	1	5	10	50	100	200	300	400	500	750	1000	1500	2000
Motor rotation rpm	0.02	0.11	0.22	1.10	2.21	4.42	6.63	8.84	11.05	16.57	22.10	33.15	44.20

RP-Q-C Motor Type 1/50

Motor speed PPS	1	5	10	50	100	200	300	400	500	750	1000		
Motor rotation rpm	0.06	0.30	0.60	3.00	6.00	12.00	18.00	24.00	30.00	45.00	60.00		

RP-Q-B Motor Type 1/150

Motor speed PPS	1	5	10	50	100	200	300	400	500	750	1000	1100	1200
Motor rotation rpm	0.02	0.10	0.20	1.00	2.00	4.00	6.00	8.00	10.00	15.00	20.00	22.00	24.00

Special notes

Please refer to the "Motor speed(PPS) & Discharge amount" characteristics for the discharge amount.

(Data document included with the pumps)

Use the specified control within the range where step-out (motor stop) does not occur.

Single Mode Operation

Single(One-time)simultaneous operation for all connected pumps(up to 9 pumps)

Connect up to 2 slave units to the main units.

Each slave unit can control up to 4 pumps.

Select pump

Click and select from the dropdown options

RP-HX series (Default indication)   RP-Q-B series

RP-TX series   RP-Q-C series

RP-HX-D20 Motor Type (custom model)

Model is selected

Select rotation direction

Click and select from the dropdown options

CW (Clockwise)[Default]

CCW(Counter Clockwise)

Input motor speed   Click and select from the dropdown options

PPS value   1-2,000 pps (Integral value)

Pump and CH selection

CH1 : Main unit   (Can be connected with 2 slave units)

Each slave unit can control up to 4 pumps.

Pump and CH selection

Specify ALL-ON/OFF

Voltage selection   RP- HX

Click and select from the dropdown options

VM-4.3V Default VM) / VM-2.6V

RP-TX/Q-Type

VM-2.6V only

Motor RPM

Indicated automatically calculated motor RPM by designated PPS.

Fast-forward operation

Send liquid or air in the pump tubing by higher speed for faster priming.

Designated PPS motion

START/STOP button to operate at designated PPS settings.

Select number of rotation(S) to automatically stop st.

Click and select from the dropdown options

Select 1 to 15 rotations   eg. Select "3" = Pump stops after 3 rotations.

START button to operate at designated number of rotations. Automatically stops.

START motion for ROTATION TO STOP (   ) START   Stops automatically.

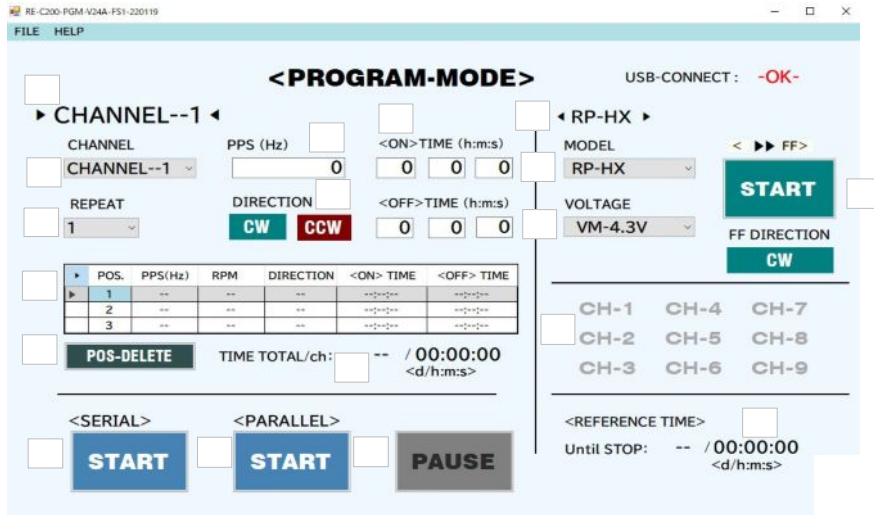**Operation time indicator (seconds). (Explained in   and   above)**

Approximate time (seconds) from start to stop for ⑪.

Program Mode Operation

Programable operation for all connected pumps (up to 9 pumps)

Connect up to 2 slave units to the main units

Each slave unit can control up to 4 pumps.

<Default setting>

Select CHANNEL

    Click and select from the dropdown options

    Select from CH1 to CH9.

CHANNEL is displayed

    *Select the applicable pump connected to the displayed CHANNEL.

Select pump

    Click and select from the dropdown options

RP-HX series (Default indication)	**RP-Q-B series**
RP-TX series	**RP-Q-C series**
RP-HX-D20 Motor Type (custom model)	

Applicable pump is displayed

Voltage selection   **RP-HX**

    Click and select from the dropdown options

    VM-4.3V (Default VM) / VM-2.6V

    RP-TX/Q-Type

    VM-2.6V only

Fast-Forward (FF) operation

    START/STOP for optimal high-speed operation by the applicable pump.

    Select CW(Clockwise)[Default]/CCW(Counter Clockwise)

    START to supply by FF with each pumps which connected to each CHANNEL.

    Click STOP when solution is delivered to the tip of the tube.

<Program setting>

Select channel   **Click and select from the dropdown options**

    Select from CH1 to CH9.

CHANNEL is displayed

    Set the operating conditions for the pump connected to the displayed CHANNEL.

Input motor speed by PPS value

    1-2,000 pps (Integrate value)

Select rotation direction

    Select CW(Clockwise)/CCW(Counter Clockwise)

ON/OFF time   **Set ON (start) time and OFF (stop) time.**

    It can be set from 00h 00m 01s to 99h 59m 59s.

Setting table (POS)   **PPS & RPM Rotation direction ON (start) time & OFF (stop) time are reflected in POS.**

    Table setting from POS1 to POS3 is possible.

POS-DELETE   **Can be cleared after selecting POS1 to POS2. (for re-entering settings)**

REPEAT   **Specified the number of repeat for setting table POS1 to POS3.**

    Click and select from the dropdown options

    1 to 99 REPEAT time can be selected. (default value is "1")

TIME-TOTAL   **Grand total operation time which are setting from POS1 to POS3 of**

    all CHANNELs ON/OFF of number of repeat.

    *Maximum time is 29,700h

    Conditions : 99h 59m 59s x3POS $\times$ 99 repeat

Serial Operation

    Operate in the order of the selected CHANNEL and STOP when completed.

    eg. CH1 setting operation complete   CH2 setting operation complete   CH3 …...

Parallel operation   **Start all the selected channels at the same time and stop when the operation is complete.**

Pause   **Pause during operation**

REFERENCE TIME   **Grand total time until stop**

    *Serial operation   Until all channel is completed.

    *Parallel operation   Until the longest time channel is completed.

Operation mode   **1. Designated channel is shown in black and undesignated channel remains in grey.**

display   **2. When designated channel is in operation, channel number is blinking in green.**

    3. When designated channel is not in operation, channel number is blinking in red.

<Special notes>

START/PAUSE buttons

    Buttons will change between "START" and "STOP" and "PAUSE" and "RESTART" after each click.

REFERENCE TIME   **Even when the grand total operating time is down to "0" (Zero), it will take 5-15 sec to change**

    from STOP to START, to allow time to complete process completion of all settings.

Program Mode Operation

Programable operation for all connected pumps (up to 9 pumps)

Connect up to 2 slave units to the main units

Each slave unit can control up to 4 pumps.

ALL-RESET	**All programmed contents are cleared.**	
OPEN-FILE	**Open the programmed and stored file.**	
SAVE-FILE	**Save the programmed file.**	
EXIT	**Exit.**	

MANUAL	**Manual of software in Japanese and in English**
VERSION	**Version of the program**