



Chongqing Jieheng Peristaltic Pumps Co., Ltd.

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Http://www.jihpump.net

Product Specification

Product Name : Easy Load Peristaltic Pump

Product Series: 253Yx Series

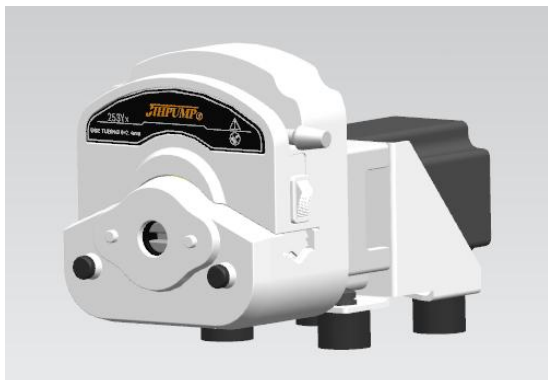
Standard: Q/CJH1-2020

Drawn by	Su Chenglin
Checked by	Gu Yunjian
Approved by	Liu Peng

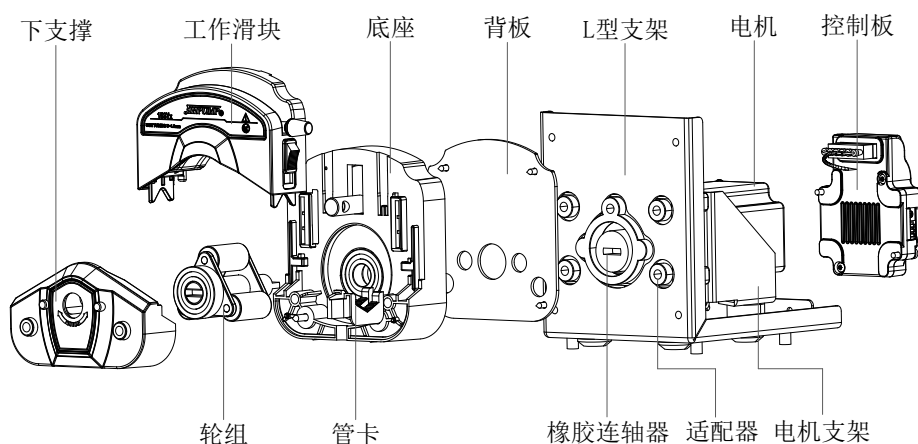
	Product Specification		File No.: 153Yx-0
			Version: A0
	Product name: Easy load peristaltic pump	Series: 153Yx	Valid date: 2021-06-24

I . General Presentation

1. Photo



2. Configuration



3. Model No.

253Yx/BT, 153Yx/JBT, 253Yx/JBT-BM, 253Yx/JBT-BT, 253Yx/QBT-M1——Stepper motor driven

253Yx/ZL——DC gear motor drive

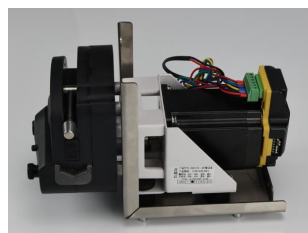
253Yx/JLT — AC geared motor drive



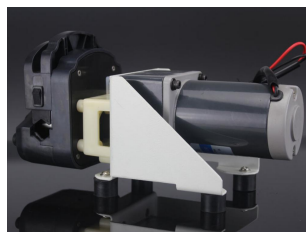
253Yx/BT



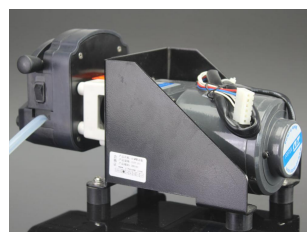
253Yx/JBT



253Yx/JBT-BM
253Yx/JBT-BT
253Yx/QBT-M1



253Yx/ZL



253Yx/JLT



	Product Specification		File No.: 153Yx-0
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	Product name: Easy load peristaltic pump	Series: 153Yx	Valid date: 2021-06-24

4. Optional colors



White (PESU)



Black (PPS)

5. Features & Applications

5.1 Features

- Easy load peristaltic pump head, easy to change tube;
- White (PESU) and Black (PPS) in option;
- Can fit with 2.4mm thickness tube 15#, 24#, 35#, 36#, max flow rate up to 3365ml/min;
- Compatible with various motor such as stepper motors, DC gear motors, AC gear motors;
- Available controller/driver for stepper motor: JBT-BM(voltage), JBT-BT(communication), QBT-M1(pulse);
- Can connect pump head in series, up to 6 heads in series. And the flow will multiply.

5.2 Applications

- Analytical instruments: fluid sampler
- Laboratory
- Industrial process
- Fine Chemicals
- Food processing: such as canned beverages

6. Material

Pump head	Working slide	Lower support	Base	Backplane	Roller	L bracket
253Yx	White (PESU)/Black (PPS)				304 SS	304 SS

7. Certifications & Patents

CE Certificate

No. 0P190508. CJPDU10



RoHS Certificate

No. CKGEC2000458802



	Product Specification		File No.: 153Yx-0
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	Product name: Easy load peristaltic pump	Series: 153Yx	Valid date: 2021-06-24

8. Product risk warnings already known

- 8.1. Whether the tube is resistant to liquid medium requires chemical compatibility or immersion test.
Improper tube selection may cause the tube to be damaged quickly.
- 8.2. The liquid leakage accident caused by the tube rupture depends on the nature of the liquid and specific application conditions.
- 8.3. Whether the parts of the product are corroded depends on the chemical compatibility of the liquid and the product and the specific application environment.
- 8.4. The service life of the drive motor depends on the national standard of the motor and the application.
- 8.5. Improper tube specifications may cause the peristaltic pump to malfunction.
- 8.6. Over-rated power supply voltage may cause damage to the product, and overload work may cause premature product damage.

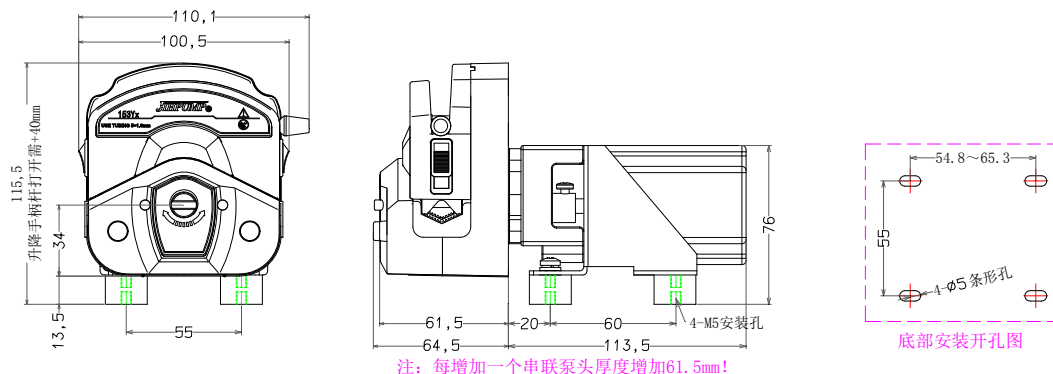


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			Version: A0
	Product name: Easy load peristaltic pump	Series: 153Yx	Valid date: 2021-06-24

II. Specification

■253Yx/BT

1.Dimension



2. Parameter

Rated voltage	DC 36V, 3A							
Power	≤54W							
Motor	57 stepper motor(nema 23)							
Operating environment	Temperature 0~60℃, relative humidity less than 85%							
Net weight	Single head:1.5KG(Note: the weight of each additional serial pump head increases by 0.5KG)							
Outlet pressure	≤0.17MPa							
Noise	≤60dB （testing environment noises≤50dB. The horizontal distance between the test product and the noise meter is 1 meter.）							
Function	Start/stop, cw/ccw rotation, up/down speed							
Single Head Flow amount (ml/min,suction 0.8m,lift 0.4m)								
Tube Voltage/RPM	Silicone tube				Norprene A-60-F tube			
	15#	24#	35#	36#	15#	24#	35#	36#
600rpm	1085	1695	2640	3365	1055	1635	2335	3300
Head in series	≤3	≤3	≤3	≤3	1	1	1	1
Note: 1) The flow data of the above table is measured by using clear water at the normal temperature of Jieheng laboratory, for reference only. 2) The tube material, size tolerance, transport medium viscosity, suction and lift height will affect the flow rate. 3) The tube is the only consumable of the peristaltic pump, and the long-time extrusion work is prone to wear or breakage.								
Tube life	Silicone tube≥250h, Norprene A-60-F tube> 1000h, Norprene chemical tube> 1000h (Note: The hose life is measured at a pump speed of 300rpm, no pressure at the hose outlet, and water delivery. For reference only, the actual data depends on the operating conditions.)							
Motor life	≥540000 cycles (temperature 15~35° C, relative humidity 55%~75%, rated voltage, rated load, temperature rise ≤30° C, continuous working time<10min)							



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			Version: A0	
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3. Motor wiring

Black

A

Green

$\bar{A}$

Red

B

Blue

$\bar{B}$

CW

STEP	A	B	A	B
1	+	+	-	-
2	-	+	+	-
3	-	-	+	+
4	+	-	-	+

CCW

Phase	Resistance	Inductance	Current	Acc/Dec time	Holding torque	Insulation class
2	4.6±10%Ω	10±20% μ H	1.3A	1rpm/ms	83N.cm	B

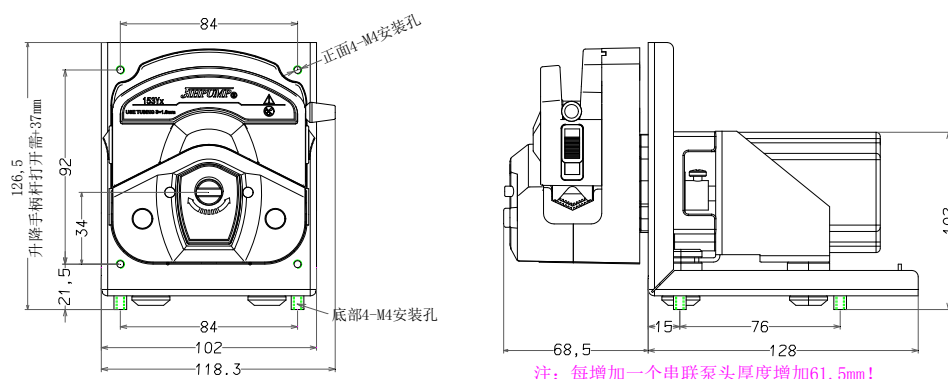
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	Product Specification		File No.: 153Yx-0
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■253Yx/JBT

1.Dimension

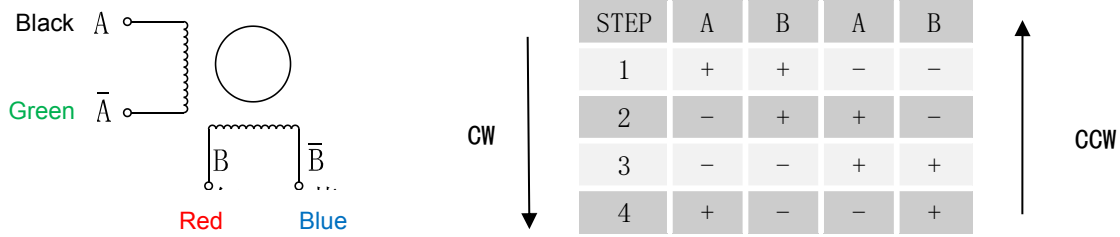


2. Parameter

Rated voltage	DC 36V, 3A							
Power	≤54W							
Motor	57 stepper motor(nema 23)							
Operating environment	Temperature 0～60℃, relative humidity less than 85%							
Net weiht	Single head:1.6KG(Note: the weight of each additional serial pump head increases by 0.5KG)							
Outlet pressure	≤0.17MPa							
Noise	≤60dB （testing environment noises≤50dB. The horizontal distance between the test product and the noise meter is 1 meter.）							
Functin	Start/stop, cw/ccw rotation, up/down speed							
Single Head Flow amount (ml/min,suction 0.8m,lift 0.4m)								
Tube Voltage/RPM	Silicone tube				Norprene A-60-F tube			
	15#	24#	35#	36#	15#	24#	35#	36#
600rpm	1085	1695	2640	3365	1055	1635	2335	3300
Head in series	≤3	≤3	≤3	≤3	1	1	1	1
Note: 1) The flow data of the above table is measured by using clear water at the normal temperature of Jieheng laboratory, for reference only. 2) The tube material, size tolerance, transport medium viscosity, suction and lift height will affect the flow rate. 3) The tube is the only consumable of the peristaltic pump, and the long-time extrusion work is prone to wear or breakage.								
Tube life	Silicone tube≥250h, Norprene A-60-F tube> 1000h, Norprene chemical tube> 1000h (Note: The hose life is measured at a pump speed of 300rpm, no pressure at the hose outlet, and water delivery. For reference only, the actual data depends on the operating conditions.)							
Motor life	≥540000 cycles (temperature 15～35° C, relative humidity 55%～75%, rated voltage, rated load, temperature rise ≤30° C, continuous working time<10min)							



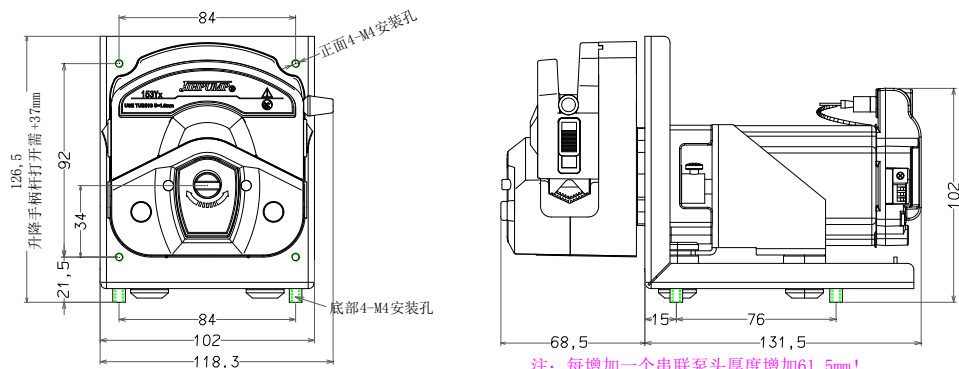
3. Motor wiring



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■253Yx/JBT-BM

1.Dimension



2. Parameter

Rated voltage	DC 36V, 3A											
Power	≤54W											
Motor	57 stepper motor(nema 23)											
Operating environment	Temperature 0~60℃, relative humidity less than 85%											
Net weight	Single head:1.67KG(Note: the weight of each additional serial pump head increases by 0.5KG)											
Outlet pressure	≤0.17MPa											
Noise	≤60dB （testing environment noise≤50dB. The horizontal distance between the test product and the noise meter is 1 meter.）											
Function	Start/stop, cw/ccw rotation, up/down speed											
Single Head Flow amount (ml/min,suction 0.8m,lift 0.4m)												
Tube Voltage/RPM	Silicone tube				Norprene A-60-F tube				Norprene chemical tube			
	15#	24#	35#	36#	15#	24#	35#	36#	15#	24#	35#	36#
600rpm	1085	1695	2640	3365	1055	1635	2335	3300	1085	1695	2640	3365
Head in series	≤3	≤3	≤3	≤3	1	1	1	1	≤3	≤3	≤3	≤3
Note: 1) The flow data of the above table is measured by using clear water at the normal temperature of Jieheng laboratory, for reference only. 2) The tube material, size tolerance, transport medium viscosity, suction and lift height will affect the flow rate. 3) The tube is the only consumable of the peristaltic pump, and the long-time extrusion work is prone to wear or breakage.												
Tube life	Silicone tube≥250h, Norprene A-60-F tube> 1000h, Norprene chemical tube> 1000h (Note: The hose life is measured at a pump speed of 300rpm, no pressure at the hose outlet, and water delivery. For reference only, the actual data depends on the operating conditions.)											
Motor life	≥540000 cycles (temperature 15~35° C, relative humidity 55%~75%, rated voltage, rated load, temperature rise ≤30° C, continuous working time<10min)											

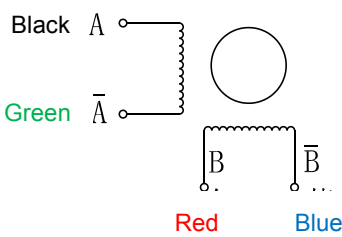


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杰巨蠕动泵	Product name: Easy load peristaltic pump	Series: 153Yx	Valid date: 2021-06-24

3. Motor wiring

Black

A



CW



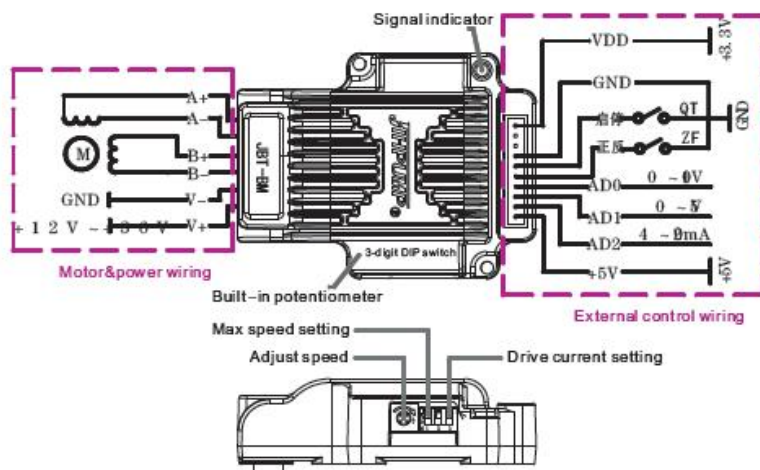
STEP	A	B	A	B
1	+	+	-	-
2	-	+	+	-
3	-	-	+	+
4	+	-	-	+

CCW





4.Port wiring, DIP switch definition and function description



Remark:

1. In the DIP switch definition table, 1 # and 2 # set the maximum speed, and 3 # selects the drive current;
2. The built-in potentiometer adjusts the speed, rotate clockwise, the speed increases; rotate counterclockwise, the speed decreases; **the factory has adjusted the potentiometer to the maximum speed;**
3. In the wiring diagram of the external control port, AD0 / AD1 / AD2 and the built-in potentiometer are speed adjustment signals. Only one signal can be selected when used, and other signals must be 0 (**If the governor speed is not returned to 0, the speed will be added**).
4. In the wiring diagram of the external control port, the QT switch signal controls the motor to start/stop, short-circuit to start, disconnect to stop; QT can also input the PWM duty pulse to control the motor speed according to the proportion and the return difference. The duty ratio 0% for the highest speed, and on the contrary for the lowest speed; above 95% duty ratio to stop, below 90% duty ratio to start;
5. ZF switch signal controls the direction of the motor, short-circuit for counterclockwise rotation, disconnect for clockwise rotation;
6. The signal indicator on the circuit board, when the motor is working, it lights up, and the motor is off when it is not working; in addition, the infrared speed can be used to detect the speed of the motor through the signal indicator;
7. **Drive current setting: motor rated current $\leq 2.4A$, select 3A; motor rated current $> 2.4A$, select 5A.**

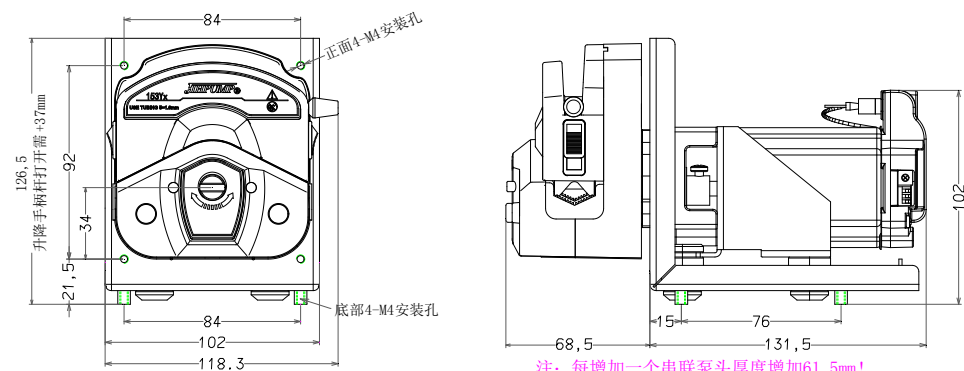
DIP Switch Definition

1#	2#	Speed	3#	Drive current
OFF	OFF	0~600rpm	ON	3A
OFF	ON	0~300rpm		
ON	OFF	0~150rpm	OFF	5A
ON	ON	0~60rpm		



■ 253Yx/JBT-BT

1.Dimension

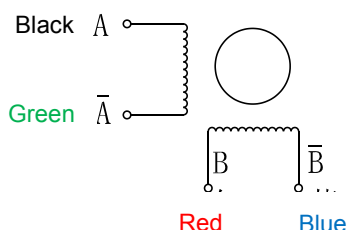


3. Parameter

Rated voltage	DC 36V, 3A											
Power	≤54W											
Motor	57 stepper motor(nema 23)											
Operating environment	Temperature 0～60℃, relative humidity less than 85%											
Net weight	Single head:1.67KG(Note: the weight of each additional serial pump head increases by 0.5KG)											
Outlet pressure	≤0.17MPa											
Noise	≤60dB （testing environment noise≤50dB. The horizontal distance between the test product and the noise meter is 1 meter.）											
Function	Start/stop, cw/ccw rotation, up/down speed											
Single Head Flow amount (ml/min,suction 0.8m,lift 0.4m)												
Tube	Silicone tube				Norprene A-60-F tube				Norprene chemical tube			
Voltage/RPM	15#	24#	35#	36#	15#	24#	35#	36#	15#	24#	35#	36#
600rpm	1085	1695	2640	3365	1055	1635	2335	3300	1085	1695	2640	3365
Head in series	≤3	≤3	≤3	≤3	1	1	1	1	≤3	≤3	≤3	≤3
Note: 1) The flow data of the above table is measured by using clear water at the normal temperature of Jieheng laboratory, for reference only. 2) The tube material, size tolerance, transport medium viscosity, suction and lift height will affect the flow rate. 3) The tube is the only consumable of the peristaltic pump, and the long-time extrusion work is prone to wear or breakage.												
Tube life	Silicone tube≥250h, Norprene A-60-F tube> 1000h, Norprene chemical tube> 1000h (Note: The hose life is measured at a pump speed of 300rpm, no pressure at the hose outlet, and water delivery. For reference only, the actual data depends on the operating conditions.)											
Motor life	≥540000 cycles (temperature 15～35° C, relative humidity 55%～75%, rated voltage, rated load, temperature rise ≤30° C, continuous working time<10min)											



3. Motor wiring

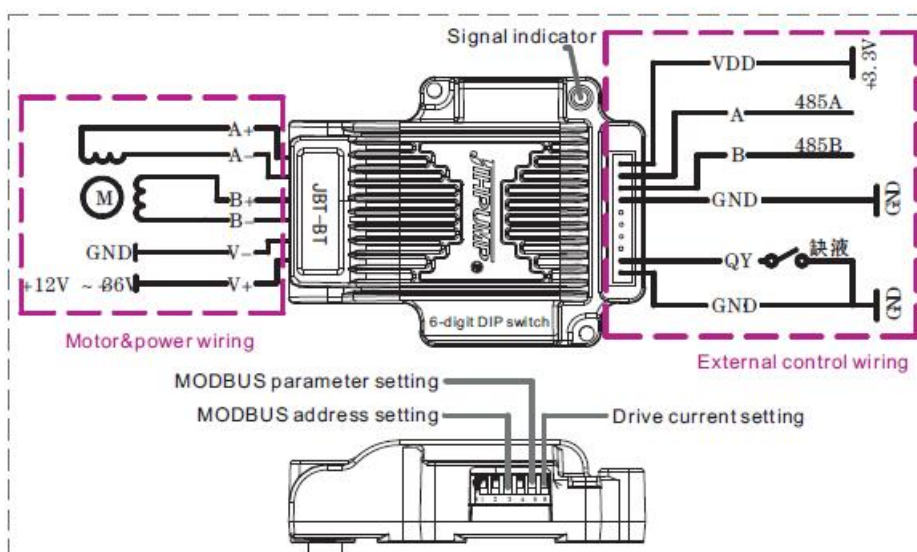


CW

STEP	A	B	A	B
1	+	+	-	-
2	-	+	+	-
3	-	-	+	+
4	+	-	-	+

CCW

4. Port wiring, DIP switch definition and function description



Remark:

1. In the DIP switch definition table, 1 #, 2 #, 3 #, 4 # set the communication address, 5 # select the communication parameter, 6 # select the drive current;
2. In the wiring diagram of the external control port, the signal of the QY liquid shortage switch is closed for normal control, and disconnect for shutdown protection;
3. The signal indicator on the circuit board lights up when the motor is working; if the motor does not work and there is a communication signal, the indicator flashes; if the motor does not work and there is no communication signal, the indicator goes off; it can also be used through the signal indicator. Infrared speedometer detects motor speed;

4. Drive current setting: motor rated current $\leq 2.4A$, select 3A; motor rated current $> 2.4A$, select 5A.

MODBUS RTU parameters:

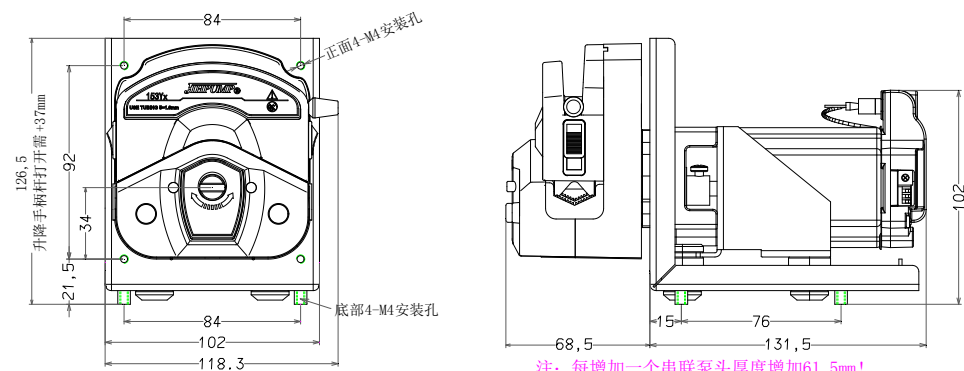
1. The command codes implemented are 1, 2, 3, 4, 5, 6, 15 and 16, the following addresses are all protocol addresses;
2. Input relay, bit address 0 is QY (liquid shortage);
3. Output relay, bit address 0 is QT (start and stop), bit address 1 is ZF (positive and negative);
4. The input register is undefined;
5. Output register, word address 0 is SPEED (speed), 0 ~ 6000 $\rightarrow$ 0 ~ 600.0RPM.

DIP Switch Definition								
1#	2#	3#	4#	Address	5#	Parameter	6#	Drive current
OFF	OFF	OFF	OFF	16	ON	9600 E 8 1	ON	3A
OFF	OFF	OFF	ON	15				
OFF	OFF	ON	OFF	14				
OFF	OFF	ON	ON	13				
OFF	ON	OFF	OFF	12				
OFF	ON	OFF	ON	11				
OFF	ON	ON	OFF	10				
ON	ON	ON	ON	9	OFF	115200 N 8 1	OFF	5A
ON	OFF	OFF	OFF	8				
ON	OFF	OFF	ON	7				
ON	OFF	ON	OFF	6				
ON	OFF	ON	ON	5				
ON	ON	OFF	OFF	4				
ON	ON	OFF	ON	3				
ON	ON	ON	OFF	2				
ON	ON	ON	ON	1				



■253Yx/QBT-M1

1.Dimension

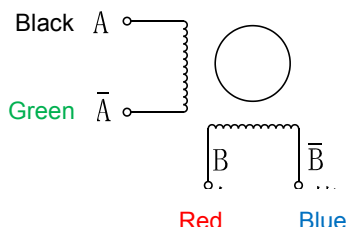


2. Parameter

Rated voltage	DC 36V, 3A											
Power	≤54W											
Motor	57 stepper motor(nema 23)											
Operating environment	Temperature 0～60℃, relative humidity less than 85%											
Net weight	Single head:1.67KG(Note: the weight of each additional serial pump head increases by 0.5KG)											
Outlet pressure	≤0.17MPa											
Noise	≤60dB （testing environment noise≤50dB. The horizontal distance between the test product and the noise meter is 1 meter.）											
Function	Start/stop, cw/ccw rotation, up/down speed											
Single Head Flow amount (ml/min,suction 0.8m,lift 0.4m)												
Tube	Silicone tube				Norprene A-60-F tube				Norprene chemical tube			
Voltage/RPM	15#	24#	35#	36#	15#	24#	35#	36#	15#	24#	35#	36#
600rpm	1085	1695	2640	3365	1055	1635	2335	3300	1085	1695	2640	3365
Head in series	≤3	≤3	≤3	≤3	1	1	1	1	≤3	≤3	≤3	≤3
Note: 1) The flow data of the above table is measured by using clear water at the normal temperature of Jieheng laboratory, for reference only. 2) The tube material, size tolerance, transport medium viscosity, suction and lift height will affect the flow rate. 3) The tube is the only consumable of the peristaltic pump, and the long-time extrusion work is prone to wear or breakage.												
Tube life	Silicone tube≥250h, Norprene A-60-F tube> 1000h, Norprene chemical tube> 1000h (Note: The hose life is measured at a pump speed of 300rpm, no pressure at the hose outlet, and water delivery. For reference only, the actual data depends on the operating conditions.)											
Motor life	≥540000 cycles (temperature 15～35° C, relative humidity 55%～75%, rated voltage, rated load, temperature rise ≤30° C, continuous working time<10min)											

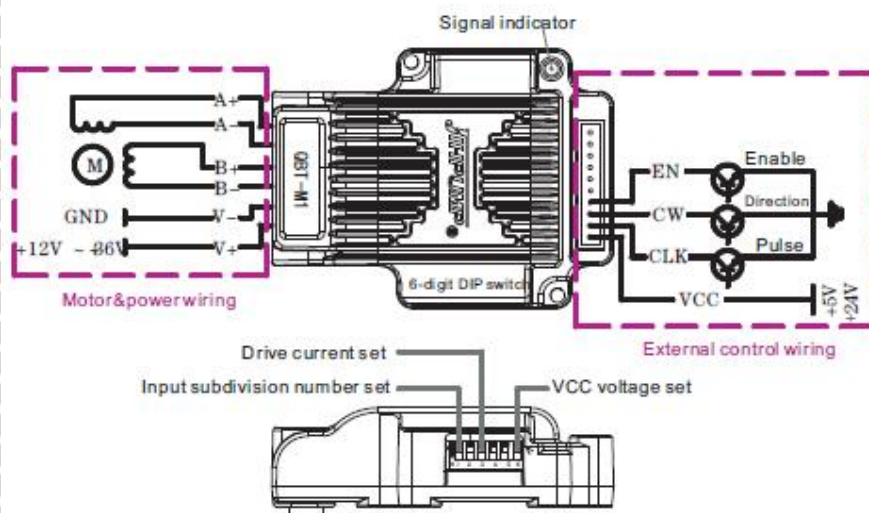


3. Motor wiring



STEP	A	B	A	B
1	+	+	-	-
2	-	+	+	-
3	-	-	+	+
4	+	-	-	+

5. Port wiring, DIP switch definition and function description



Remark:

1. In the dial switch definition table, 1#, 2# set the input subdivision number, 3#, 4# select the drive current, 6# select the VCC interface voltage, and 5# dial switch has no definition;

2. In the external control terminal wiring diagram, the higher the pulse frequency, the faster the rotation speed; CW is high for clockwise rotation, low for counterclockwise rotation; EN is low for stop, high for operation;

3. The signal indicator on the circuit board, when the motor is working, it will be illuminated, and when the motor is not working, it will be extinguished; the signal indicator can also be used to detect the motor speed by using the infrared speedometer;

4. Drive current setting description: motor rated current $\leq 2.4A$, select 3A; motor rated current $> 2.4A$, select 5A. The user can select the drive current according to the actual load, select a small drive current for a small load, and select a large drive current for a larger load.

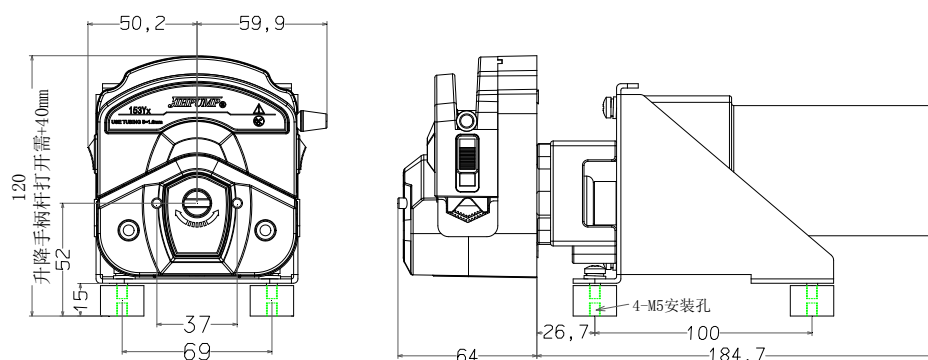
DIP Switch Definition

1#	2#	Input subdivision number	3#	4#	Driver current	6#	VCC voltage	5#
OFF	OFF	32	OFF	OFF	2A	ON	5V	no defini- tion
OFF	ON	16	OFF	ON	3A			
ON	OFF	8	ON	OFF	4A	OFF	24V	
ON	ON	4	ON	ON	5A			



■ 253Yx/ZL

1.Dimension



2. Parameter

Rated voltage	DC 24V, 2A											
Power	≤30W											
Motor	DC Geared motor											
Operating environment	Temperature 0～60℃, relative humidity less than 85%											
Net weight	2.5kgs											
Outlet pressure	≤0.17MPa											
Noise	≤60dB （testing environment noises≤50dB. The horizontal distance between the test product and the noise meter is 1 meter.）											
Function	Start/stop, cw/ccw rotation											
Single Head Flow amount (ml/min,suction 0.8m,lift 0.4m)												
Tube Voltage/RPM	Silicone tube				Norprene A-60-F tube				Norprene chemical tube			
	15#	24#	35#	36#	15#	24#	35#	36#	15#	24#	35#	36#
500rpm	1000	1700	2480	2980	1070	1560	2150	2820	—	1490	2070	—
Note: 1) The flow data of the above table is measured by using clear water at the normal temperature of Jieheng laboratory, for reference only. 2) The tube material, size tolerance, transport medium viscosity, suction and lift height will affect the flow rate. 3) The tube is the only consumable of the peristaltic pump, and the long-time extrusion work is prone to wear or breakage.												
Tube life	Silicone tube≥250h, Norprene A-60-F tube>1000h, Norprene chemical tube>1000h (Note: The hose life is measured at a pump speed of 300rpm, no pressure at the hose outlet, and water delivery. For reference only, the actual data depends on the operating conditions.)											
Motor life	≥180000 cycles (temperature 15～35° C, relative humidity 55%～75%, rated voltage, rated load, temperature rise≤30° C, continuous working time<10min)											



JHPUMP 杰巨蠕动泵	Product Specification		File No.: 153Yx-0
			Version: A0
	Product name: Easy load peristaltic pump	Series: 153Yx	Valid date: 2021-06-24

3. Motor parameter

红

黑

DC(+)

DC(-)

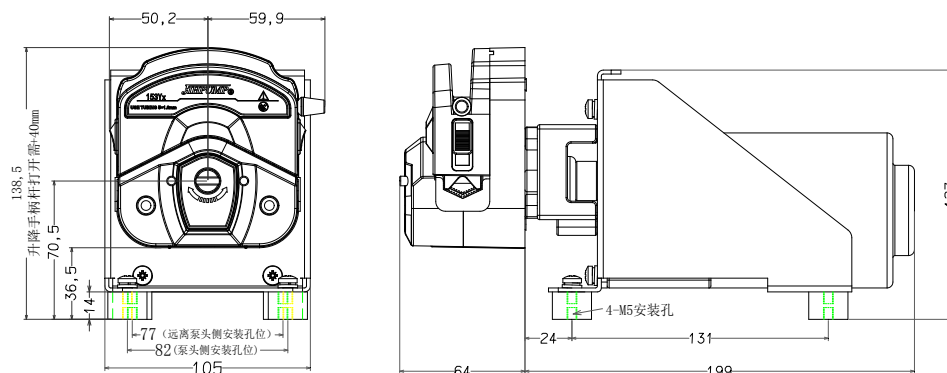
The positive pole of the power supply connects to +, the negative pole connects to “-“, the motor rotation direction is clockwise (CW). On the contrary, the motor rotation direction is clockwise (CCW).

Rated voltage	Rated power	Rated speed	Holding torque	Insulation class
24V	30W	500rpm±10%	0.095N.m	B

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■ 253Yx/JLT

1.Dimension



2. Parameter

Rated voltage	AC 220V
Power	≤25W
Motor	DC Geared motor
Operating environment	Temperature 0~60℃, relative humidity less than 85%
Net weight	2.5kgs
Outlet pressure	≤0.17MPa
Noise	≤70dB (testing environment noises≤50dB. The horizontal distance between the test product and the noise meter is 1 meter.)
Function	Start/stop, cw/ccw rotation, speed up/down(with speed governor)

Single Head Flow amount (ml/min,suction 0.8m,lift 0.4m)

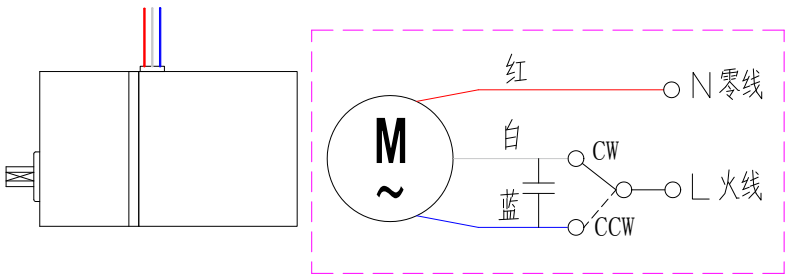
Tube Voltage/RPM	Silicone tube				Norprene A-60-F tube				Norprene chemical tube			
	15#	24#	35#	36#	15#	24#	35#	36#	15#	24#	35#	36#
100rpm	180	280	440	560	175	260	380	530	—	260	390	—
~	~	~	~	~	~	~	~	~	—	~	~	—
450rpm	810	1270	1980	2520	790	1170	1710	2385	—	1170	1755	—

Note: 1) The flow data of the above table is measured by using clear water at the normal temperature of Jieheng laboratory, for reference only. 2) The tube material, size tolerance, transport medium viscosity, suction and lift height will affect the flow rate.

3) The tube is the only consumable of the peristaltic pump, and the long-time extrusion work is prone to wear or breakage.

Tube life	Silicone tube≥250h, Norprene A-60-F tube> 1000h, Norprene chemical tube> 1000h (Note: The hose life is measured at a pump speed of 300rpm, no pressure at the hose outlet, and water delivery. For reference only, the actual data depends on the operating conditions.)
Motor life	≥180000 cycles (temperature 15~35° C, relative humidity 55%~75%, rated voltage, rated load, temperature rise≤30° C, continuous working time<10min)

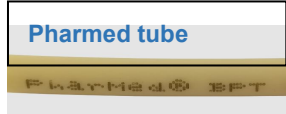


	Product Specification		File No.: 153Yx-0
			Version: A0
	Product name: Easy load peristaltic pump	Series: 153Yx	Valid date: 2021-06-24
3. Motor parameter  Description: "red wire" is "neutral wire", "white wire/blue wire" is "live wire", connect the red and white wires, the motor rotation direction is clockwise (CW); connect the red and blue wires, the motor rotation direction is reverse Hour hand (CCW). www.jihpump.net			



	Product Specification		File No.: 153Yx-0
			Version: A0
	Product name: Easy load peristaltic pump	Series: 153Yx	Valid date: 2021-06-24

III. Tube type

	● High performance platinum vulcanized silicone tube ● Ultra-smooth inner wall for minimal particle adhesion	RoHS	15#, 24#, 35#, 36#
	● Ideal for high temperature food applications ● Heat and ozone resistance, good acid and alkali resistance	FDA、3A、NSF、REACH、RoHS	15#, 24#, 35#, 36#
	● Lightfastness and ozone resistance, life expectancy up to 1000h ● Suitable for the transport of soaps, disinfectants and inks	NSF、REACH、RoHS	15#, 24#, 35#, 36#
	● Resistance to common chemicals, acidity and oxidation resistance ● Life exceeds 1000h	USP Class VI、EP、FDA、NSF、REACH、RoHS	15#, 24#, 35#, 36#
	● Excellent chemical and bio compatibility ● Long life and durability under high pressure conditions	USP Class VI、FDA、REACH、RoHS	15#, 24#, 35#, 36#

IV. Option accessories

Name	Model No.	Description
Filling needles	φ4/φ5/φ6/φ8	prevent liquid dripping
One-way valve filling needle	φ4/φ6	prevent liquid dripping
Anti-float head	16# 25#/17#	immerse the tube inlet completely in the liquid
Tube clip	Left/right Tube Clip	Fix the tube, and prevent tube running and wobbling
Speed controller for stepper motor	JBT-BM	Accept voltage, current and PWM pulse to adjust the speed, with start-stop, forward and reverse and speed up and down functions



JBT-BT

MODBUS data control speed, start-stop and forward and reverse

QBT-M1

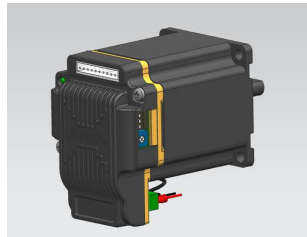
Accepts pulse, direction and enable signals



Anti-float head



Filling needles



Speed controller

