

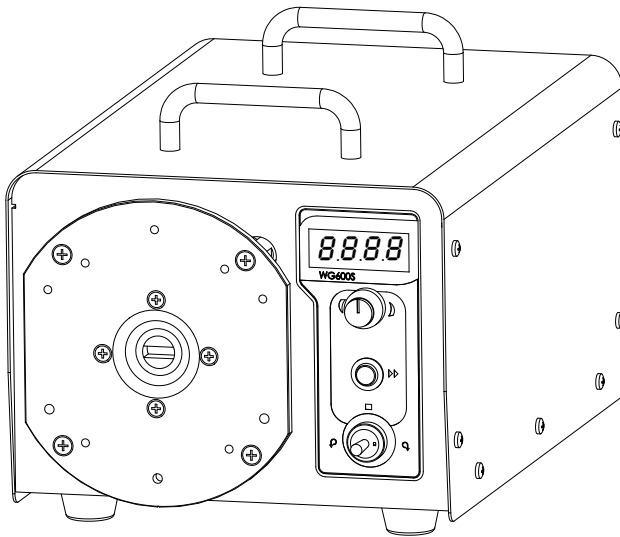


GOLANDER PUMP

Operation Manual

For Industrial Variable-Speed Peristaltic Pump

WG600S



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Safety Cautions



Danger: Please use correct AC power voltage source shown on the sticker on the equipment to avoid any damage.

Please do not open the case. High voltages exist and are accessible.

Use extreme caution when servicing internal components.

For maintenance, please contact the manufacturer or distributor directly.

Danger: Turn drive off before removing or installing tubing. Fingers or loose clothing could get caught in drive mechanism.



Warning: Tubing breakage may result in fluid being sprayed from pump. Use appropriate measures to protect operator and equipment.

Warning: Remove power from pump before attempting any maintenance or any cleaning operation is started.

Warning: Remove power from pump before connecting or disconnecting the external control device or communication interface.

Warning: Pump is provided with a grounded plug, it must be well grounded at all times.

Warning: This product is not designed for, nor intended for use in patient connected applications; including, but not limited to, medical and dental use.

1 Description

WG600S industrial basic variable-speed peristaltic pump is suitable for transferring large amount of fluid for industrial applications. It provides flow range from 0.4 to 13 L/min. The brushless motor drive with large torque is maintenance free. It offers not only the basic functions such as reversible direction, start/stop and adjustable speed, but also Time Dispense Mode. With MODBUS RS485 interface, the pump is easy to connect to external device, such as computer, human machine interface or PLC.

2 Functions and Features

Advantage of peristaltic pump: Peristaltic pump can handle extremely viscous

fluids, abrasive slurries and corrosive fluids. There is no seals in contact with the medium pumped and no valves to clog. The inner surfaces are smooth and easy to clean; fluid contacts only the tubing or tube material. Suction lift and priming can be up to 8m water column at sea level. It can handle the most shear sensitive of fluids like latex or firefighting foam with low shearing. It is capable of running dry and pumping fluids with high quantities of entrained air, such as black liquor soap. The high volumetric efficiency allows operation in metering or dosing applications where high accuracy is required. Tubing and tube materials are available for food and pharmaceutical use.

- Four-digit LED displays speed.
- Reversible direction, start/stop control and adjustable speed.
- Time dispense mode to dispense fluid for the set time.
- Brushless motor drive, maintenance free.
- 3% high precision rotating speed control with 1 rpm speed resolution.
- External logic level signal can control start/stop, direction and dispense function; external analog signal can adjust the rotating speed. Signal is optically isolated.
- Stainless steel housing, easy to clean, excellent resistance to the corrosion of the acid, alkali, sodium and organic solvents.
- With RS485 MODBUS interface, easy to be controlled by external device.
- Internal double-deck isolation structure; circuit board with conformal coating makes it dust-proof and moisture-proof.
- Anti-electromagnetic interference feature, wide input voltage range for complex power environment.

3 Components and Connectors

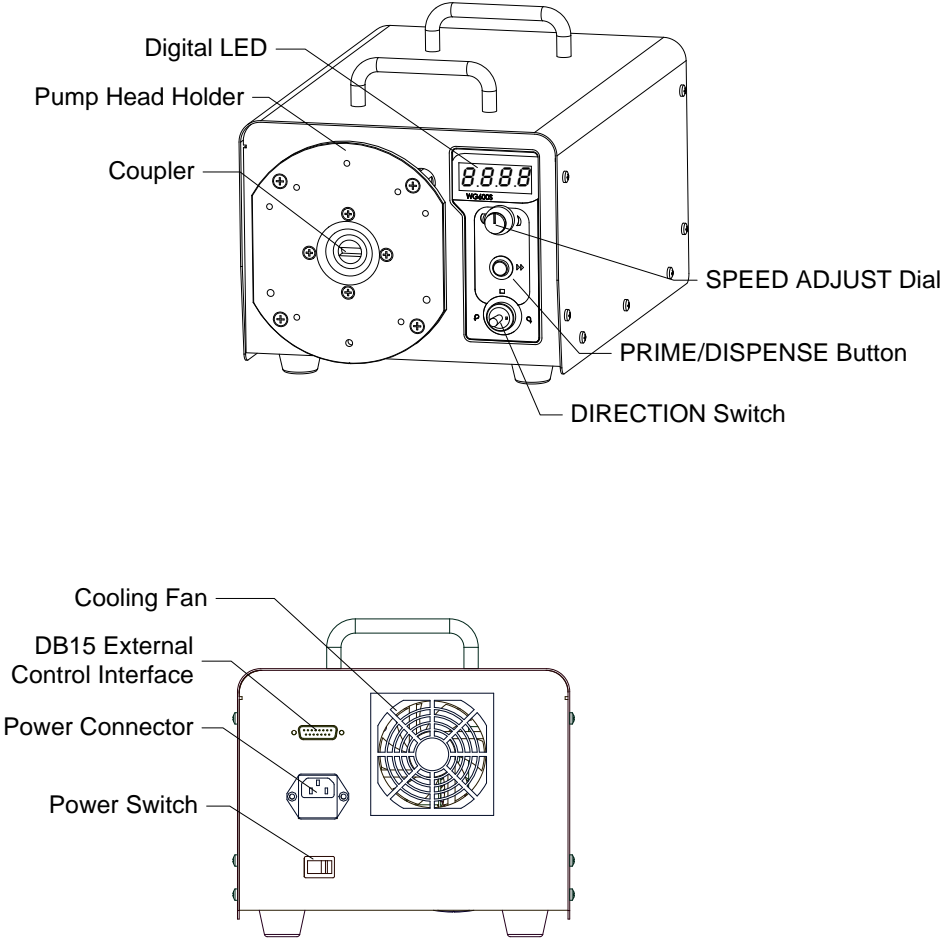


Figure 1. Components and Connectors

4 Display Panel and Operating Buttons

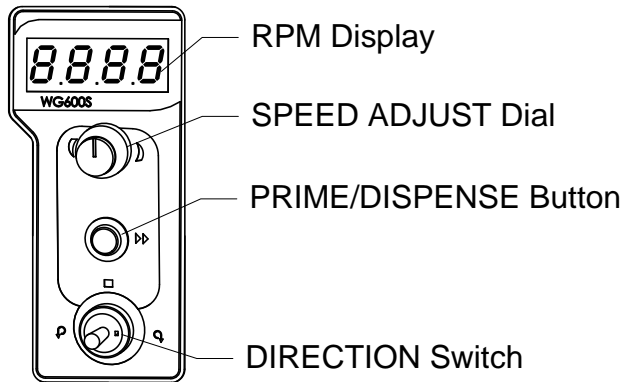


Figure 2. Display and Buttons

4.1 Digital LED Display

Digital LED display shows the current speed and working mode.

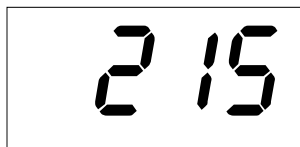


Figure 3. Internal Control Mode, 215 rpm

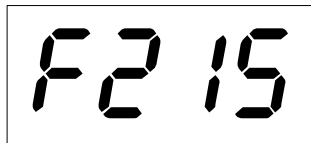


Figure 4. Time Dispense Mode, 215 rpm



Figure 5. External Control Mode, 100 rpm.



Figure 6. Logic Level Control Mode, 215 rpm

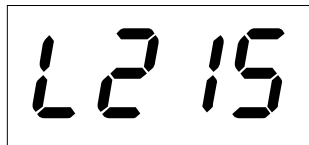


Figure 7. Communication Mode, 215 rpm

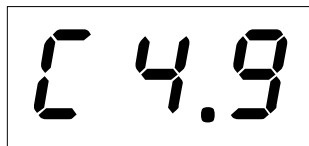


Figure 8. When flashing, the pump is working on Time Dispense Setup Mode,

Dispense duration time 4.9 seconds



Figure 9. The drive is running at full speed

4.2 SPEED ADJUST Dial



Rotate the dial in clockwise direction to increase the setting. Rotate one position to increase 1 to the last digit. Rotate continuously to increase the setting fast.

Rotate the dial in counterclockwise direction to decrease the setting. Rotate 1 position to decrease 1 to the last digit. Rotate continuously to decrease the setting fast.

Press the dial to switch the control mode. When the **DIRECTION** button is on the middle position and the drive is not running, press the dial to change the control mode (*Figure 10*).

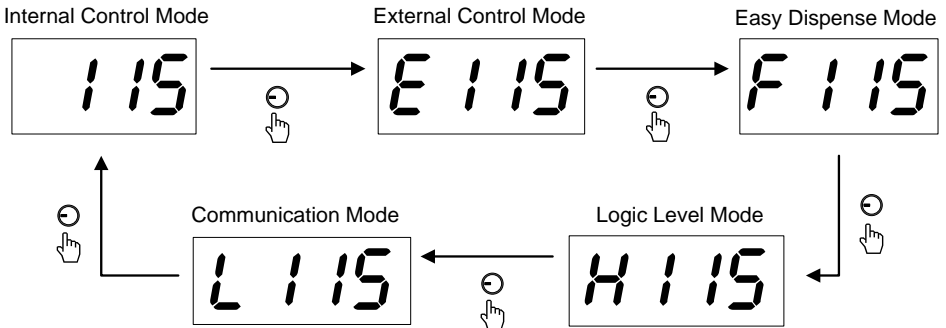


Figure 10. Change Control Mode

4.3 PRIME/DISPENSE Button



On Internal Control Mode or Communication Mode, when the **DIRECTION** switch is on the left or right position, press the **PRIME/DISPENSE** button to switch between normal speed and full speed.

speed.

On Time Dispense Mode, press the **PRIME/DISPENSE** button to dispense fluid.

4.4 Direction Switch

When on left position: the drive runs in counterclockwise direction.

When on middle position: the drive stops.

When on right position: the drive runs in clockwise direction.

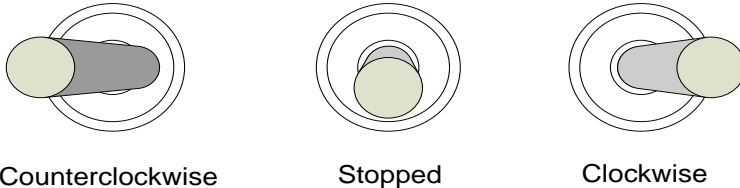
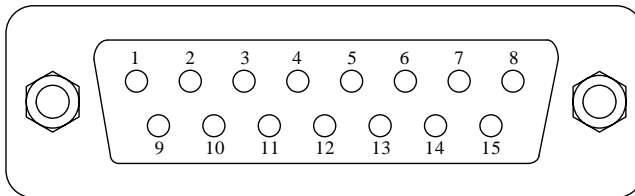


Figure 11. DIRECTION Switch

5 External Control Interface



DB15	Mark	Note
1	ADC_W	Positive of external analog input
2	B	Communication interface, B pole of RS485
3	A	Communication interface, A pole of RS485
4	VCC_W	External DC power input

5		
6	CW_W	External input signal to control direction
7		
8	COM	Ground of external power
9	AGND	Negative of analog signal input
10	+12V	Positive of internal +12V power source
11	GND	Ground of Internal power source
12		
13	RS_W	External start/stop signal input terminal
14		
15		

6 Operation Instructions

6.1 Before Operation

- 1) Please check the packing slip to make sure nothing is wrong or damaged in the package. If there is problem, please contact the manufacturer or distributor.
- 2) Read through the instruction.
- 3) There should be more than 200 mm space for the back of the pump when it is running.

6.2 Power Connection

The voltage of the power supply should be marked on the sticker of the pump. Please make sure to use the right power source for the pump. Please plug the power cord into the IEC Power Connector on the rear of the pump and plug the opposite end of the power cord into an electrical outlet. Flip the power switch located on the rear of the pump.

6.3 Internal Control Mode

On this mode, use the keys on the front panel to operate the pump.

- 1) Turn on the power switch. The LED display will be on.
- 2) Make sure the **DIRECTION** switch is on middle position.
- 3) Press **SPEED ADJUST** dial to change the mode to Internal Control Mode.
- 4) Rotate the **SPEED ADJUST** dial to adjust the speed to desired value.
- 5) Change **DIRECTION** switch position to desired rotating direction. The drive starts running.
- 6) Press **PRIME/DISPENSE** button, the drive will run at maximum allowed speed.
- 7) Change **DIRECTION** switch to the middle position to stop the drive anytime when an accident occurs.

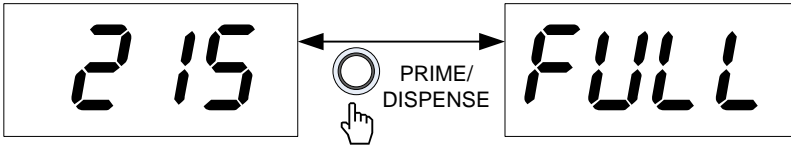


Figure 12. Full Speed

6.4 External Control Mode (E)

On this mode, external logic level signal controls direction, start and stop, and external analog signal controls rotation speed. The keypad is disabled. The analog signal could be 0-5V, 0-10V or 4-20mA. By default, the signal is 0-5V. For 0-10V or 4-20mA, the jump setting on the analog signal control board has to be changed ([Figure 13](#)).

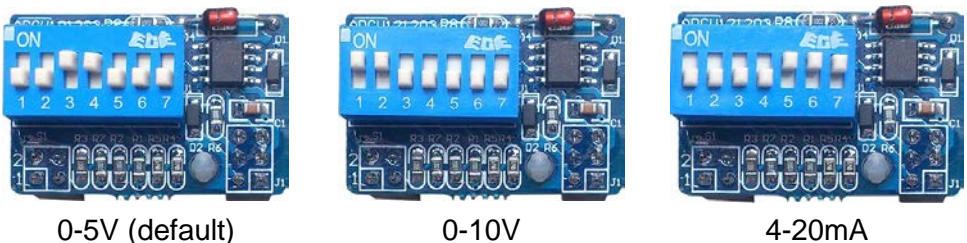


Figure 13. Analog Signal Control Board Setting

To control the pump by external signal

- 1) Switch the power of the pump off. Wire the DB15 connector as shown on *Figure 14* or *Figure 15*, and connect it to the DB15 port on the rear of the pump.

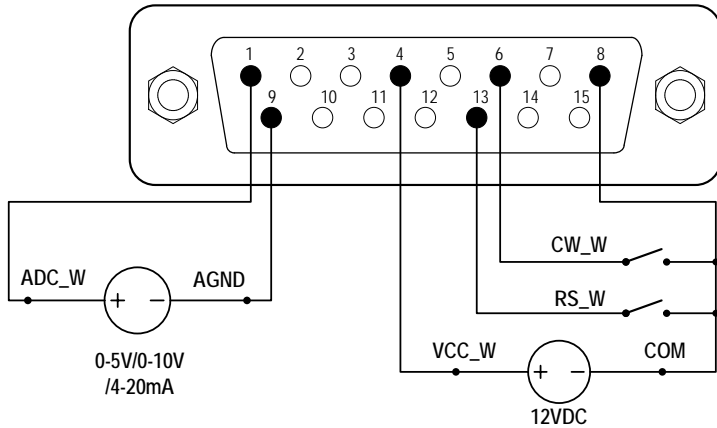


Figure 14. DB15 Wiring with External 12VDC Power Source

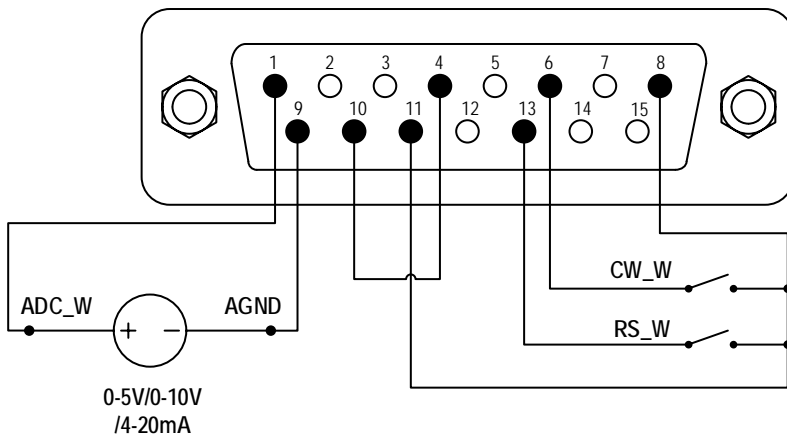
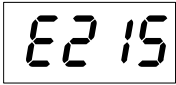


Figure 15. DB15 Wiring with Internal 12VDC Power Source

- 2) Turn on the power switch. The LED display will be on.



3) Press **SPEED ADJUST** dial to change the mode to External Control Mode.

4) Close the external RS_W switch, and turn on the external analog signal power source. The speed will change according to the intensity of the input signal. Open the RS_W to stop the drive.

5) Open CW_W switch, then the drive will run in clockwise direction; close the CW_W switch, then the drive will run in counterclockwise direction.

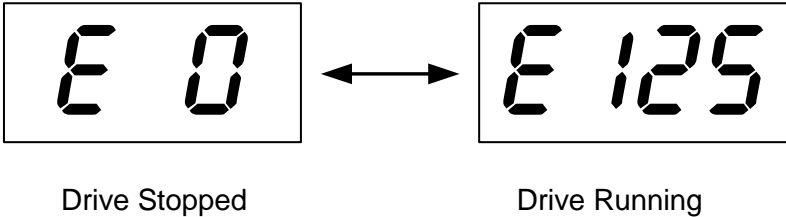


Figure 16. External Control Mode

Note: The external DC power source can be 5V, 12V or 24V. If it is 24V, 1.5K resistor is needed to protect internal circuit.

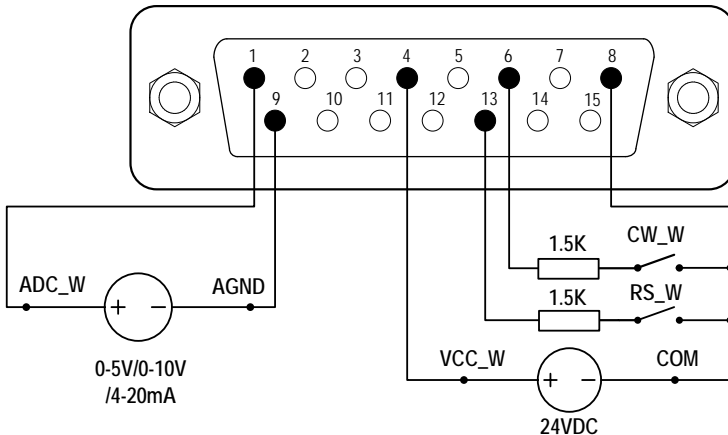


Figure 17. DB15 Wiring with External 24VDC Power Source

6.5 Time Dispense Mode (F)

Pump will dispense fluid by setting the duration time for each dose. The drive will stop automatically when finished dispensing.

To set the duration time for each dose

- 1) Turn on the power switch. The display will be on.
- 2) Make sure the **DIRECTION** switch is on middle position.
- 3) Press **SPEED ADJUST** dial to change the mode to Dispense Mode.
- 4) Press and hold **RPIME/DISPENSE** key for 3 seconds, the four-digit LED display will be flashing. Pump is on Time Dispense Setup Mode.

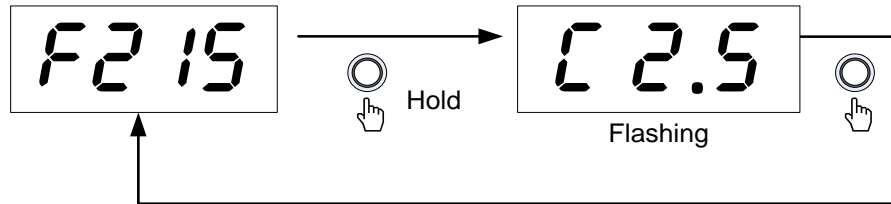


Figure 18. Time Dispense Setup Mode

- 5) When on Time Dispense Setup Mode, use the **SPEED ADJUST** dial to set the duration time, the time range is 0.1-999 seconds.
- 6) Press the **PRIME/DISPENSE** key again to exit the Time Dispense Setup Mode.

To Dispense Fluid

- 1) Press **SPEED ADJUST** dial to change the mode to Dispense Mode.
- 2) Change the **DIRECTION** position for running direction, clockwise or counterclockwise.
- 3) Press **PRIME/DISPENSE** key to run dispensing process. Press **PRIME/DISPENSE** key to dispense fluid again.

6.6 Logic Level Control Mode (H)

Use external logic level signal to control start and stop.

- 1) Switch the power of the pump off. Wire the DB15 connector as shown on [Figure 19](#) or [Figure 20](#), and connect it to the DB15 port on the rear of the pump.

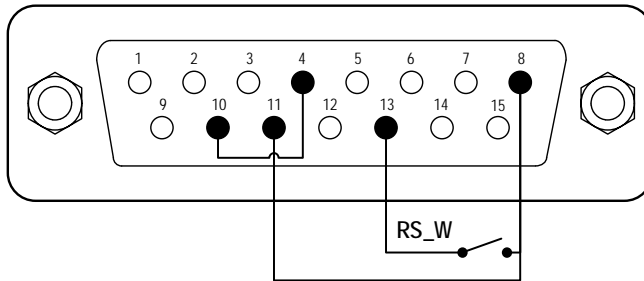


Figure 19. Logic Level Control with Internal 12V Power Source

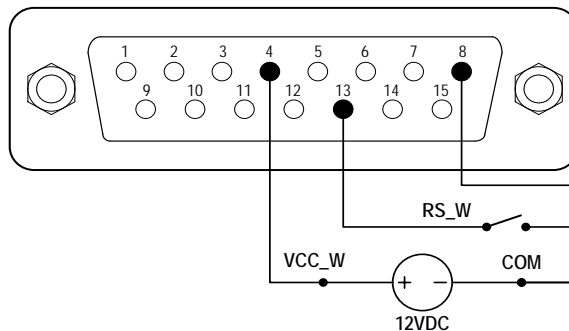
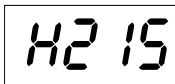


Figure 20. Logic Level Control with External 12V Power Source

2) Turn on the power switch. The LED display will be on.



3) Press **SPEED ADJUST** dial to change the mode to Logic Level Control Mode.

4) Rotate the **SPEED ADJUST** dial to adjust the speed to desired value.

5) Change **DIRECTION** switch position to desired rotating direction.

6) When RS_W switch is closed, the drive will be running; when RS_W switch is open, the drive will stop.

7) Change **DIRECTION** switch to the middle position to stop the drive anytime.

6.7 Communication Mode (L)

The RS485 interface supports standard MODBUS protocol. The pump can be controlled by external device via the communication port. Please refer to

the [Communication Instruction manual](#) for the parameters and supported commands.

- 1) When the power is off, wire the DB15 connector as shown on *Figure 21*, and connect it to the DB15 port on the rear of the pump. External DC power source is recommend to avoid electrical interference.

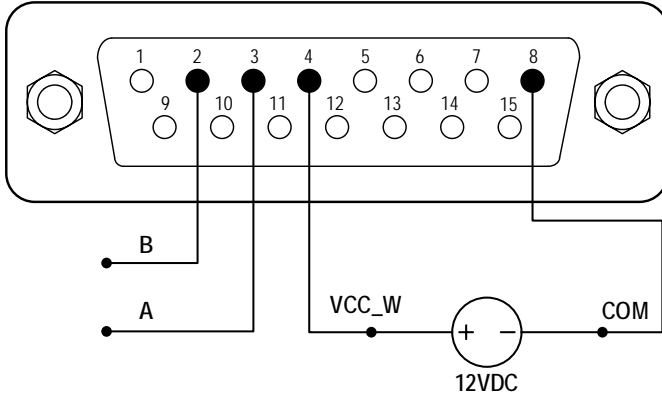
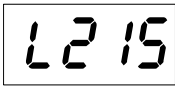


Figure 21. RS485 MODBUS Wiring

- 2) Turn on the power switch. The LED display will be on.
- 3) Press **SPEED ADJUST** dial to change the mode to Communication Mode.
- 4) Change **DIRECTION** switch position to desired rotating direction.
- 5) Control pump with communication interface.
- 6) Change **DIRECTION** switch to the middle position to stop drive anytime.



6.8 Footswitch Control

- 1) Switch the power of the pump off. Wire the DB15 connector as shown on *Figure 22* or *Figure 23*, and connect it to the DB15 port on the rear of the pump.

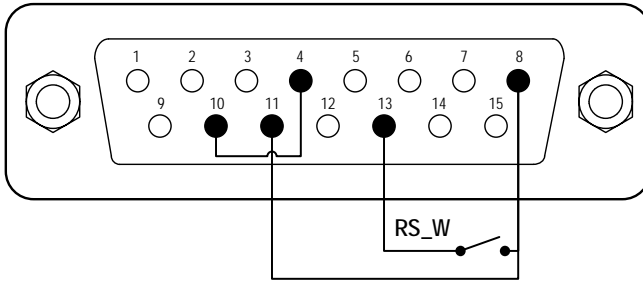


Figure 22. Footswitch with internal 12V Power Source

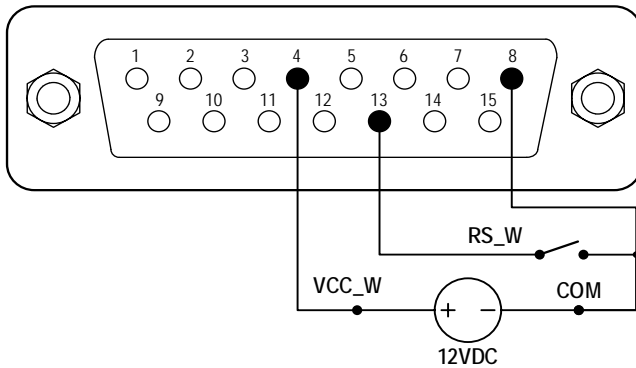


Figure 23. Footswitch with External 12V Power Source

- 2) Turn on the power switch. The LED display will be on.
- 3) Press **SPEED ADJUST** dial to change the mode to Time Dispense Mode. The RS_W would act like a momentary switch. When the switch is pushed then released, the pump will dispense one dose.
- 4) Press **SPEED ADJUST** dial to change the mode to Logic Level Control Mode. When RS_W switch is closed, the drive will be running; when switch is open, the drive will stop.

7 Maintenance

7.1 Warranty

The product comes with one-year labor and parts warranty. The limited warranty does not cover any damage that is caused by improper usage and

handling.

7.2 Regular Maintenance

- 1) Always check the tubing and connections to make sure there is no leakage.
- 2) Do not cover the fan on the rear of the pump.
- 3) Do not use water to wash the pump. Keep the pump head dry.
- 4) Do not use chemical solvents to clean the pump and the pump head.

7.3 Malfunction Solutions

No.	Malfunction	Description	Solution
1	Hardware	No display	<ol style="list-style-type: none"> 1. Check the power cord 2. Check the fuse. If it was blown, replace it with a 1A slow-blow fuse 3. Check the internal power cord connection inside the pump.
2	Hardware	Motor does not work	<ol style="list-style-type: none"> 1. Check the DIRECTION switch if it is on the middle position. 2. Check the indicator of the driver board. 3. Check the wire connection between the motor and the driver board. 4. Check the wire connection between the driver and the main board. 5. Check the power voltage for the pump.
3	Hardware	Motor is trembling	<ol style="list-style-type: none"> 1. Check the wire connection between the motor and the driver board. 2. The motor is overloaded. Check the mechanical connection.
4	Hardware	Motor only runs in one direction	Check the connection between the drive board and the main control board.
5	Hardware	Keypad does	1. Check the wire connection between

WG600S Industrial Basic Variable-Speed Peristaltic Pump

		not work	keypad and the main board. 2. Check if the key is broken.
6	Hardware	External control does not work	1. Check the wiring of the connector. 2. Check if the external control power voltage is provided. 3. Check the connections of the external control board. 4. Check the DIRECTION switch if it is on the middle position.
7	Hardware	RS485 com does not work	1. Check the wiring of the connector. 2. Check if the external control power voltage is provided. 3. Check the connections of the communication board. 4. Check the DIRECTION switch if it is on the middle position.
8	Hardware	Noisy when running	Check the screws and lever on the pump head to make sure they are secure.
9	Software	External control does not work	Check if pump is on External Control Mode.
10	Software	RS485 does not work right	1. Check if pump is on Communication Mode. 2. Reset the address of the pump. 3. Check whether on the bus there are two pumps using the same address



If the problem can not be solved, please contact the manufacturer or distributor.

8 Dimensions

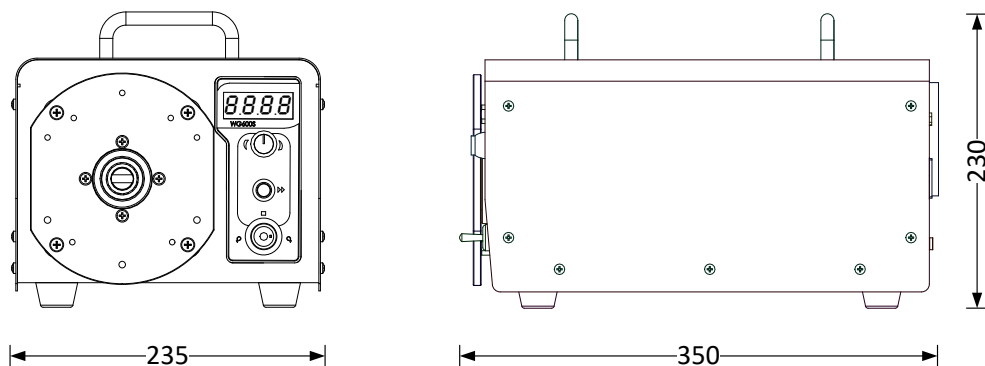
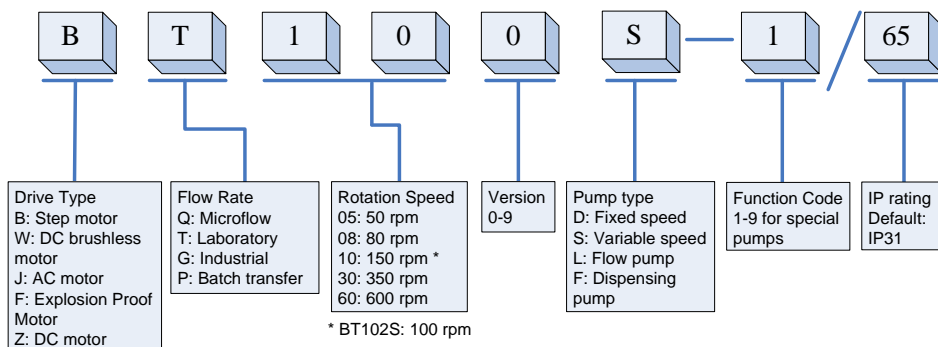


Figure 24. Dimensions (mm)

9 Naming Rule



10 Specifications

Speed resolution	1 rpm
Speed accuracy	3%
Direction	Reversible, clockwise/counterclockwise
Display	Rotating speed
Power supply	AC 220V±10% or 110V±10%, 50Hz/60Hz

WG600S Industrial Basic Variable-Speed Peristaltic Pump

External logic level control signal	5V, 12V (standard), 24V (optional)
External analog control signal	0-5V (standard); 0-10V, 4-20mA (optional)
Communication interface	RS485 MODBUS
Operating condition	Temperature 0~40°C, Relative humidity<80%
IP grade	IP31
Display	Four-digit LED
Dimensions (LxWxH)	350x235x230 mm (13.78x9.25x9.06 inch)
Weight	<12.8 kg (28.2 lbs)

Suitable Pump Heads and Tubing, Flow Parameters

Drive type	Pump head	Ch	Tubing size (mm)	Flow rate per channel (L/min)
WG600S	YZ35	1	73# 82#	0.4~13
	2xYZ35	2	73# 82#	0.4~13