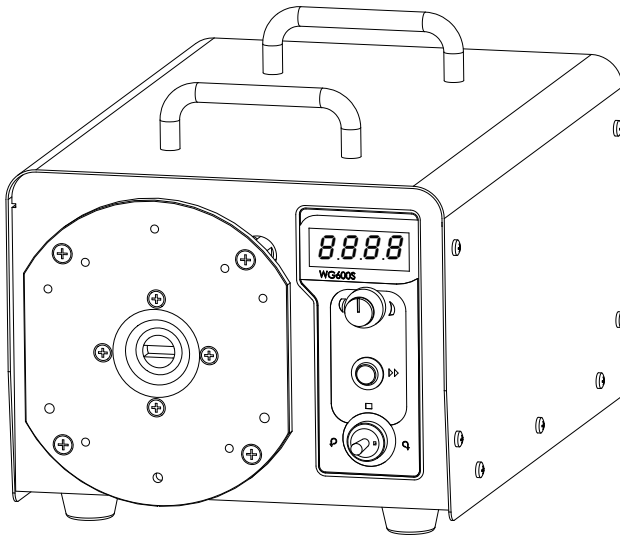




WG600S

Industrial Variable-Speed Peristaltic Pump Operating Manual



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Safety Precautions



Danger

- Use the correct voltage indicated on the label of the pump to avoid any damage.
- Do not make any unauthorized dismantling, changes, or modifications to the pump which could result in malfunctions or even potential accidents.
- Turn off the pump drive before installing or removing tubing, attempting any maintenance, cleaning, or repair of the drive, and connecting or disconnecting external control devices or a communication interface. Fingers or loose clothing could get caught in the drive mechanism.



Warning

- Ensure no chemical reactions occur between the handled fluid with the material of the pump head and tubing before use.
- Tubing should be checked regularly to avoid breakage. Tubing breakage may result in fluid being sprayed from the pump. Use appropriate measures to protect the operator and equipment. The operator is solely liable for damages resulting from tubing breakage, particularly the leakage of toxic or valuable liquids.
- The pump is provided with a grounded plug which must be well grounded at all times.
- This device is not designed for nor intended for usage in patient-connected applications, including but not limited to medical and dental use.
- Observe all other applicable regulations concerning working safety, operational safety, environmental protection, and relevant local regulations.

(DE) SICHERHEITSHINWEISE



Gefahr

- Verwenden Sie die richtige Spannung, die auf dem Typenschild der Pumpe angegeben ist, um Schäden zu vermeiden.
- Nehmen Sie keine unbefugten Demontagen, Änderungen oder Modifikationen an der Pumpe vor, die zu Fehlfunktionen oder sogar zu Unfällen führen könnten.
- Schalten Sie den Pumpenantrieb aus, bevor Sie Schläuche ein- oder ausbauen, Wartungs-, Reinigungs- oder Reparaturarbeiten am Antrieb vornehmen oder externe Steuergeräte oder eine Kommunikationsschnittstelle anschließen oder trennen. Finger oder lose Kleidungsstücke können sich im Antriebsmechanismus verfangen.



Warnung

- Vergewissern Sie sich vor der Verwendung, dass keine chemischen Reaktionen zwischen dem Fördermedium und dem Material des Pumpenkopfs und der Schläuche auftreten können.
- Die Schläuche sollten regelmäßig überprüft werden, um Brüche zu vermeiden. Ein Schlauchbruch kann dazu führen, dass Flüssigkeit aus der Pumpe spritzt. Ergreifen Sie geeignete Maßnahmen zum Schutz des Bedieners und der Ausrüstung. Der Betreiber haftet allein für Schäden, die durch einen Schlauchbruch entstehen, insbesondere für das Austreten von giftigen oder wertvollen Flüssigkeiten.
- Die Pumpe ist mit einem geerdeten Stecker ausgestattet, der stets korrekt an eine abgesicherte Netzsteckdose angeschlossen sein muss. Dieses Gerät ist nicht für Anwendungen ausgelegt oder vorgesehen, die im Zusammenhang mit der Behandlung von Patienten stehen. Medizinische bzw. zahnmedizinische Anwendungen sind nicht bestimmungsgemäß.
- Beachten Sie alle anderen geltenden Vorschriften zur Arbeitssicherheit, zur Betriebssicherheit, zum Umweltschutz sowie die einschlägigen örtlichen Vorschriften.

(FR) CONSIGNES DE SÉCURITÉ



Danger

- Utilisez la tension correcte indiquée sur la plaque signalétique de la pompe afin d'éviter tout dommage.
- Ne procédez pas à des démontages, changements ou modifications non autorisés de la pompe qui pourraient entraîner des dysfonctionnements, voire des accidents.
- Mettez l'entraînement de la pompe hors tension avant d'installer ou de retirer des tuyaux, d'effectuer des travaux d'entretien, de nettoyage ou de réparation sur l'entraînement ou de connecter ou déconnecter des dispositifs de commande externes ou une interface de communication. Des doigts ou des vêtements lâches pourraient se prendre dans le mécanisme d'entraînement.



Avertissement

- Avant toute utilisation, assurez-vous qu'il n'y a pas de réaction chimique entre le liquide pompé et le matériau de la tête de pompe et des tubes.
- Les tuyaux doivent être contrôlés régulièrement pour éviter les ruptures. Une rupture de tuyau peut entraîner des projections de liquide hors de la pompe. Prenez les mesures appropriées pour protéger l'opérateur et l'équipement. L'opérateur est seul responsable des dommages causés par une rupture de tuyau, notamment en cas de fuite de liquides toxiques ou précieux.
- La pompe est équipée d'une fiche de mise à la terre qui doit toujours être bien reliée à la terre.
- Cet appareil n'est pas conçu ni prévu pour être utilisé en présence de patients, y compris, mais sans s'y limiter, dans le cadre d'applications médicales et dentaires.
- Respectez toutes les autres réglementations applicables en matière de sécurité du travail, de sécurité d'exploitation, de protection de l'environnement.

(ES) INSTRUCCIONES DE SEGURIDAD



Peligro

- Utilice la tensión correcta indicada en la placa de características de la bomba para evitar daños.
- No realice ningún desmontaje, cambio o modificación no autorizada en la bomba que pueda provocar un mal funcionamiento o incluso accidentes.
- Desconecte el accionamiento de la bomba antes de instalar o retirar las mangueras, realizar trabajos de mantenimiento, limpieza o reparación en el accionamiento o conectar o desconectar dispositivos de control externos o una interfaz de comunicación. Los dedos o la ropa suelta podrían quedar atrapados en el mecanismo de accionamiento.



Advertencia

- Antes de usarla, asegúrese de que no hay reacciones químicas entre el medio bombeado y el material de la cabeza de la bomba y las mangueras.
- Las mangueras deben ser revisadas regularmente para evitar roturas. La rotura de una manguera puede hacer que salga líquido de la bomba. Tome las medidas adecuadas para proteger al operador y al equipo. El operador es el único responsable de los daños causados por la rotura de una manguera, especialmente por la fuga de líquidos tóxicos o valiosos.
- La bomba está equipada con un enchufe con toma de tierra que debe estar siempre bien conectado a tierra.
- Este aparato no está diseñado ni pensado para su uso en relación con los pacientes, incluyendo pero sin limitarse a las aplicaciones médicas y dentales.
- Respetar todas las demás normas aplicables en materia de seguridad laboral, seguridad operativa y protección del medio ambiente.

(IT) ISTRUZIONI DI SICUREZZA



Pericolo

- Usare la tensione corretta indicata sull'etichetta della targhetta della pompa per evitare qualsiasi danno.
- Non eseguire smontaggi, cambiamenti o modifiche non autorizzati alla pompa che potrebbero causare malfunzionamenti o addirittura potenziali incidenti.
- Spegnere l'azionamento della pompa prima d'installare o rimuovere tubi, tentare qualsiasi manutenzione, pulizia o riparazione dell'azionamento, collegare o scollegare dispositivi di controllo esterni o un'interfaccia di comunicazione. Dita o indumenti larghi potrebbero rimanere impigliati nel meccanismo di azionamento.



Attenzione

- Assicurarsi che non si verifichino reazioni chimiche tra il fluido trattato e il materiale della testa della pompa e dei tubi prima dell'uso.
- I tubi devono essere controllati regolarmente per evitare rotture. La rottura del tubo può provocare spruzzi di fluido dalla pompa. Utilizzare misure appropriate per proteggere l'operatore e l'attrezzatura. L'operatore è l'unico responsabile dei danni derivanti dalla rottura dei tubi, in particolare della fuoriuscita di liquidi tossici o preziosi.
- La pompa è dotata di una spina con messa a terra che deve essere sempre ben collegata a terra.
- Questo dispositivo non è progettato né destinato all'uso in applicazioni collegate al paziente, incluso ma non limitato all'uso medico e dentistico.
- Osservare tutte le altre norme applicabili riguardanti la sicurezza sul lavoro, la sicurezza operativa, la protezione dell'ambiente e le norme locali pertinenti.

1 Description

WG600S industrial variable-speed peristaltic pump is designed for industrial applications, specifically for transferring large quantities of fluids. It provides a 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 a *Time Dispense Mode*. The pump is equipped with a MODBUS RS485 interface, enabling easy connectivity to external devices such as computers, human machine interfaces, or PLCs.

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

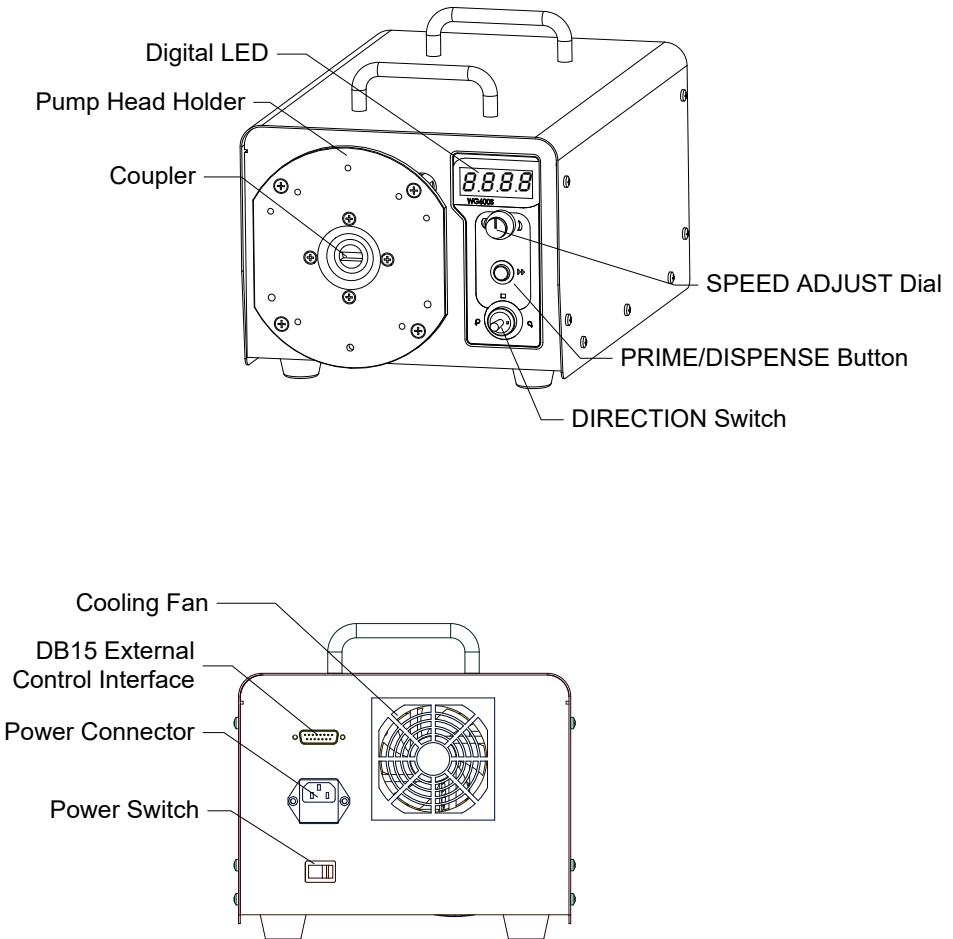


Figure 1. Components and Connectors

4 Display Panel and Operating Buttons

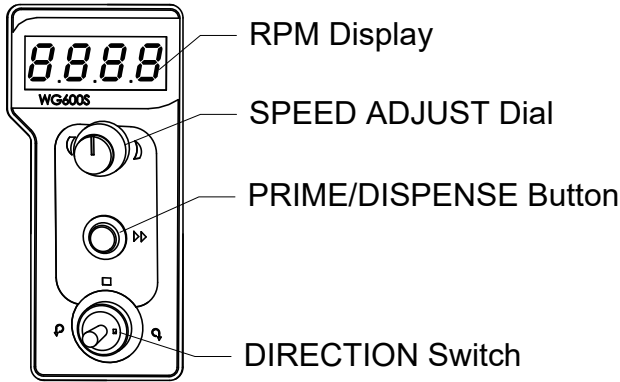


Figure 2. Display and Buttons

4.1 Digital LED Display

Digital LED display shows the current speed and working mode.

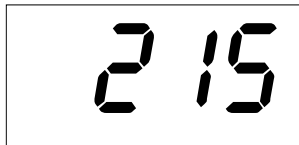


Figure 3. Internal Control Mode, 215 rpm

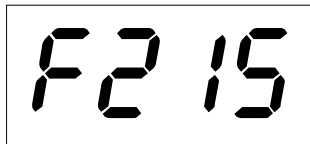


Figure 4. Time Dispense Mode, 215 rpm



Figure 5. External Control Mode, 100 rpm.



Figure 6. Logic Level Control Mode, 215 rpm

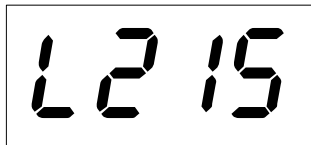


Figure 7. Communication Mode, 215 rpm



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*).

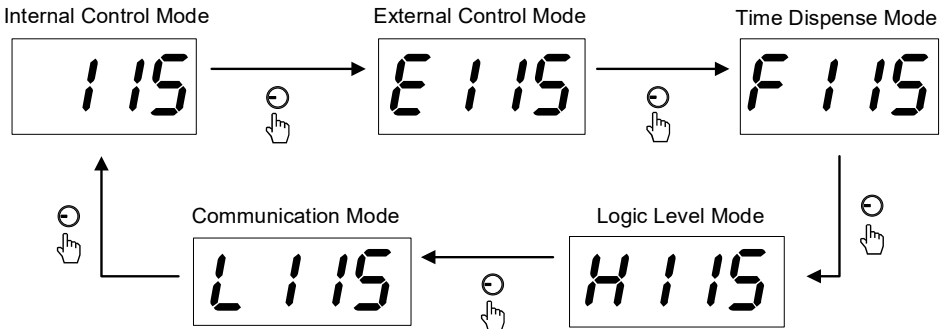


Figure 10. Change Control Mode

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.
 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.

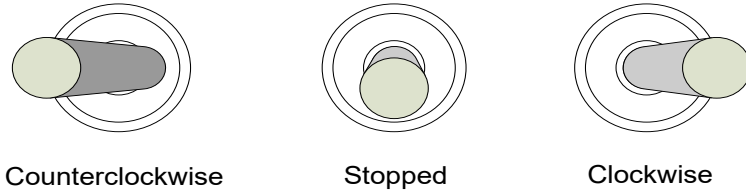
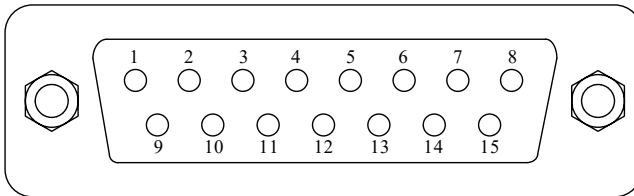


Figure 11. DIRECTION Switch

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 Operating

- 1) Please inspect the contents of the package and verify that nothing is damaged or missing. If there is an issue, please contact the manufacturer or distributor for assistance.
- 2) Read and familiarize yourself with the instructions provided.
- 3) Ensure that there is at least 200mm of space behind the pump during operation.

6.2 Power Connection

Check the voltage requirement on the sticker of the pump and use a compatible power source. 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

In this mode, you can operate the pump by using the keys located on the front panel.

- 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.

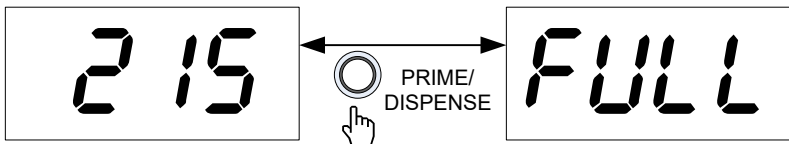


Figure 12. Full Speed

6.4 External Control Mode (E)

In this mode, the direction, start/stop, and rotation speed of the pump are controlled by an external logic level signal. The keypad functionality is disabled in this mode. The rotation speed can be controlled by an external analog signal, which can range from 0-5V by default. However, if you prefer to use a 0-10V or 4-20mA analog signal, you will need to change the DIP switch setting on the analog signal control board accordingly. (*Figure 13*).

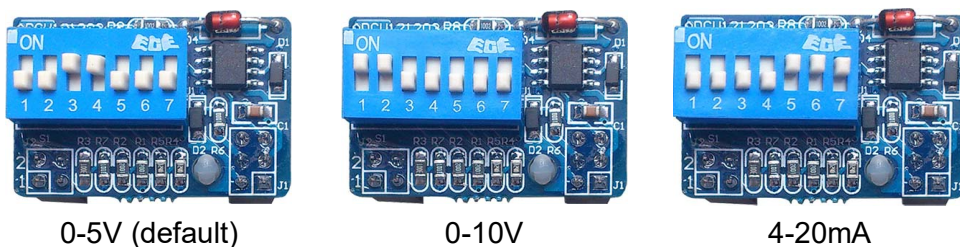


Figure 13. Analog Signal Control Board Setting

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.

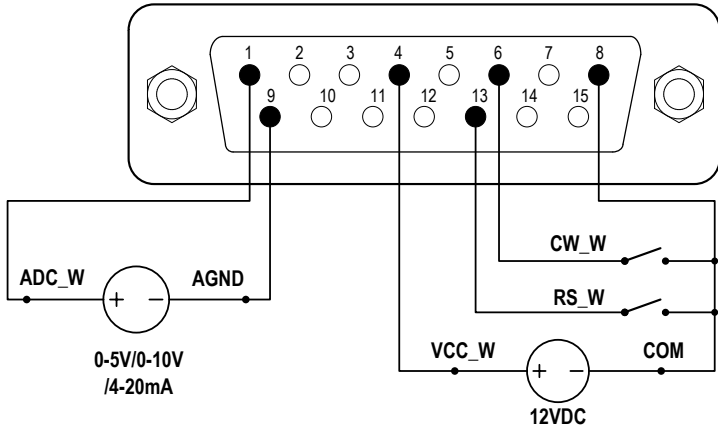


Figure 14. DB15 Wiring with External 12VDC Power Source

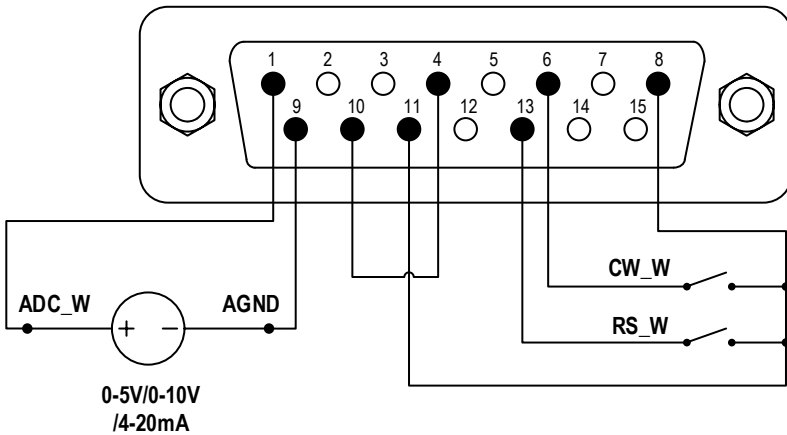
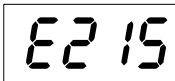


Figure 15. DB15 Wiring with Internal 12VDC Power Source

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.

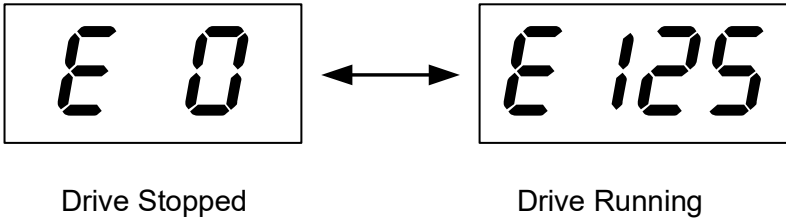


Figure 16. External Control Mode

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.

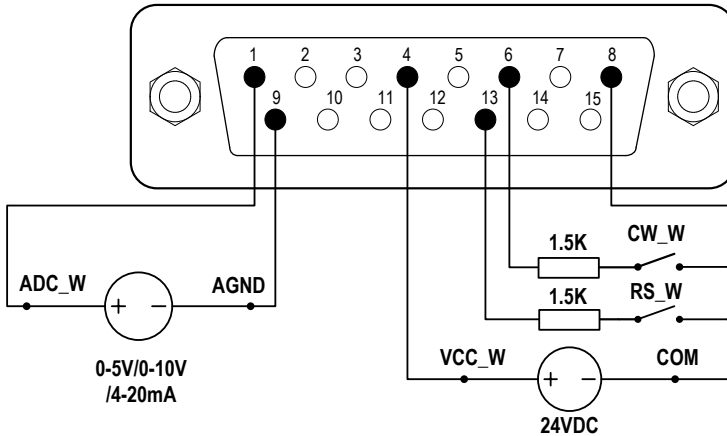


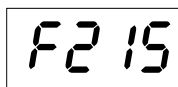
Figure 17. DB15 Wiring with External 24VDC Power Source

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.

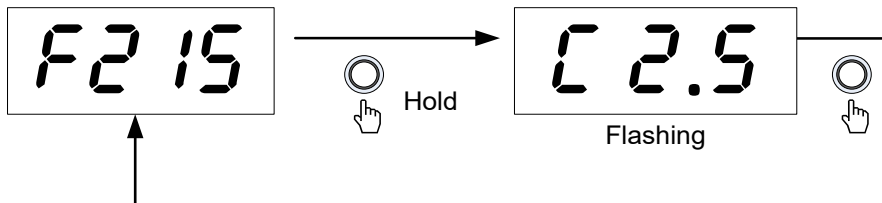


Figure 18. Time Dispense Setup Mode

- 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.

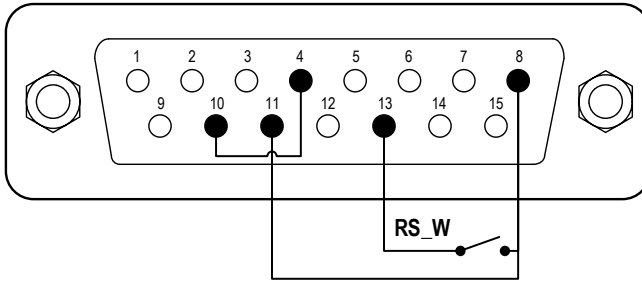


Figure 19. Logic Level Control with Internal 12V Power Source

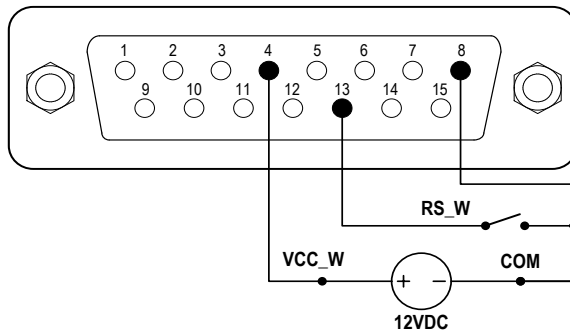
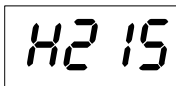


Figure 20. Logic Level Control with External 12V Power Source

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.

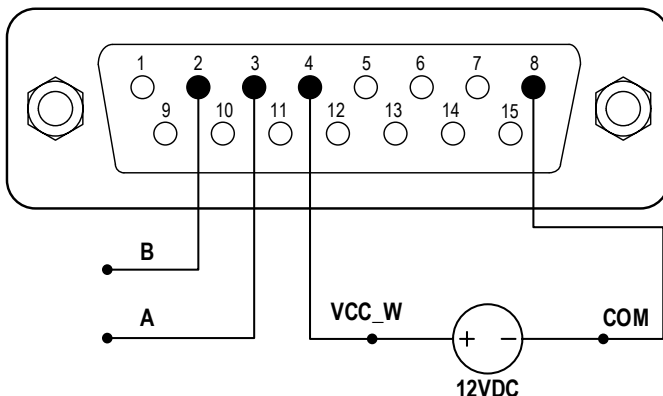
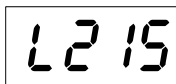


Figure 21. RS485 MODBUS Wiring

- 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.

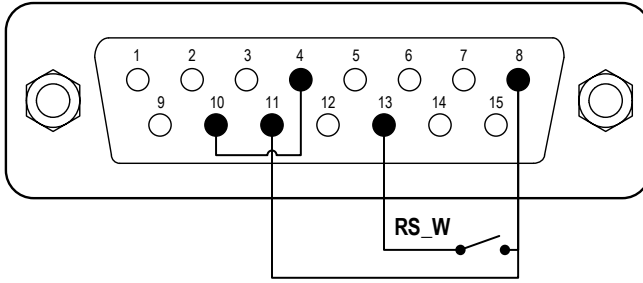


Figure 22. Footswitch with internal 12V Power Source

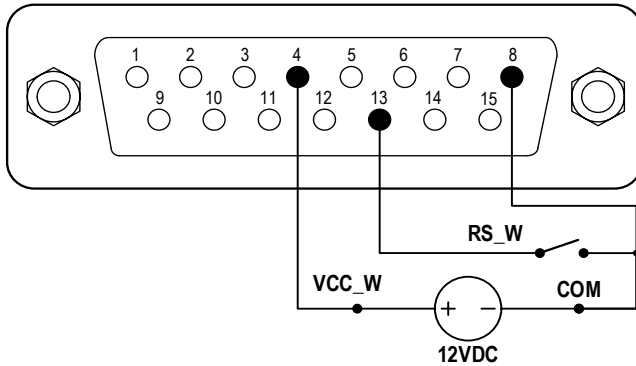


Figure 23. Footswitch with External 12V Power Source

- 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 |

Golander WG600S Industrial 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

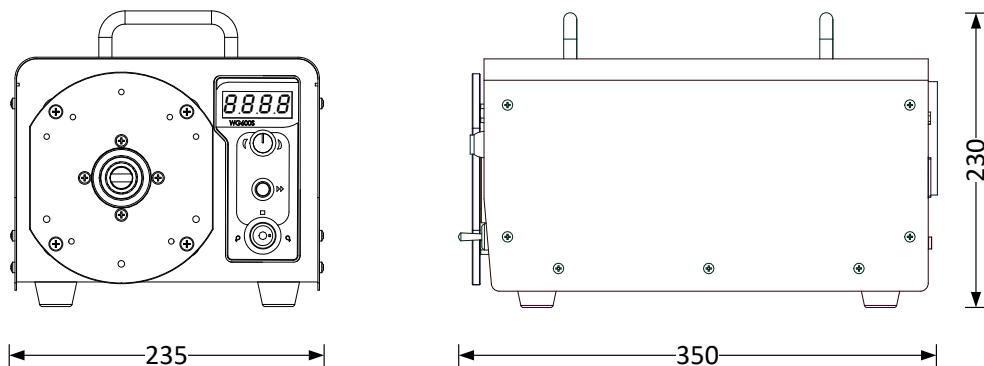
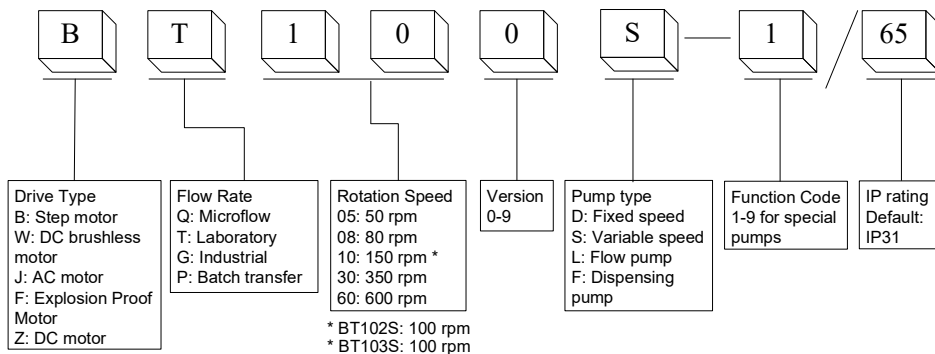


Figure 24. Dimensions (mm)

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 |

Golander WG600S Industrial 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 | Number of channels | Tubing size | Flow rate per channel (L/min) |
|------------|-----------|--------------------|-------------|-------------------------------|
| WG600S | YZ35 | 1 | 73# 82# | 0.4~13 |
| | 2xYZ35 | 2 | 73# 82# | 0.4~13 |

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