

ESXSWYDR KK2000

ESXSWYDR KK2000 24V Peristaltic Pump with S17 6.4x9.6mm Driver Board User Manual

Model: KK2000 S17 6.4x9.6mm

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of the ESXSWYDR KK2000 24V Peristaltic Pump with S17 6.4x9.6mm Driver Board. Please read this manual thoroughly before installation and operation to ensure proper usage and to prevent damage to the equipment or injury. The KK2000 is a high-flow, self-priming peristaltic pump designed for laboratory dosing and various DIY applications. It features a powerful stepper motor for precise control and reliable performance.

2. PRODUCT FEATURES

- **High Flow Rate:** Capable of delivering 700-2000 ml/min.
- **Voltage:** Operates on 24V DC.
- **Stepper Motor:** Equipped with a 6000Hs stepper motor for precise control.
- **Self-Priming:** Designed for self-priming operation.
- **Easy Tubing Replacement:** Facilitates quick and simple replacement of pump tubes to accommodate different sizes.
- **Performance:** Offers high precision, low noise operation, and a simple, maintenance-free structure.
- **Compact Design:** Micro size and easy to carry, with a weight of approximately 1468g.
- **Tubing Compatibility:** Supports BPT and Silicone tubing, with specific lifetimes.

3. SPECIFICATIONS

Specification	Detail
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Specification	Detail
Brand	ESXSWYDR
Model	KK2000
Flow Rate Range	700-2000 ml/min
Voltage	24V
Max RPM (Intermittent)	350 RPM
Continuous RPM	250 RPM
Recommended Stepper Motor RPM Range	200-350 RPM
Pump Head Tubing Compatibility	S17 (ID6.4 x OD9.6mm), B17 (ID6.4 x OD9.6mm), S18 (ID7.9 x OD11.1mm), B18 (ID7.9 x OD11.1mm)
Tubing Types	BPT, Silicone
Item Weight (Pump Unit)	Approximately 1468g
Package Dimensions	1.18 x 0.79 x 0.39 inches (Note: This likely refers to the driver board or a small component, not the entire pump unit.)

4. SETUP AND INSTALLATION

4.1 Component Overview



Figure 1: ESXSWYDR KK2000 Peristaltic Pump. This image displays the overall dimensions of the pump unit, including its length, width, and height, providing a clear understanding of its physical footprint.

700-2000ml/min; Accuracy $\pm 10\%$
Optional driver board: Modbus
24W · Stepper motor(24V) · 6000H
Optional tubing: 17# 18# Silicone · BPT



Figure 2: KK2000 Pump with key specifications. This image highlights the pump's flow rate range (700-2000ml/min), accuracy ($\pm 10\%$), optional Modbus driver board, 24W 24V stepper motor, and compatible tubing types (17#, 18# Silicone, BPT).



Figure 3: Close-up view of the KK2000-ST stepper motor. This image shows the motor's branding, voltage (U: 24V), and power rating (P: 40W), indicating its robust design.



The control mode is step driver

Figure 4: Modbus-RTU Driver Board. This blue circuit board features DIP switches for configuration, input/output terminals, and power connections, essential for controlling the stepper motor.

4.2 Stepper Motor Connection

The stepper motor requires a compatible driver board for operation. Ensure correct wiring to prevent damage.

- **Black Wire:** Connect to A+
- **Green Wire:** Connect to A-
- **Red Wire:** Connect to B+
- **Blue Wire:** Connect to B-

Refer to the driver board's specific instructions for detailed wiring and configuration, especially if using a Modbus-compatible board.

5. OPERATION

5.1 Flow Rate and RPM

The KK2000 pump can achieve a maximum flow rate of 2000 ml/min at 350 RPM. This maximum RPM is suitable for intermittent operation only. For continuous working mode, it is recommended to operate the pump at 250 RPM.

The stepper motor is designed to work optimally within the range of 200 RPM to 350 RPM. Operating at lower speeds may result in low-frequency resonance noise.

5.2 Tubing Selection and Installation

Proper tubing selection is crucial for performance and longevity. The pump head is designed to automatically adapt to various pipe clamping devices, accommodating different specifications of pump pipes.



Automatically adapt to pipe clamping device, suitable for various specifications of pump pipes, to meet different transmission needs

Figure 5: Pump head designed for tubing with a wall thickness of 1.6mm. This ensures proper fit and sealing for efficient fluid transfer.



- Stable performance
- Low noise,
- Maintenance free

Figure 6: Open view of the pump head demonstrating its automatic adaptation to pipe clamping devices. This feature allows compatibility with various tubing specifications for diverse transmission needs.

If the liquid being pumped is viscous or corrosive, BPT tubing is recommended due to its superior chemical resistance and longer lifespan compared to silicone tubing.

The following table provides flow rates and expected lifetimes for different tubing types and sizes at 250 RPM, measured with pure water at 20°C without pressure:

Tubing Type	Dimensions (ID x OD)	Flow Rate (ml/min) at 250 RPM	Lifetime (Hours)
B17	ID6.4 x OD9.6mm	900	1000H
S17 (Silicone)	ID6.4 x OD9.6mm	920	200H
B18	ID7.9 x OD11.1mm	1260	1000H
S18 (Silicone)	ID7.9 x OD11.1mm	1300	200H

Note: Actual flow rates may vary depending on the medium's viscosity, outlet pressure, and environmental conditions.

6. MAINTENANCE

The KK2000 peristaltic pump is designed for low maintenance. The primary maintenance task involves the

timely replacement of the pump tubing.

- **Tubing Replacement:** Replace tubing according to the recommended lifetime or sooner if signs of wear, cracking, or reduced performance are observed. The pump's design allows for quick and easy tube replacement.
- **Cleaning:** Periodically inspect the pump head and rollers for any residue or buildup. Clean with a damp cloth if necessary, ensuring no liquids enter the motor or electrical components.

7. TROUBLESHOOTING

This section addresses common issues you might encounter with your peristaltic pump.

- **Pump Not Operating:**
 - Check power supply connections to ensure the pump and driver board are receiving 24V.
 - Verify stepper motor wiring (A+, A-, B+, B-) is correct as per Section 4.2.
 - Ensure the driver board is properly configured and receiving control signals.
- **Reduced Flow Rate:**
 - Inspect tubing for kinks, blockages, or wear. Replace tubing if necessary.
 - Confirm the pump is operating at the recommended RPM for continuous flow (250 RPM).
 - Check for excessive back pressure in the system.
- **Unusual Noise:**
 - Low-frequency resonance noise can occur at speeds below 200 RPM. Adjust RPM to the recommended range (200-350 RPM).
 - Check for any foreign objects in the pump head or motor area.
 - Ensure the pump is securely mounted.
- **Liquid Leakage:**
 - Inspect tubing for cracks or punctures.
 - Ensure tubing is correctly installed and seated within the pump head.
 - Verify that tubing connections to external systems are secure.

If issues persist after attempting these troubleshooting steps, contact customer support for further assistance.

8. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the product packaging or contact ESXSWYDR customer service directly. Keep your purchase receipt as proof of purchase.