

VARIABLE & FIXED SPEED PERISTALTIC PUMPS OPERATING MANUAL



MODELS: VSL & FSL4 SERIES PUMPS

VSL & FSL4 SERIES PUMPS

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POTENTIAL RISK OF ELECTRIC SHOCK!



DO NOT use DC motor pump with a damaged or altered power cord or power supply. Contact the factory or an authorized service facility for repair.



Disconnect power cord before moving or disposing of pump.



CAUTION – This Pump Has Been Evaluated with Water Only.



WARNING - Risk of electric shock – This pump is supplied with a grounding conductor and grounding-type attachment plug. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded, grounding-type receptacle.



Before installing or servicing the pump, read the pump manual for all safety information and complete instructions. Installation and Product must adhere to all regulatory and compliance codes applicable to the area.

SAFETY, CAUTIONS AND WARNINGS

“CAUTIONS”: When changing flow direction, allow the pump to come to a complete stop before starting again. Failure to do so could cause permanent damage to the motor.

“PRÉCAUTIONS”: Lorsque vous changez la direction du débit, laissez la pompe arrêter-vous complètement avant de recommencer. Échec à faire Cela pourrait causer des dommages permanents au moteur.

Replace the fuse only with one of the same types and rating. The fuse rating and type are stated on the rear panel.

Remplacez le fusible uniquement par l'un des mêmes types et du même calibre. Le type et le type de fusible sont indiqués sur le panneau arrière.

“CAUTION: This Pump Has Been Evaluated for Use With Water Only.”

“ATTENTION: cette pompe a été évaluée pour une utilisation avec de l'eau uniquement.”

“CAUTION”: “To reduce risk of electric shock, pull plug before servicing this pump.”

“ATTENTION”: “Pour réduire le risque d'électrocution, débranchez la prise avant de réparer cette pompe.”

“WARNING”: “To Reduce Risk Of Electric Shock, Connect Only To A Properly Grounded, Grounding-Type Receptacle.”

“AVERTISSEMENT”: “Pour réduire le risque d'électrocution, connectez uniquement à une prise correctement mise à la terre.”

“WARNING”: “Risk Of Electric Shock – This Pump Has Not Been Investigated For Use In Swimming Pool Or Marine Areas.”

“AVERTISSEMENT”: “Risque de choc électrique - Cette pompe n'a pas été étudiée pour une utilisation en piscine ou en zone marine.”

NOTICE : Every precaution for accuracy has been taken in the preparation of this manual, however, ANKO PRODUCTS, INC. neither assumes responsibility for any omissions or errors that may appear nor assumes liability for any damages that result from the use of the products in accordance with the information contained in this manual.

VSL & FSL4 SERIES PUMPS

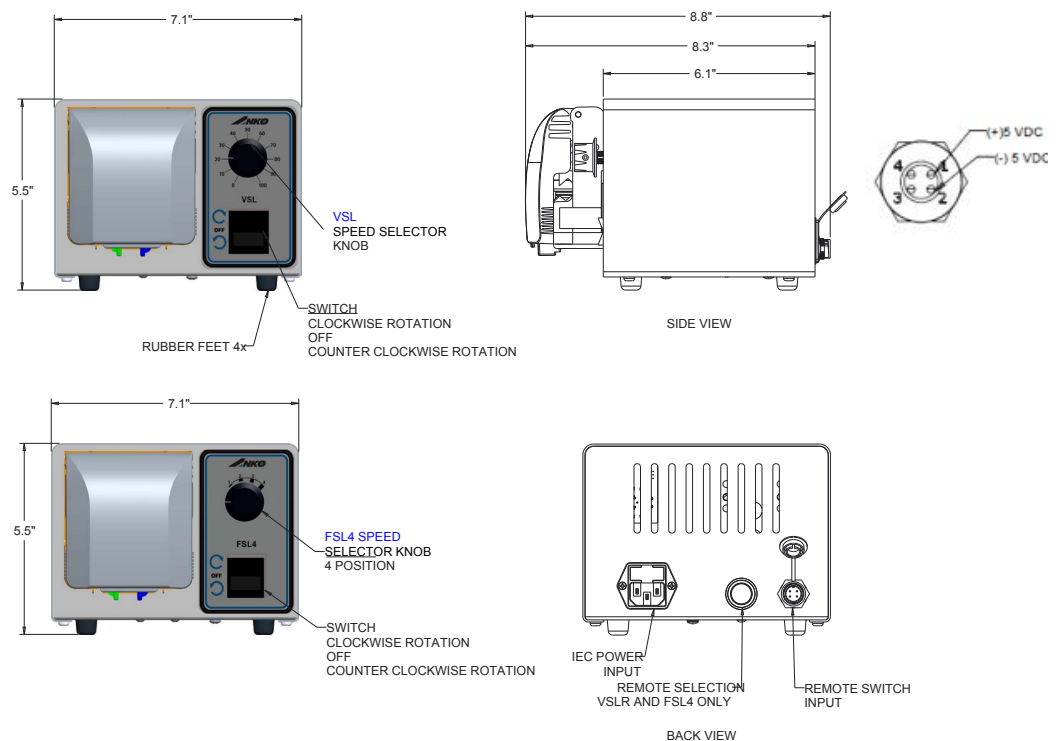
INSTALLATION

- Voltage and frequency of power supply must be the same as shown on unit specification label.
- The AC power must be connected to a Grounded Power Outlet (Grounded-Fault Circuit Interrupter GFCI). DO NOT run operate pump on an un-grounded circuit.
- **WIRING CONNECTIONS:** All wiring and electrical connections must comply with local and national electrical codes.
- Enclosure should be either placed on a dry flat surface or mount enclosure to wall using wall mounting hardware provided. The ambient temperature should not exceed 35° C.
- The ambient air temperature should not exceed 104° F (40° C) and adequate air flow should be provided for.
- Tubing should be clean and routed so that bend radii are at a minimum four (4) times the tube diameter.
- Use a tube size of appropriate diameter for the flow rate and viscosity required.



CAUTION: Motor life will be drastically reduced if left in the stalled position for extended periods.

CONTROLS AND CONNECTORS



OPERATION

Before Inserting Tube:

- **WARNINGS:** Tubing breakage may result in fluid being sprayed from pump. Use appropriate measures to protect operator and equipment.
- The L400 pump is equipped with a safety switch so that when the front cover is lifted up, the pump stops. Be sure the Pump System is off before removing or installing tubing. Fingers or loose clothing could be caught in the pump mechanism.

Tube Inspection:

- Tubing should be inspected periodically for tears, cracks, cuts, abrasions, inability to pull a vacuum, reduction or loss of flow.
- Tubing life may be extended by periodically repositioning the occluded tubing

Turning Pump On:

- Make sure the speed is set to the minimum setting.
- Push UP on the ON/OFF switch to turn the power ON and run pump clockwise.
- Turn knob clockwise to increase the speed of the pump. The higher the percentage setting, the faster the speed of the pump.
- Push DOWN on the ON/OFF switch to turn the power OFF.
- The Laboratory Drive Units are self-priming. Verify the suction side tubing is submerged into medium being pump.
- Prime the tubing for at least 5 minutes. 15 minutes for stable flow.



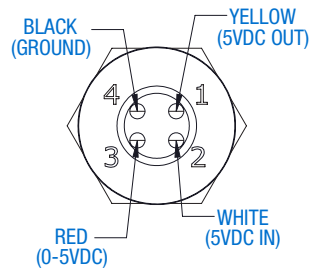
CAUTION: When changing flow direction, allow the pump to come to a complete stop before starting again. Failure to do so could cause permanent damage to the motor.

ATTENTION: lors du changement de direction du débit, laissez la pompe s'arrêter complètement avant de recommencer. Échec à Cela pourrait causer des dommages permanents au moteur.

VSL & FSL4 SERIES PUMPS

PUMP SPECIFICATIONS		
Model Series	VSL	FSL4
Pump Head	L400 - 3 rollers	L400 - 4 rollers
Control Type	Variable Speed - Analog	4 Fixed Speeds
Speed Control	+/-2.0%	
Directional Control	Bi-Directional	
Motor Type	Brushless DC	
Duty Cycle	Continuous	
Tube Wall Thicknesses Accepted	1.6mm (1/16") & 2.4mm (3/32")	
Tube Bores Accepted - 1.6mm Wall	.8mm (1/32") to 7.9mm (5/16")	
Tube Bores Accepted - 2.4mm Wall	.8mm (1/32") to 6.4mm (1/4")	
Voltage	100-240 50/60Hz	
Plug Type	NEMA 5-15P to IEC 320-C13	
Max Working Pressure	25 psi	
Compliance	UL778; FCC Part 15b Class A	
MATERIALS OF CONSTRUCTION		
Enclosure	Powder Coated Steel - IP22 rated	
Pump Head	Polycarbonate; IXEF	
Rollers	Stainless Steel	Nylatron®
Rotor	Stainless Steel	
Bearings	Sealed Stainless Steel	

REMOTE FEATURE



- Remote feature can be activated by changing rocker switch position behind unit from Internal to External.
- Anko's optional Foot Switch (SKU: 23-4607-00-00) will connect to unit's Remote feature and can activate pump on and off by connecting to Pin 1 and Pin 2

TUBING INSTALLATION OPTION

Inspect all tubing regularly and replace if any sign of deterioration occurs. Always wear safety glasses and protect clothing when working with chemicals. Pump can run dry without damage.

L400 SERIES PUMP HEAD TUBE REPLACEMENT PROCEDURE:

1. Disconnect the suction and discharge tubing from the pump tubing.
2. Simply lift cover, occlusion will lift and release the tubing.
3. Pull tubing out of pump and replace tubing. Pull tubing out of roller race.
4. Close cover completely.



FUSE REPLACEMENT PROCEDURE



1. Disconnect power to pump.
2. The fuse holder is located on the back of the case.
3. Pull the fuse tray out as shown in photo below.
4. Remove old fuse and replace with spare part # FU-1127-02-00
5. Slide fuse tray back in to lock.

ROLLER ASSEMBLY REPLACEMENT

ROLLER ASSEMBLY MAY BE EASILY CHANGED OUT FOR:

- Different tube wall thicknesses (1.6mm vs 2.4 mm)
- Number of Rollers (3, 4 or 6 Rollers Assemblies)
- Pump cleaning

PROCEDURE

1. Turn power off to the drive unit and lift the pump cover.
2. Using a 1/16" Allen wrench, remove the 2 screws holding the Bearing Bridge to Housing. (Figure 1)
3. Pull Bearing Bridge and locating pins straight out of Housing. Remove thrust washer. (Figure 2)
4. Remove Roller Assembly by pulling and sliding it off the output shaft. (Figure 3)
5. To install new roller assembly, reverse steps 1 through 4.
6. Push new Roller Bracket onto output shaft. (Figure 4)
7. Replace thrust washer. (Figure 5)
8. Push Bearing Bridge, Guide Pins and Bearing back onto output shaft. (Figure 6)
9. Using an 1/16" Allen head tool, install and tighten the two mounting screws. (Figure 1)



Figure 1

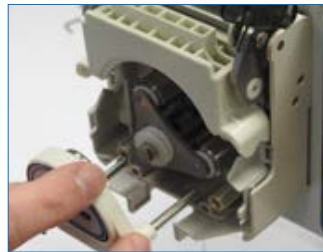


Figure 2



Figure 3



Figure 4



Figure 5



Figure 6

TROUBLESHOOTING		
PROBLEM	POSSIBLE CAUSE	SOLUTION
Fluid Leaking	Pump tube worn	Replace tubing
	Excessive back pressure	Ensure system pressure does not exceed pressure rating
	Tube connections are not tight	Ensure tubing connections are properly connected
Tube Life is Shortened	Roller bracket assembly worn out	Replace roller bracket assembly
	Check tubing is compatible with roller size. Tubing should be snug, but not tight against the rollers.	Very proper Roller Bracket Assembly for tube wall thickness.
	Fluid is not compatible with tubing	Check fluid-to-tube compatibility
Pump will not start	Check for blown fuse at incoming voltage	Replace Fuse if blown
	If the unit is plugged into a GFCI protected circuit	Verify that the circuit has not been tripped or reset the circuit
	Outlet is not powered	Verify that the unit is plugged into a functioning outlet.
	IEC plug has a loose connection	Verify that the power cord is firmly attached to IEC receptacle.
	Gearbox assembly worn	Replace unit
Unit is ON but pump will not turn	Check tubing is compatible with roller size. Tubing should be snug, but not tight against the rollers.	Very proper Roller Bracket Assembly for tube wall thickness.
	Internal / External Switch is in the wrong position.	Change switch position.
Pump runs but does not meet rated flow	Tubing is worn	Replace tubing
	Gearbox assembly worn	Replace unit
	Fluid viscosity is too high	Lower viscosity
	Pumping height is too high	Reduce pumping height

VSL & FSL4 SERIES PUMPS

REPLACEMENT PARTS & PUMP TUBING

PUMP FLOW SPECIFICATIONS

VSL Series Flow Rates by Model & Tube Bore (mL/min)							
Model Info		Tube Bore					
Model #	Settings	7.9mm (5/16")*	6.4mm (1/4")	4.8mm (3/16")	3.2mm (1/8")	1.6mm (1/16")	.8mm (1/32")
VSL 1800	Max	1864	1313	801	381	93	20
	Min	93	66	40	19	5	1
VSL 600	Max	621	438	267	127	31	7
	Min	31	22	13	6	2	0.3
VSL 350	Max	388	273	167	79	19	4
	Min	19	14	8	4	1	0.2

FSL4 Flow Rates by Model & Tube Bore (mL/min)							
Model Info		Tube Bore					
Model #	Settings	7.9mm (5/16")*	6.4mm (1/4")	4.8mm (3/16")	3.2mm (1/8")	3.2mm (1/8")	3.2mm (1/8")
FSL4-1000	1	1420	1000	610	290	71	16
	2	710	500	305	145	36	8
	3	355	250	153	73	18	4
	4	178	125	76	36	9	2
FSL4-250	1	355	250	153	73	18	4
	2	178	125	76	36	9	2
	3	71	50	31	15	4	1
	4	36	25	15	7	2	0.4
FSL4-100	1	142	100	61	29	7	2
	2	71	50	31	15	4	1
	3	36	25	15	7	2	0.4
	4	14	10	6	3	1	0.2

* Limited to tubing with 1.6mm wall thickness.

Flow rates are for guidance purposes only and are based upon pumping ambient temperature (22°C/72°F) water at zero pressure and zero lift. Rates may increase/decrease based upon numerous factors including motor variances, tubing characteristics, fluid viscosity, lift height, pressure and number of rollers. Anko reserves the right to make changes at any time without prior notice. The information provided is not intended for a specific application purpose.

LIMITED WARRANTY

For cased peristaltic metering pumps manufactured after April 16thst, 2018, Anko Products, Inc, ("ANKO") warrants, subject to the conditions and exceptions herein, to replace or repair free of charge, any of its products which fail within three years of the date of manufacture. Any failure must be a result of a defect in material workmanship and not as a result of normal operation as described in the product user manual.

This warranty is limited to repairing or replacing any device or part of any device which is returned, transportation prepaid, to the factory and is proven to be defective upon our examination. The warranty shall not apply to repairs required for normal wear and tear, lack of reasonable and proper maintenance, chemical attack, electrical surge or products that have been misused in our sole judgement. All consumable items such as tubing, and pump head rollers are excluded.

ANKO disclaims all liability for any loss, damage or expense directly or indirectly related to or arising from the use of its products, including damage to other products, machinery or property. ANKO shall not be liable for any consequential damages including, without limitation, loss of profits, loss of product or loss of production. This warranty does not obligate ANKO to bear any costs of removal, installation, transportation or other charges which may arise in connection with a warranty claim.

ANKO makes no warranties, either express or implied, other than those stated above. No representative has authority to change or modify this warranty in any respect. Jurisdiction and venue for enforcement of this warranty may be brought only in the State of Florida. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

VSL & FSL4 SERIES PUMPS

RETURN AND REPAIR

WARRANTY RETURNS:

To return merchandise call ANKO PRODUCTS, at 800-683-2378 for a Return Material Authorization (“RMA”), then, if applicable, Buyer may return the defective Products to ANKO PRODUCTS with all costs prepaid by Buyer. Replacement parts may be new or refurbished, at the election of ANKO PRODUCTS. ANKO PRODUCTS will incur shipping costs for warranty products shipped from our factory. All replaced parts shall become the property of ANKO PRODUCTS. No repair or replacement will extend the original warranty period.

FOR YOUR RECORDS:

Model _____

Date of Installation _____

Notes _____
