



# **Fluid Dispenser Model KW-4AD User Manual**

SPI Supplies Part #12172



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## Warranty

The SPI Supplies unit you have purchased is guaranteed to be free of defects in workmanship on the day of shipment. This warranty covers parts and labor for a period of one year, excluding shipping charges or consumables. Breakage of glassware is specifically excluded from this warranty.

Proper use of your unit, according to the operation manual, should result in trouble-free operation. Any improper use of the SPI Supplies unit through modifications or unreasonable operating procedures will void this warranty.

## Disclaimer

SPI Supplies instruments are designed for simplicity of installation and operation. This manual provides full and complete information in both these areas. SPI Supplies therefore assumes no liability or responsibility of any kind for damage or injury resulting from incorrect installation or operation of the machine.

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## I. Description

The SPI Supplies KW-4AD Fluid Dispenser is designed for utilizing process productivity by consistently dispensing a wide variety of assembly fluids. From repeatable dots to neat beads, the KW-4AD provides immediate productivity gains without usage of messy squeeze bottles and other costly traditional fluid application methods.

The Dispenser KW-4AD is designed for use in semiconductor process, patterning, coating process, etc. It also can be used for R&D, as well as an educational tool.

## II. Features

- A.** Small convenient bench top size
- B.** Simple, user friendly design
- C.** Adjustable output air pressure
- D.** Manual vacuum control for thin fluids
- E.** Multi-voltage selection

### III. Introduction

This manual is intended for all users of the SPI Supplies **KW-4AD Fluid Dispenser** (SPI Part #12172) and provides information on the installation, operation and maintenance of the instrument.

#### A. Return of Goods

If goods are to be returned to SPI Supplies for repair or servicing the customer should contact SPI Supplies or their local distributor before shipment. A "Return Authorization Number" should be obtained in advance of any shipment. This number is to be clearly marked on the outside of the shipment. To obtain an RA#, contact our Customer Service Department and be sure to provide us with the following details:

- \* SPI Invoice Number and Invoice Date (if applicable)
- \* Method of shipment if applicable (post office, UPS, FedEx, Air Freight, etc.)
- \* Product(s) in question
- \* What is wrong with the product, or why do you want to make this return?

#### B. Returns Procedure

##### Warranty Claim

All components are sold with a **return to factory warranty** (unless otherwise stated) which covers failure during the first 12 months after delivery.

Returns must be sent courier paid, SPI Supplies will cover the return courier costs. This covers defects, which arise as a result of a failure in design or manufacturing. It is a condition of warranty that equipment must be used in accordance with the manufacturers instructions and not have been subjected to misuse. This warranty does not cover consumable items such as sputter coating targets and carbon evaporation material. To make a claim under the terms of this warranty provision contact the Customer Service Department at SPI Supplies.

##### Chargeable Repairs

Contact the Customer Service Department at SPI Supplies who will be able to provide an estimate of repair costs.

Service of equipment is generally completed within twenty working days after receipt of the equipment. A minimum evaluation fee is normally applied. Additional fees are charged as a per hour repair rate in addition to parts.

### Returns

All returns to SPI Supplies are required to follow the procedure described above.  
All returned items are required to have a Return Authorization Number

### Packaging and Shipping

All goods shipped to the factory must be sealed inside a clean plastic bag and packed in a suitable carton. If the original packaging is not available SPI Supplies should be contacted for advice. SPI Supplies will not be responsible for damage resulting from inadequate returns packaging or contamination of delicate structures by stray particles under any circumstances. All non-warranty goods returned to the factory must be sent courier pre-paid. They will be returned courier, pre-paid and added to the final invoice unless otherwise arranged.

## IV. Controls and Functions

A Front view of the control panel is shown in Figure 1. The function of each switch is described as follows:

1. **Power:** Turns the dispenser power on and off.
2. **Start:** Begins the process cycle. The green button lights when running.
3. **Time:** Variable timer setting from 1 to 10 seconds.
4. **Pressure:** Meter which reads the current pressure in Kg/cm<sup>2</sup> or psi.
5. **Regulator:** Adjusts the pressure (flow rate) of the dispensing apparatus.
6. **Vacuum:** Adjusts an internal needle valve to reduce further dispensing of thin liquids at the end of the process cycle.



**Figure 1**

A Rear view of the control panel is shown in Figure 2. The function of each switch is described as follows:

1. **Power Plug:**
2. **Quick Disconnect Port:** Attachment port for dispenser line.
3. **Pressure Port:** Port for compressed air line
4. **Red Cover:** Not used



**Figure 2**

## **V. Installation**

### **A. Safety Precautions**

The KW-4AD Dispenser requires no specific set-up precautions. It is designed to be used in conjunction with the KW-4A Spin Coater (SPI# 12170) or function as a stand alone unit. The unit can be run from either 110V or 220V.

Since the unit requires compressed air, proper installation and precautions must be used in the setting up of any gas cylinders or compressors.

The selection of fluids to be used may require special precautions such as a fume hood. Such considerations should be taken into account before setting the unit.

Safety glasses should be used when working with this system. Other laboratory wear (lab coats, gloves) may be needed dependent on the fluids being dispensed.

### **B. Installation**

The KW-4AD has a small footprint allowing it for minimal space usage. The unit can be set up on any suitable bench top location. Since the unit is typically used in conjunction with the KW-4A Spin Coater, enough room should be made to accommodate both units and the vacuum pump.

- 1) Attach the threaded support post into the top of the dispenser unit. The metal arm is then slid through the knurled locking nut. This arm has a sleeve holder for the syringe. By adjusting both the support rod and the arm, the syringe may be placed in almost any desired orientation.
- 2) Plug the line cord into the appropriate receptacle
- 3) Attach tubing (not provided) from the gas cylinder or air compressor to the blue auto-lock fitting in the back of the unit. The tubing size should be approximately 6mm (0.25 inch) in diameter.
- 4) Attach the quick disconnect fitting from the dispenser tubing to the back of the unit.

## VI. Operation

*Note: Because of the wide variety of liquids that may be dispensed using this instrument, specific settings would need to be determined on an individual basis.*

1. Select the appropriate needle to use and attach it to the syringe. Note that the Luer-Lok design can take needles other than those enclosed.
2. Fill the syringe with the fluid to be used and insert the end plug. The syringe is then attached to the metal fitting on the end of the dispenser tube. The syringe is fitted into the sleeve and adjusted to the appropriate position.
3. Turn the "Power" switch on.
4. Turn on the compressor or open the gas cylinder.
5. The Regulator control is used to adjust the pressure in the line. Turning the regulator knob counterclockwise will lower the pressure; turning the knob clockwise will increase the pressure. To operate the regulator knob, pull out, rotate it to the desired position and push the knob back in to lock it.
6. Set the timer to the appropriate point. The timer is marked in seconds.
7. Press the start button. The light will turn green and the unit will dispense for the time period selected. When the total time is reached, the unit will shut off and dispensing completed.
8. For liquids with low viscosity there is the possibility that the residual pressure in the line may cause further dispensing of the liquid after the operation is complete. To avoid this open the vacuum knob. This will create a back pressure so that when the cycle time is complete, no further dispensing of material will occur (Note: you will hear a hissing sound from the dispenser box. This is normal when this valve is open).