



# **INSTRUCTION MANUAL**

## **X-1000 Series**

### **UNDER BOARD CONVECTION PRE-HEATERS for SMT REWORK/REPAIR**

The most advanced and powerful pre-heater for SMT REWORK and REPAIR offering full Process Control, increased rework speed, board protection and operator convenience

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## X-1000 Series UNDER BOARD CONVECTION PRE-HEATERS for SMT REWORK/REPAIR

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### I. INTRODUCTION

The most advanced and powerful pre-heater for SMT REWORK and REPAIR offering full Process Control, increased rework speed, board protection and operator convenience.

The X-1000 was primarily designed to save the workspace required for SMT Rework and Repair of the printed circuit board assemblies using SMT components. The emphasis of the design was on observation of appropriate process control required for correct Rework and Repair.



X-1000S



X-1000

**FIG. 1 VIEW OF THE SYSTEM**

## II. PACKAGING

The box contains as follows:

1. X-1000 or X-1000S Base Unit
2. AS3-B ESD grounding cord
3. AML-301A wireless "+" wrist strap
4. Power cord
5. Manual
6. Guarantee card

## III. UNPACKING

Prior to use of the system, please check if the system is complete. Should you notice that any items are missing, please notify us, giving the details of model number, voltage, date of purchase, where purchased and what is missing.

**Attention: When unpacking, please be careful and read the manual prior to turning the system "ON". Please check that the voltage of the System corresponds with the voltage of your available supply. Connection to incorrect voltage supply may cause damage to the System!**

## IV. SET-UP AND INSTALLATION

1. The system should be located on a rigid and stable work surface. Please note, that you will need some extra space on the sides of the system for your other Rework/Repair Tools. Also, when reworking large boards you may need space to maneuver the board holder.
2. Attach (snap on) grounding wire AS3-B to the Tabletop (right side at the back), and connect the other end of the wire to the ESD ground.
3. Connect power cable to the power connector on the back panel. Check if all switches on the front panel are in the "0" or "OFF" positions.
4. Place one of the XU Series Board Holders (see optional accessories) on the system tabletop, and place the board to be re-worked in the holder.
5. The system can now be connected to the AC supply and is ready to use.  
Please note that you need the following current capacity:

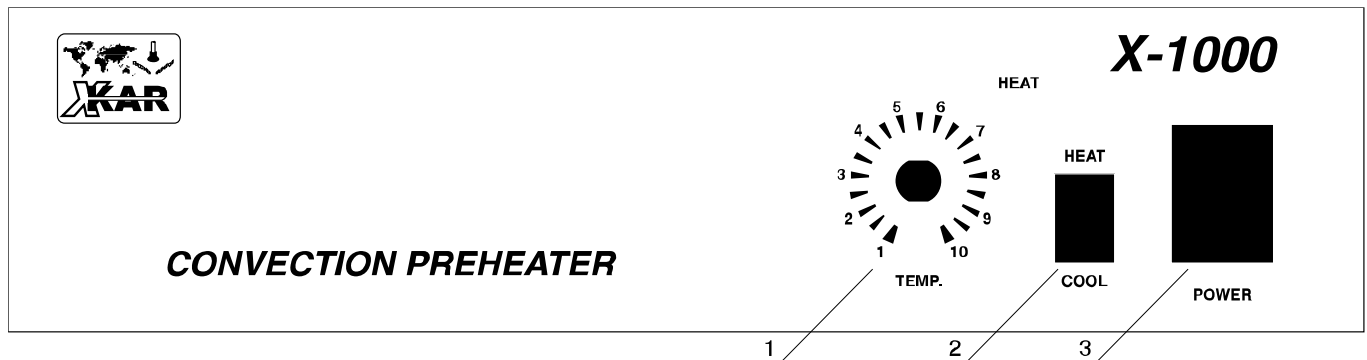
System	X-1000		X-1000S	
Voltage	110-115V AC	220-240 V AC	110-115V AC	220-240 V AC
Supply current	12 A	6 A	6 A	3 A
Fuse 1	2 A	1 A	2 A	1 A
Fuse 2	12,5 A	10 A	12,5 A	10 A

6. Please wear wrist strap, which is supplied with the system (a "wireless +" wrist strap A-ML301A) grounded through AS3-B to protect your re-worked electronic boards from static charge, which may be present at or around your work place.

## V. SYSTEM DESCRIPTION and APPLICATION

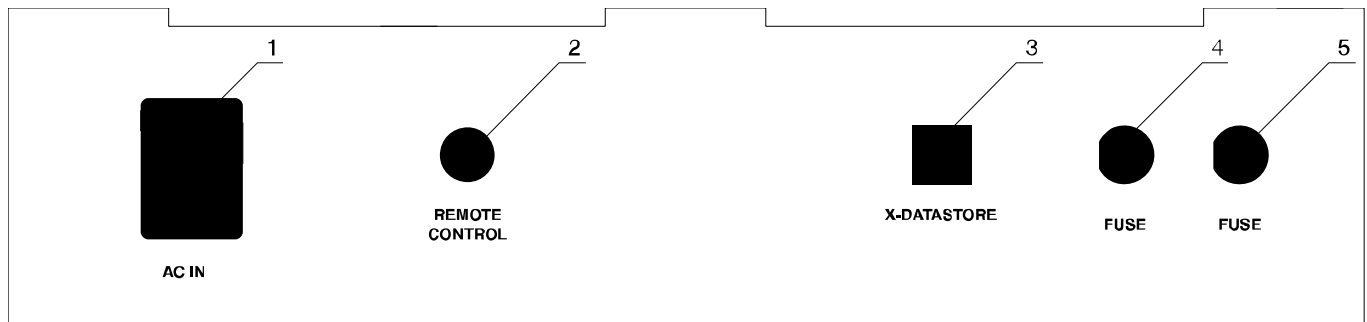
### Feature

- High power, large area pre-heat chamber
- ESD safe. Supplied with AS3-B ESD grounding cord and AML-301A wireless "+" wrist strap
- Pre-heater with close loop temperature control to maintain set temperatures with high accuracy
- The system can accommodate optional tool stand with adjustable Z-Axis control and rotation
- The System also accommodates optional Semi Automatic Vacuum Component Pick-up Option X-CPO1, which attaches to the System and allows for automatic component lift upon reflow of the solder.
- XFS-2 - ON-OFF optional Foot Switch (to supply bottom heat on demand)
- The System can remote ON-OFF control by Focus "+".



**Fig. 1 X-1000 Series Front Panel**

1. **Temperature control** - Turn right to increase temperature or left to reduce it.
2. **Heat / Cool switch** - Turns the pre-heater ON and OFF.
3. **Power switch** - Turns the system ON and OFF.



**Fig. 2 X-1000 Series Back Panel:**

1. **AC power receptacle** - Provides AC power to the system through a power cord.
2. **Remote control connector** – Allows for connection of FOCUS "+", or XFS-2 to an X-1000 Series Preheater and their remote ON/OFF control by FOCUS "+", or XFS-2
3. **X-DataStore** – It will be use in the future
4. **Fuse holder 1** – Contains a fuse for overload protection. The fuse is 20 mm type (see table above)
5. **Fuse holder 2** – Contains a fuse for overload protection. The fuse is 30 mm type (see table above)

## X-1000 Series UNDER BOARD CONVECTION PRE-HEATERS for SMT REWORK/REPAIR

The X-1000 was primarily designed to save the workspace required for SMT Rework and Repair of the printed circuit board assemblies using SMT components. The emphasis of the design was on observation of appropriate process control required for correct Rework and Repair. This includes protection of the boards (and the vias' inside them) against sudden thermal shock to prevent difficult to detect damages as well as components themselves, which are already connected to the board.

Bottom convection pre-heat of the large area of the boards guarantees even and gradual thermal expansion. Pre-heated board, to e.g. 130 degrees C, needs much less thermal energy to de-solder or re-solder a component on the board. To de-solder the component the temperature rise of only 53 degrees C is needed (temperature needs to be raised to 183 deg., which is melting temperature of the solder, because the board is already preheated to 130 deg. by the bottom pre-heater).

To achieve this relatively low temperature differential, lower thermal capacity and lower air temperature tool is needed, which guarantees safer for the board and the components rework process. This lower temperature differential required to obtain solder melting point makes the rework process much faster, than the one, which is done without preheater.

Standard board holder XU-1 or XU-1S allows you to mount 12" (305mm) wide, and not limited in length boards. Other, optional board holders are available to accommodate boards up to 21.5" wide. Available models are: XU-2 and XU-3. There are also other X-KAR Board holders to choose from (see [www.bokar.com](http://www.bokar.com)).

The powerful Pre-heater will also allow you to rework high mass boards, which have through hole components like connectors etc. (you must use proper pre-heat temperature which is lower than the maximum allowable value for the plastic from which your connectors are made).

Note: During component de-soldering please use NC or Water Washable fluxes to obtain even temperature distribution to the leads and to shorten greatly the rework time.

## VI. TECHNICAL SPECIFICATIONS

MODEL	X-1000	X-1000S
Overall System		
Input Voltages	100V / 115V / 230V AC	
Power Consumption	Max. 1080VA	Max. 585VA
Weight	5,5 kg (12.1 lbs.)	
System dimensions	487 x 291 x 82 mm 19.1" x 11.4" x 3.2"	
Packaged weight	6,5 kg (14.4 lbs.)	
Pre-heater Section		
Max. Power	1050 VA	525 VA
Free Air Temperature at 1" (2,5cm) from the preheater chamber	100° to 300°C 210° to 572°F	
Preheat area	More than 8" square	More than 2" square
Average PCB preheat time to 150°C	Less than 2 min.	

### Available models:

- **X-1000** - SMT High Power, Large Area Under board Pre-heater
- **X-1000 De-Lux** - SMT High Power, Large Area Under board Pre-heater with ESD Fiberglass Top Plates
- **X-1000S** - SMT High Power, Small Area, 500W Under board Pre-heater
- **X-1000S De-Lux** - SMT High Power, Small Area, 500W Under board Pre-heater with ESD Fiberglass Top Plate

## VII. OPTIONAL EQUIPMENT

1. **XFS-2 Foot Switch**  
Connected to Remote Control Connector (see fig. 2) allows for a remote ON/OFF control X-1000 Series Preheater



2. **X-Con Series Nozzles**  
These nozzles, when attached to a preheater, provide focused air stream, which can be directed at the bottom side of the board, to de-solder simultaneously all pins of a multi-pin connector.  
**Custom nozzles can be made for user specified connector sizes.**

**RECOMMENDED EQUIPMENT for use with X-1000 Series Pre-heaters**

3. **XU-5** Open Frame Board Holder  
with X-Y micrometer positioning for PCB fine adjustment.



4. **XU-1S or XU-1** Retractable Board Holder  
(Maximum board size 12" (305mm) x open end.



5. **XU-Mini** Irregular Shape PCB Holder (e.g. Cellular Phone).



6. **XCBH-1** Board Holder for Cellular Phone Boards  
with small arms equipped with mounting pins  
to support the pcb.



7. **XU-2** Large Size Board Holder  
(Maximum board size 14" (356mm) x open end.



8. **XU-3** Extra Large Size Board Holder  
(Maximum board size 21" (533mm) x open end.



9. **XK-1, XK-2 or XK-3** - Adjustable Tool Holders for precision  
movement of the tool up and down. XK-3 tool holder  
includes the rotation stage allowing for theta adjustment  
(rotation) of the tool.



10. **XCP-01** - Semi automatic vacuum pick-up for lifting components after de-soldering with XHP-Series hot air pencil or any other hot air tool without vacuum.



11. **MP-10K** - Hand held Paste and Flux Dispenser Kit.  
A great improvement over thin plastic plungers, to manually dispense a paste or flux with less fatigue and and better accuracy.



12. **TS-100** - Ceramic Tweezers



13. **X-Wick** - 2.6mm wick with wick dispenser



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