

# **ZELPRINT LT300**

## **USERS MANUAL**

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## 1. Introduction

The manual ZelPrint LT300 print unit is device which enables solder paste printing for Surface Mount Technology for prototyping through to volume production. Basic manual versions LT require no electricity or pneumatics. ZelPrint LT300 enables printing on flat surface on ceramics, glass, plastics, front panels, signs and promotional aids using different inks and materials. Silk screen and stop lack printing is possible too.

To enable successful warranty claims, if necessary, it is absolutely necessary to read this manual carefully before using the device for the first time, and to follow the instructions exactly!

### 1.1. Safety precautions

1. In order to be able to guarantee the safe operation of the system the user must have read this manual
2. Never reach into the machine while somebody is printing or closing the machine.
3. Operator with longer hair must wear a hair net!
4. If you modify equipment yourself, the equipment's safety can no longer be guaranteed and no guarantee claims can be accepted!
5. When using chemicals please take note of the safety notes on the containers or separate security sheets delivered with them!
6. Keep the workplace tidy.
7. The device must be operated with in a dry place.
8. The equipment is designed for room operation only.

### 1.2. Technical characteristics of ZelPrint LT300

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| • Dimensions ( W x L x H )        | 740 x 530 x 180mm                  |
| • Print bench adjustment          | X and Y $\pm 10$ mm; $\pm 5^\circ$ |
| • Maximum height of printing item | 5mm                                |
| • Maximum printing area           | 300 x 300mm                        |
| • Accuracy (machine)              | $\pm 0,025$ mm                     |
| • Accuracy (printing)             | $\pm 0,04$ mm                      |
| • Weight                          | 30kg                               |

## 2. General information

Caution:

- The original packing should be opened only by screwdriver on marked places otherwise warranty claim will not be considered.
- Please inspect ZelPrint device for completeness immediately after unpacking it on hand of the packing list. Also inspect it for transport damage.
- If any transport damage is discovered, the forwarding agent is to be notified immediately.

Attention:

- Read the information and the attentions of the manufacturer of the solder pastes and adhesives. Solder pastes are leaded. Avoid contact with your skin.
- Use only genuine spare parts. If non genuine spare parts are used warranty claims can not be guaranteed.

### **NOTICE:**

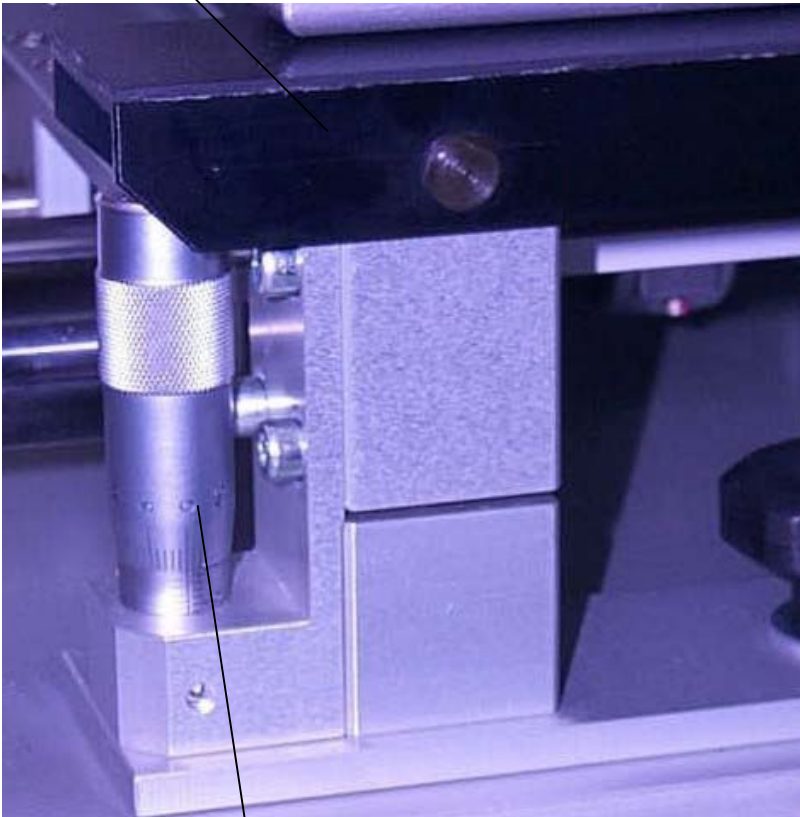
**1.) This instruction manual was prepared for different models. Therefore some of the functions your appliance may not have.**

**2.) In case of any reclamation please make sure that the equipment is returned in the original package.**

## 3. Setting up the printing machine

1. Please check before unpacking the system if any transportation damage is visible on the outside of the packing. If any damage is visible, your freight forwarder is to be informed immediately.
2. Unpack ZelPrint LT300 carefully to avoid damage of the device which is delivered according to your ordered specifications.
3. The bearers between the pallet and the machine must be unscrewed and removed.
4. The machine should be positioned so as to allow sufficient place for opening the machine and on side for non-printed materials and on the other side for printed materials.
5. Important! The equipment must stand on a flat and firm base in order to work properly!
6. The machine is adjusted to the 1mm thickness of the PCB. If you have thicker printing material adjust the frame support with 4 micrometers positioned in each corner of the support frame.

**Support frame**

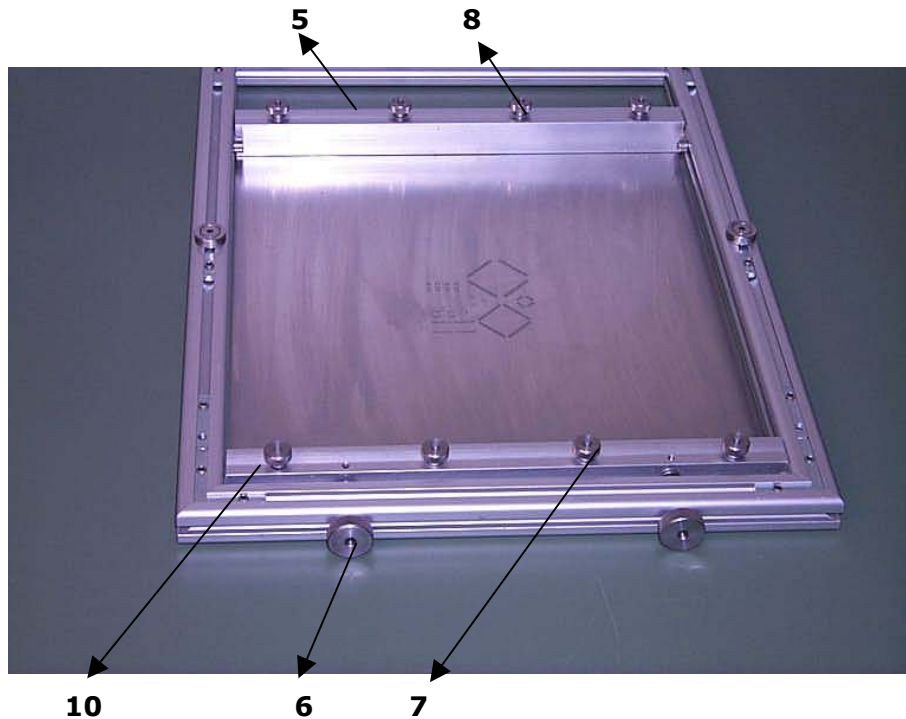


**micrometer for height adjustment**

#### **4. Application of the frame**

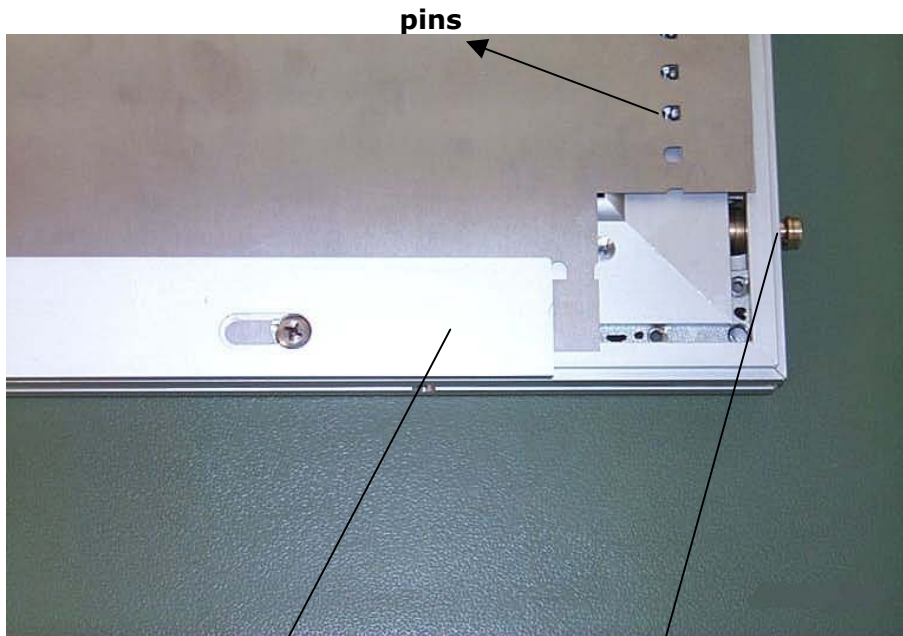
##### **4.1. Setting up for manual stretching frame**

1. Using the two hexagon-headed screws, attach the rear bar **5** (retaining strip) to the sides of the frame according to the length of the stencil +10mm and fix the screws.
2. Unscrew the nuts **6** of the stretching units **7** by about 10mm.
3. Unscrew the nuts **8** of the rear bar by about 3 to 4mm.
4. Place the perforated end of the stencil containing the first right offset asymmetric cut-out (coding) on to the locating pins of the rear bar.
5. Cover the pins with the holding bar **9** ( under the stretching and rear bar ) and fasten the nuts lightly.
6. Repeat the procedure 2.3 - 2.5 for the front bar (retaining strip) **10**.
7. Tighten the nuts of the stretching units evenly to lightly tension of the stencil.
8. Tighten the nuts of both bars normally.
9. Evenly adjust the tension of the stencil with the stretching units until the required working tension has been achieved (gap between the locking device of the stretching screw and the tensioning bar approx. 3 to 4mm).



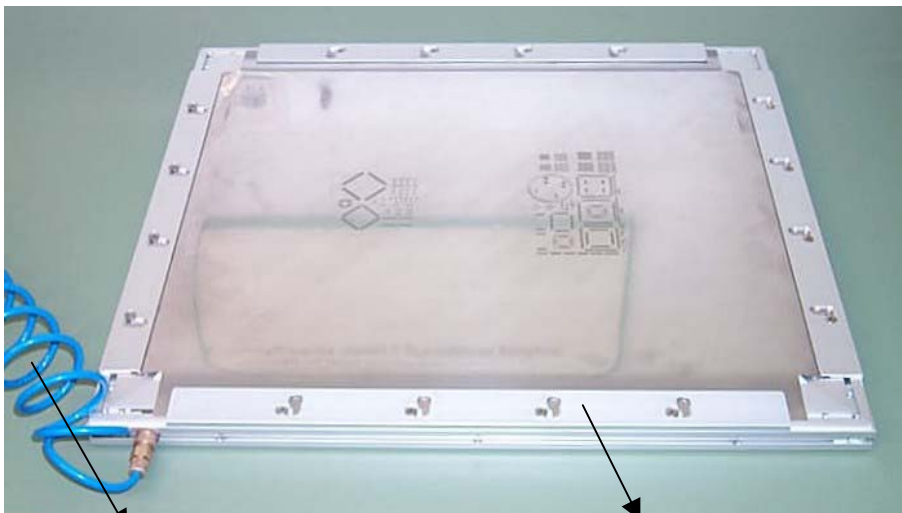
#### 4.2. Setting up for pneumatic stretching frame ( Option )

1. Please check before unpacking the frame if any transportation damage is visible on the outside of the packing. If any damage is visible, your freight forwarder is to be informed immediately.
2. Unpack Zelflex carefully not to cause any damage on the frame which is delivered according to your ordered specifications.
3. Compare the air supply characteristics with required air pressure before every tensioning of the stencil.
4. Make sure there is no air in the frame and then take off the holding bars.
5. Put the stencil onto the pins of the frame carefully. Pay special attention on orientation of the stencil. Take care about upper and lower side of the stencil.



**pins**  
**holding bar ( unlocked )**   **air connection point**

6. Put the holding bars back on the frame side by side and lock the stencil on the frame. In case the stencil is not properly on all pins can be damaged.
7. Connect the frame on compressed air supply. Compressed air is connected using mini type 21 fast connector.
8. Remove the air connection tube out of the frame and put the frame into the printer.



**air connection tube**   **holding bars ( locked )**

9. The frame has to be filled up every 48 hours to guarantee the tensioning of the stencil  $>35\text{N/cm}$  (  $>28\text{N/cm}$  for stencils thinner than .
10. Release air with connector on air connection tube on the frame to empty the ZelFlex frame.
11. Unlock holding bars and remove them from the frame and than take off the stencil.
12. Repeat procedure described in points 5.-8. to put new or washed stencil back onto the frame.

### 4.3. Stencil care

1. Care should be taken when inserting the stencil into the frame and when inserting the frame into the printer ( please observe printer manufactures instructions if available).
2. Use metal or plastic spatula to remove the most part of solder paste from the stencil.
3. Care should be taken on removal of the stencil from the frame.
4. Final hand cleaning should be done with care by recommended cleaning agents recommended by manufacturers of the solder pastes and adhesives. Cleaning agents are normally based on isopropyl alcohol.
5. If screen wash machine is used please observe manufacturers instructions. Damage could occur if the stencils are exposed for mechanical friction. Do not wash the frame in the cleaning machine.
6. If a brush is used for cleaning the stencil damage could occur especially in fine pitch areas.

### 5. Clamping the material for printing

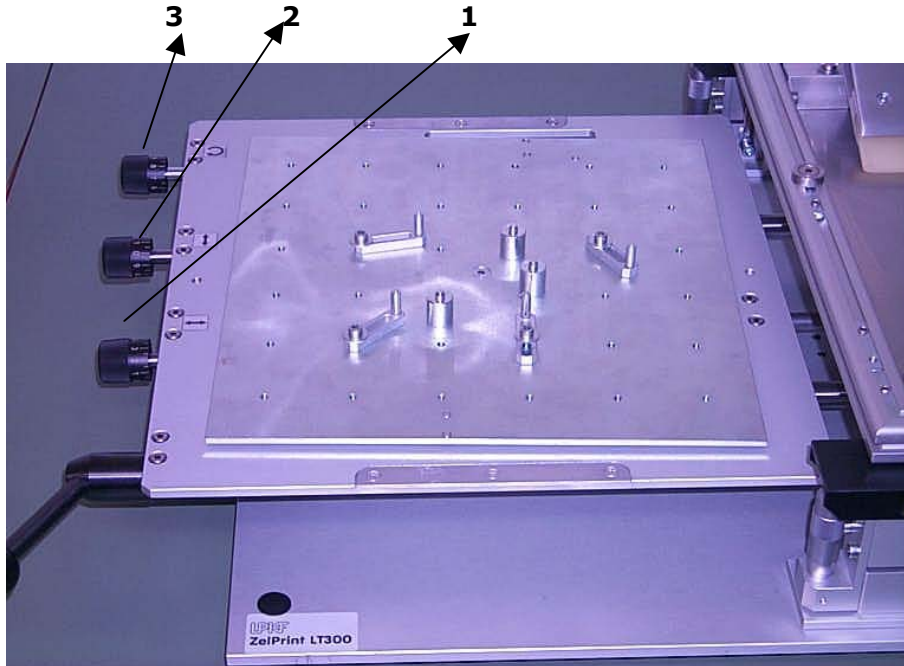
Lay the material to be printed between the holding pins which should be positioned in "L" shape or on two of the holding pins placed diagonally into the holes in the PCB, depending on the holes ( diameter 3mm ) in the print material. When holding pins are positioned in the right place put the supporting pins under the PCB.



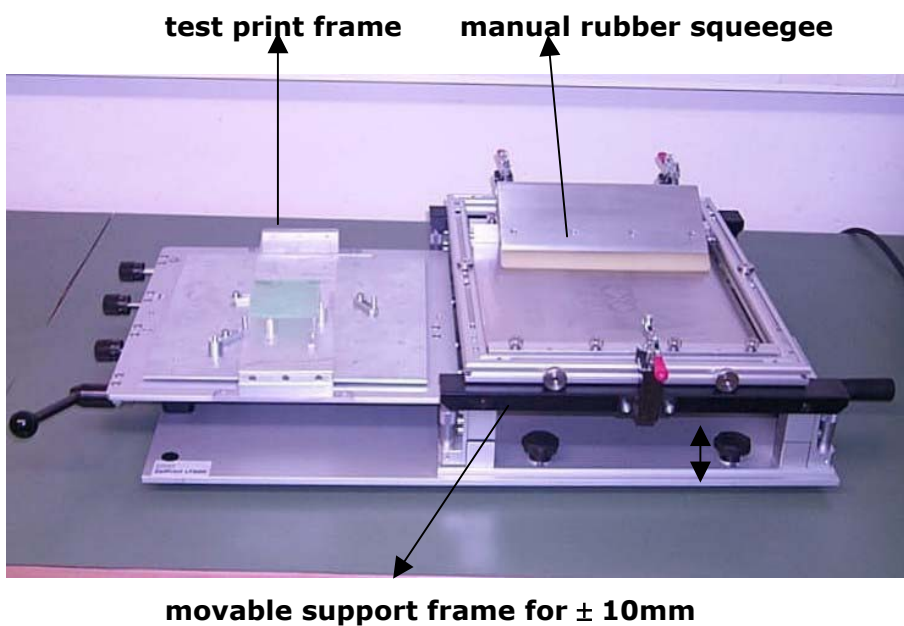
## 6. Adjustment of the printing machine

### 6.1. Printing table

Printing table can be adjusted with 3 adjusting knobs which are positioned at the left side of the printing table. Adjustment in X direction can be adjusted with knob **1**; Y adjustment with **2**. Printing table can be adjusted  $\pm 10\text{mm}$  in X and Y direction. Rotation up to  $\pm 5^\circ$  with screw **3**.



Test print frame is a simple and effective aid for rapid and exact adjustment of the template to the printing plate containing the clamped print material. Adjustment of the printing plate becomes simpler and more accurate by making a test print onto test frame.



## 7. Options / Accessories

### 1. Supporting bars when printing with kapton foil

Bars are recommended when printing kapton foil stencil. This stencil can be damaged especially on the edges of the PCB.

## 8. Maintenance

The squeegee should be cleaned daily. The same applies also to the template, stencil and the printing plate. Printing media should be held as recommended by manufacturer. As a cleaning agent, use recommended cleaners by manufacturers of printing media.

## 9. Trouble shooting guide

A great deal of care was taken when manufacturing and assembling your appliance. Nevertheless, it is possible that faults may occur during start up or at a later stage. These are often caused by transportation.

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