How to successfully solder on the LT8022EV#PBF-ND IC U1 to our Squidstat power supplies rev 2 underside of the PCB.

1. Using the small rectangular stainless-steel template from OSH Stencils please and align it over the U1 IC gold plated IC pads.
2. Using the CHIPQUIK SMD291AX apply it through the holes of the template keeping it aligned of the pads of the bottom of the U1.
3. Using the small plastic card from OSH Stencils carefully smooth over the top of the solder past still holding the U1 stainless steel stencil.
4. On the Circuit Specialists MODEL 900 solder station set the hot air wand to 357 degrees centigrade and set the AIRSET to 7.5.
5. Very carful remove the small metal stencil from the bottom of the new U1 IC.
6. Using the hot air pencil carful melt the solder past onto the bottom of the new U1 IC.
7. Using alcohol clean off the flux and any sticking small round solder balls that have not melted onto the square gold pads under the U1 IC.
8. Apply a thin layer of the CHIPQUIK SMD291 No-Clean tack Flux to the bottom of the newly balled underside of the U1 IC.
9. Apply a thin layer of the CHIPQUIK SMD291 No-Clean tack Flux to the pads of the power supply PCB specifically on the U1 pads directly.
10. Carefully apply and align the pin 1 registration mark to the small white circle to the PCB keeping the new U1 IC in the center of the white registration square.
11. Using the hot air wand about one inch above the newly placed U1 IC apply the heat for about 40 to 45 seconds to melt and attach the U1 IC to the bottom of the power supply IC. FYI the solder flux will bubble up from underneath the U1 IC and it should not move IC 1 when it is being soldered on. When it is cooled down clean it off with alcohol.

Resistance checks with only the U1 IC soldered onto the bottom of the Squidstat Power Supply PCB without any other electronic parts solder on yet.

1. The resistance from the U1 output to ground should be at around 93K Ω +/- 25%. The DMM + lead is

attached to the output pin the – DMM lead is attached to ground.

1. The resistance from the U1 input to ground should be at ∞Ω or an open circuit. The DMM + lead is attached to the output pin the – DMM lead is attached to ground. Reverse the DMM OHM leads then the resistance from the U1 input should be at around 3.046 Meg Ω +/- 25%.
2. RT IC pin R1 resistance to ground should be at around 10.31 Mega Ω +/- 25%. The DMM + lead is attached to the RT pin R1 the – DMM lead is attached to ground.
3. ADT IC pin R2 resistance to ground should be at around 593K Ω. The DMM + lead is attached to the ADT IC pin R2 the – DMM lead is attached to ground.

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Resistance checks with all the power supply PCB electronic parts installed and build up except for the two top switching power supply blocks that are not installed yet.

1. The resistance of the + DMM lead attached to the U1 output to the – DMM lead attached to ground the resistance should be between 200K Ω to a maximum value of 350K Ω.
2. The resistance of the + DMM lead attached to the U1 input to the – DMM lead attached to ground the resistance should be between 5.00 Meg Ω to a maximum value of 6.50 Meg Ω.
3. The resistance of the + DMM lead attached to the U1 R1 hot side of the S.M. resistor with the R1 S.M. resistor installed to the – DMM lead attached to ground the resistance should be between 40.0 K Ω to a maximum value of 43.0 K Ω.
4. The resistance of the + DMM lead attached to the U1 R2 hot side of the S.M. resistor with the R2

S.M. resistor installed to the – DMM lead attached to ground the resistance should be between 115.0 K Ω to a maximum value of 130 K Ω.

A quick functional check to see if the 3.3 VDC output voltage is present.

1. Apply 6.0 VDC up to 15.0 VDC on the 9-pin connector with + 6 VDC on pin 1 and – 6 VDC / COMMON

RETURN to pin 3. The input drive current should be less than 100 Milla Amps. Then you should see +3.3 VDC appearing on pin 6.

You may complete assembly of the power supply PCB by installing the two open frame switch mode power modules and any other non-installed parts by installing them now and building up the housings.

This concludes this document.