

User Manual

TURBO IR



Jovy Systems® Limited

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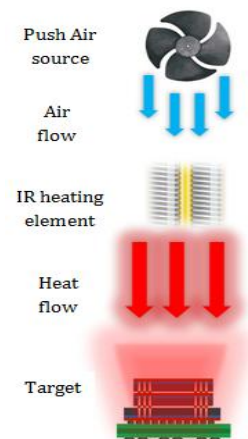
1) Hybrid Technology

Hybrid technology is a common technology that is widely used in several fields of science nowadays, such the field of engineering. Hybrid Technology is the mixing and the combination of two or more input elements, methods or technologies to get an output of mixed characteristics that has more benefits and advantages.

The need was generated from the lead free challenges in rework & repair of current and futuristic electronics assembly & manufacturing.

Hybrid Rework Station

Hybrid Rework system introduces the revolutionary Hybrid heating technology which combines Infrared heating technology as well as Hot Air. By means of IR radiation augmented by a gentle flow of hot air, the Hybrid Tool delivers homogenous heat to the application used.



Benefits of the Hybrid Technology

- Lead-Free and Leaded compatible.
- Reaches high preheat and peak temperatures faster (up to 4°C/s).
- Easy to use.
- Hybrid technology combines safe IR and convection.
- Equally distributed heat with minimal airflow.
- Appropriate for beginners as well as more experienced professionals.

2) TURBO IR

Jovy Systems ® is always committed to provide value added solutions which meet the requirements of present toughest applications. With all the rework and repair challenges those we face every day and what BGA stations are confronting with the new technologies in the field of electronics, Jovy Systems ® had to offer a new solution which was the Turbo IR station.

Jovy Systems' Turbo IR station is its newest product that utilizes the new Hybrid technology and technique to cope up with the new challenges of the rework and repair.

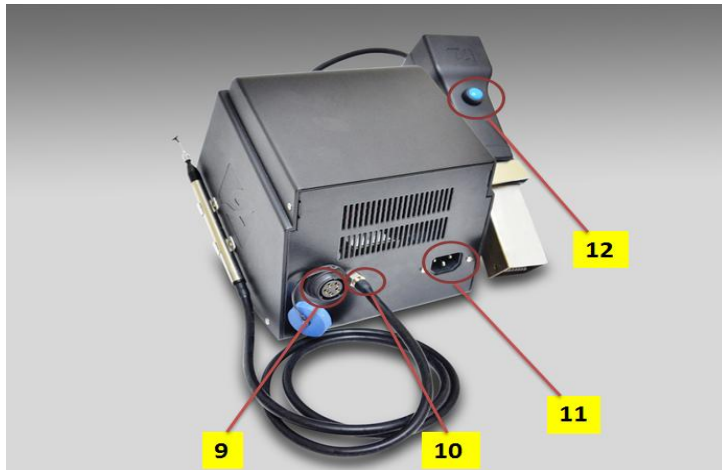
The station consists of two main parts, the control unit and the preheating unit.

Control Unit

The control unit has the hand held part (the part that utilizes the Hybrid Technology) attached in it, and it is also responsible for adjusting the heating powers of the whole station.



1. Hand-Held Unit
2. Hand-Held unit connector.
3. Knob
4. Pump power button.
5. Control unit power button.
6. USB input.
7. Pump pen
8. LCD Display.



- 9. Pre-Heater connector input.
- 10. Pump tube input.
- 11. Power cable input.
- 12. Hand-Held unit power switch.

Pre-Heater Unit



- 13. Hand-Held unit holder and height adjuster.
- 14. Support Table.
- 15. Pre-Heater Unit connector.
- 16. Pre-heater unit power button.
- 17. Flexi-tube Thermocouple.

Technical Specifications

Technical Specification : Hand Held Unit	
Dimensions WxHxD	155 * 175* 210 mm
Hand Held unit voltage	230 volt AC / 5 volt DC for control
heating power	250 watt
Main voltage	220-240 volt AC / 50-60 Hz
ambient temperature	0-40° c
Maximum output temperature	550 ° c
IR Wave length	2-8 μm
Laser class	class 2
Nozzle sizes	20 *20 mm, 10 * 10 mm, 6



	*6 mm
Technical Specification : Pre-heating Unit	
Dimensions WxHxD	220 * 225 * 405 mm
Main voltage	220-240 volt AC / 50-60 Hz
Control voltage	5 volt DC
heating power	800 watt
Maximum PCB size	200 * 165 mm

3) TURBO-IR ASSEMBLY

The steps of assembling the station are easy and simple, just by following the steps below the TURBO-IR will be ready.

1. Connect the Hand piece connector to the front panel socket (guided)
2. Connect the pre-heater unit connector to the back panel socket (guided)
3. Connect the main Thermocouple into TC female socket.
4. Connect the Power cable (included with package European standard power cable) into the female power socket.
5. Insert the Vacuum pick- up tube into the nozzle, by using gentle push force.



Now the TURBO-IR station is ready for immediate use.

4) STARTING UP

Welcome Screen



Function Buttons

- **Rotary button (Knob)**

It is the push button used to scroll, change and Select from the display.



Also used to adjust the different power levels. To switch simply twist the Knob to the desired direction, either clockwise or anti-clockwise.

- **Vacuum Pick-up button**

Vacuum pick up button is located in the front panel. Press to switch on/off when needed.



- **Main unit (Hand-piece) power button**

Main unit power button is located in the front panel. Press to switch on/off the station.



- **Pre-heat Unit power button**

Pre-heat unit power button is located in the front panel of pre-heat unit. Switch it on to use the preheating process. Switch it off when operating the main unit only (Hand piece).



- **Run/Stop process button**

Run/Stop process is located in the Hand piece unit



Main Screens

The startup screen of the TURBO-IR station consists of three different main screens: the settings menu, the Auto mode and the free mode.



- Settings

Used to adjust the Language and the temperature scale of the station. To enter the settings menu switch through the main menu using the Knob until Settings is displayed, then press the Knob to enter.



To Select the preferred Scale of Temperature, slide the cursor to the temperature unit using the knob, then press and hold the knob and twist it clockwise or anti-clockwise.



To select the preferred Language, slide the cursor to the Language using the knob, then press and hold the knob and twist it clockwise or anti-clockwise



Operating Modes

The TURBO-IR Station has two different operating modes to suit all users Auto mode and Free mode.

- Auto Mode



It is an Automatic mode where the endtemperature, the end time are and the pre-heating temperature are pre-determined by the user and the station starts working to reach the required temperature within the required time interval. An example for using and setting up Auto-mode will be illustrated later.



A picture of the Auto mode menu shows an example for the end temperature and the end time while the pre-heater unit is not connected or is turned off.



The picture above is an example for how the Auto mode menu appears when the pre-heater is turned on.



Above is an example for the display screen of an Auto mode profile running, where the current stage is displayed, the thermocouple reading for the temperature and also the running time of the process.

- Free Mode



The Free mode operating method depends on setting two factors, IR emitters' power and the push air power. Setting any factor to Zero is not matching with the operating concept. . An example for using and setting up Auto-mode will be illustrated later.



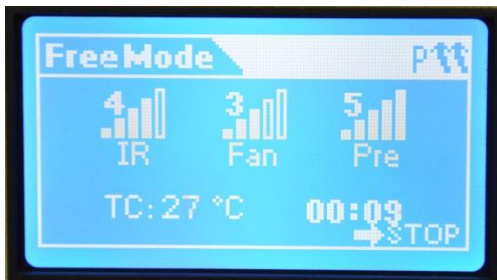
The free mode menu appears as above, where the IR heater power and the Fan heater are both adjusted using the knob button.



Displaying an example for a free mode profile that is ready to run, while the pre-heater unit is not connected or is turned off.



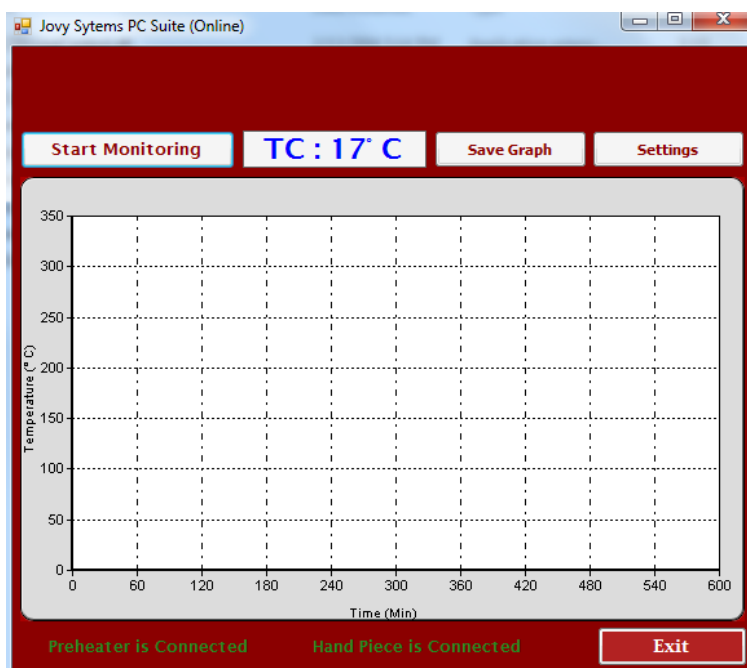
An example for the free mode is displayed, where the pre-heater is connected and the power of the pre-heater, the IR heater and the Fan are adjusted using the Knob button.



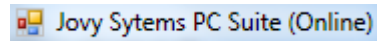
Above is an example of the display screen for a Free mode profile running with pre-heater connected, displaying the power of each unit, the current temperature read by the thermocouple and the process running time.

5) MONITORING SYSTEM

The Software of the Station is an interface that is used to monitor the process and also to save the graph as a reference for any future use.



Machine status connected to software
Thermocouple readings



TC: 17° C

Status for Hand piece connected or disconnected

Hand Piece is Connected

Status for Preheater connected or disconnected

Preheater is Connected

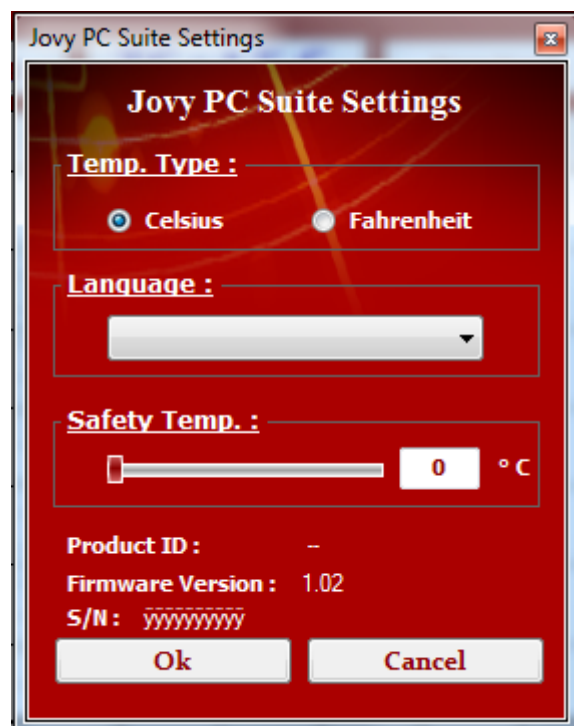
To start monitoring the process and draw the graph temperature and process running time.

Start Monitoring

Settings

The settings for the software are:

- Set the temperature reading scale °C or °F.
- Interface language
- Safety temperature to turn the fan on and switch the heater off.
- Information about the Product ID, Serial number and machine firmware version.



6) SAMPLE APPLICATION

Auto-mode Application sample

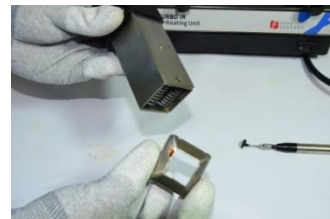
The following is a step by step example guide for setting up and using the TURBO-IR station in the Auto-Mode for an application

To select the Auto-Mode:

1. Power the Control Unit and Power the Pre-Heater Unit.



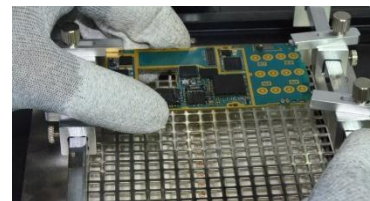
2. Attach a suitable size nozzle to the Hand-held unit if required



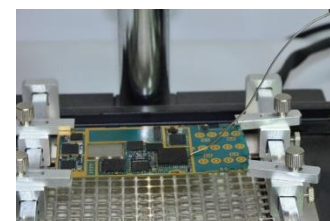
3. Adjust the high of the upper heater (Hand-held unit) to the required and suitable distance.



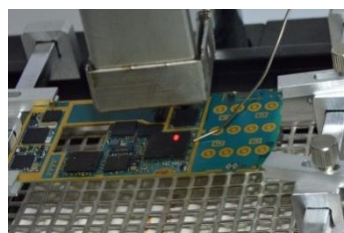
4. Place the application on the X-Y Table such that it's firmly held.



5. Adjust Flexi-Tube thermocouple correctly over the application.



6. Adjust the position of the application correctly using the laser pointer.



- From the main menu, twist the Knob clockwise or anti-clockwise until Auto-Mode is displayed on the screen. Press the Knob button to select the Auto-Mode.



- Scroll the cursor to "End Temp.," to adjust the Suitable Temperature, using the knob. Hold and Press the Knob and twist it Clockwise to Increase the temperature or Anti-Clockwise to Decrease the temperature.
- Scroll the cursor to "End Time" ,to adjust the required and suitable End Time (in Seconds), using the Knob. Hold and Press the Knob and twist it Clockwise to Increase the End Time or Anti-Clockwise to Decrease the End Time.

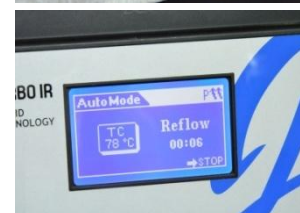
- If The Pre-heater is connected and is required to complete the process successfully, scroll the cursor to the "Preheat Temp." and adjust using the knob, hold and press the knob and twist it Clockwise to Increase the temperature or Anti-Clockwise to Decrease the temperature.



- To start running the station under the prepared and determined conditions, scroll the cursor to "Run" by twisting the Knob and press the Knob to start running the process.



- To stop the process when it's running for any reason, switch the cursor to "Stop" using the knob and press the Knob button.



- After the process is successfully complete, use the pump power button to turn on the pump and lift the chip off the application.



14. Finally wait a few minutes for the station to cool down, and then turn both units off.

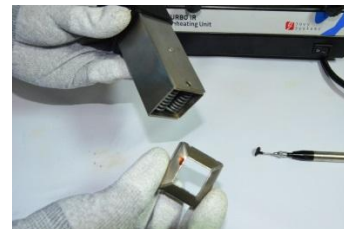
Free mode Application sample

The following is a step by step example guide for setting up and using the TURBO-IR station in the Free-Mode for an application. To select Free-Mode:

1. Power the Control Unit and Power the Pre-Heater Unit.



2. Attach a suitable size nozzle to the Hand-held unit if required



3. Adjust the high of the upper heater (Hand-held unit) to the required and suitable distance.



4. Place the application on the X-Y Table such that it's firmly held.



5. Adjust Flexi-Tube thermocouple correctly over the application.



over

6. From the main menu, twist the Knob clockwise or anti-clockwise until Free Mode is displayed on the screen. Press the Knob button to select the Free Mode.



7. If the Pre-heater is connected and is required to complete the process successfully, scroll the cursor to the "Pre." and adjust using the knob. Hold and press the knob and twist it clockwise to Increase the Preheater power or Anti-Clockwise to Decrease the Preheater power.



8. Scroll the cursor to "IR" to adjust the Suitable Heater power level using the knob, Hold and Press the Knob and twist it Clockwise to Increase the power level or Anti-Clockwise to Decrease the power level.

9. Scroll the cursor to "Fan", to adjust the required and suitable Fan power and speed, using the Knob. Hold and Press the Knob and twist it Clockwise to Increase the Fan speed and power or Anti-Clockwise to Decrease the Fan speed and power.

10. To adjust any of the heaters and the output power during the process, use the Knob to scroll to the required heater, and enter the desired value.

11. To start running the station under the prepared and determined conditions, scroll the cursor to "Run" by twisting the Knob and press the Knob to start running the process.

12. To stop the process when it's running, switch the cursor to "Stop" using the knob and press the Knob button.



13. When the process is successfully complete, use the pump power button to turn on the pump and lift the chip off the application

14. Finally wait a few minutes for the station to cool down, and then turn both units off.

7) Packing list

Jovy's Hybrid station, Turbo IR, Comes with a complete set of essential accessories for customer's satisfaction, and to ensure direct use and operation of the station just after receiving it.

The offered package includes the following Main Parts, Accessories and Peripherals:

Part Name	Number of units	Part Number
Control Unit	1	JH-001
Hand-Held Unit	1	
Nozzle of size 20x20mm	1	
Nozzle of size 10x10mm	1	
Nozzle of size 6x6mm	1	
USB cable		
Power Cable		
Pre-Heating unit	1	
Pump Tube	1	
Pump Pen	1	
Pump Nozzles	5	
Light Source	1	JV-L360
Flux 10cc	1	JV-F010
Reflective Tape 10m	1	JV-R010
Solder Paste	1	JV-SJ10
Reballing Stencils (Optional Upon the repair field).		JV-RMS , JV-RMP JV-RMX , JV-RKC (Each separately sold)
User Guide	1	-
Multilingual Start up Guide	1	-
CD for Jovy's Videos	1	-



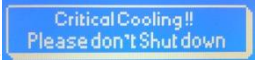
8) WARRANTY AND SAFETY

Warranty

Jovy's TURBO-IR Station has a warranty period of 1 year from the time of purchase.

For troubleshooting, support and technical advice service kindly refer to the "CONTACT US" section found at the end of the manual.

Safety

- For machine hardware safety the machine will stop for cooling down. A message will be shown over the LCD, . When the warning message is shown, the station should not be switched off until the LCD back to Main Menu.
- DO NOT disassemble the TURBO-IR Station by yourself, Unless you are asked to disassemble a certain part of the TURBO-IR Station by one of Jovy's members
- For your own safety never touch any of the heaters while the station is turned on and/or connected to the power source.
- This unit operates by electricity, and some components within the device have high dangerous voltages applied to them.
- Failing to follow the operating instructions could result in serious injuries, death, and/or extensive damage to property!
- Do not use the station for any purpose other than which they are intended to
- This equipment is only to be used by professionals and must not be switched on or used without supervision.
- The station should be switched-off when not in use.
- Do not place any flammable material near the station.
- Please use the station on a non-flammable surface.
- Please also pay attention to the safety regulations applied in your area.

9) CONTACT US

Jovy Systems® Limited

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For more information about our products or datasheets please check our website: www.jovy-systems.com

For any technical inquiries please contact our technical support: support@jovy-sys.com or via skype [jovysystemscs](https://www.skype.com/jovysystemscs)

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