



PDR IR-D3 DISCOVERY SERIES

PDR's Focused IR SMT/BGA Rework Station
for Professional Performance in BGA Rework

Trusted by Experts



CCTV/Prism based BGA Alignment

Non Contact IR Temperature Sensors
for Component and PCB

150w Focused IR Component Heating

Component Pick/Place system with
soft landing and paste stop

Auto Profile Software Control

High Capacity Ultra Accurate XY Table

2250w Quartz IR
PCB Preheating

Auxiliary Process
Observation Camera

Advanced Features

North American specifications may differ

- **Advanced Focused IR component heating**
150W, lens based Focused IR heating with adjustable image system
- **Quartz IR PCB preheating**
2250W, two zone (240mm x 240mm heating area)
- **Precision Component Pick and Placement**
Professional vacuum placement system
- **Component Nest/Flux Application Facility**
Optional Jaw mounted nest with flux dip tray or component print frame
- **Precision PCB Handling**
Professional PCB table with micro X/Y
- **Component Temperature Sensing**
Standard non-contact IR temperature sensor
- **PCB Temperature Sensing**
K-type wire thermocouple
Optional non-contact IR temperature sensor
- **Advanced Thermal Process Control**
Software based auto profile thermal control
- **Camera/Prism Based BGA/CSP/QFN**
Split beam prism system for simultaneous PCB/component viewing
- **Auxiliary Process Camera (Optional)**
Auxiliary process observation camera

Professional SMD Rework Station for PCBs upto 12"/300mm



Click above for video link

BGA rework without the complications

The PDR IR-D3 Discovery rework station, using PDR's patented Focused IR technology, has been specifically designed to cope with the challenges of repairing today's PCB assemblies.

The station is tool free, gas free, instantly/precisely controllable, clean, modular, upgradeable and produces 100% yield BGA rework without any complications. It provides the extremely high levels of profiling and process control necessary for the effective rework of even the most advanced packages, including SMDs, BGAs, CSPs, QFNs, Flipchips and is ready for 0201 and lead-free applications.



The IR-D3 Discovery is keenly priced and can be easily configured to your requirements, with a good range of advanced features to choose from, allowing the operator to quickly and safely rework all types of components without overheating the component, adjacents or the PCB. It uses all the proven attributes of PDR's Focused IR technology, first introduced in 1987 and now used worldwide by over 4500 customers.

Simple BGA rework procedure

BGA rework poses the problem of accessing hidden interconnects in a high density environment. Consequently, it requires a station that is able to access the hidden joints without affecting neighbouring components, a station that is safe, gentle, adaptable and, above all, simple to operate. The IR-D3 Discovery is such a station. It is so easy to operate that technicians are able to instantly achieve excellent process control for BGA/SMT rework without the complexities and frustrations normally associated with 'high-end' rework stations.

Paste - Place - Reflow

With the aid of excellent mechanics, optics and control, operators can simply pick up the fluxed BGA from the nest plate, align it, place it onto the PCB's pads and then reflow with the station's accurate PC based, closed loop component and PCB temperature control.

Details and specifications of advanced features available

- Advanced Focused IR component heating**
150W, lens based Focused IR heating with adjustable image system
PDR lens attachments with IR image from 4 to 70mm diameter
Reworks all SMDs/ BGAs/QFNs/CSPs including 0201s + lead free applications
- PDR Lens Attachments**
F150 (Ø4 – 18mm spot size) optional
F200 (Ø10 – 28mm spot size) optional
F400 (Ø12 – 35mm spot size) optional
F700 (Ø25 – 70mm spot size) standard
- Quartz IR PCB preheating**
High power, medium wave quartz IR
Large area IR PCB preheater system
Standard 2250W, two zone (240mm x 240mm heating area)
Optional 750W, single zone (120mm x 120mm heating area)
- Professional Vacuum Placement System**
With precise placement action, Z axis movement and rotation
Soft component landing and Z-axis stop for paste placement
Interchangeable pick-up heads for different application
- Component Nest for Precision Pick-up and Flux**
Application (Optional)
With jaw mounted nest with ‘component print frame’, dip tray or mini stencil paste-head facility for flux and solder paste application
- Handheld Component Nest and Flux Application Tool (Optional)**
Handheld nest plate with ‘component print frame’ or dip tray for flux and solder paste application
- Professional Micro X/Y PCB Table**
Precision micrometer (micro) X/Y control
+/- 20 microns (.0008”) movement in X/Y directions
Macro movement in X direction
Up to 12” x 12” (300mm x 300mm) PCB capacity with lockable X/Y axis
- Advanced Professional Macro-Micro X/Y PCB Table (Optional)**
Precision micrometer (micro) X/Y and micro rotation control
+/- 10 microns (.0004”) movement in X/Y directions
Macro movement in X/Y directions
Up to 12” x 18” (300mm x 450mm) PCB capacity with lockable X/Y axis
- Camera/Prism Based BGA/CSP/QFN Alignment System (Optional)**
Split beam prism system for simultaneous PCB/component viewing
Integral LED lighting system with illumination level control
Full colour compact camera and flat screen colour monitor
High quality zoom lens with up to x50 magnification
Precise X/Y axis mounting system
- Auxiliary Process Camera (Optional)**
Auxiliary process observation camera
Integral LED lighting system with illumination level control
Full colour compact camera with rotation movement
High quality zoom lens with up to x50 magnification
- Component Temperature Sensing - Non-contact, IR Sensor (Optional)**
Manually adjustable, K-type non-contact IR sensor, Ø7-10mm spotsizes
Real time monitoring of component temperature throughout process
- PCB Temperature Sensing**
Manually attached K-type wire thermocouple
Optional non-contact IR sensor with real time temperature sensing

Bench Top Requirements

Top heat power	150W IR
Back heater power	750W or 2250W IR
Voltage/frequency	208-240 volts 50/60Hz, up to 3KW
Typical components	CSPs, BGAs, uBGAs, QFNs, QFPs, PLCCs, SOICs, small SMDs
Bench area	1400mm (w) x 600mm (d)
Weight	65 Kg

The above features are mostly optional and also, PDR reserves the right to improve or change specifications without giving notice.

North American specifications may differ

PDR System	IR-C3 Series		IR-D3 Series		IR-E3 Series			IR-E6	
● = Standard Feature ○ = Optional Feature									
Advanced Focused IR Component Heating	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
Focused IR Lens System	●	●	●	●	●	●	●	●	●
F150 - Ø 6-18mm - Lens Attachment	○	○	○	○	○	●	○	○	○
F200 - Ø10-28mm - Lens Attachment	○	○	○	○	○	●	●	●	●
F400 - Ø12-35mm - Lens Attachment	○	○	○	○	○	○	○	○	○
F700 - Ø20-70mm - Lens Attachment	●	●	●	●	●	○	●	●	●
Quartz IR PCB Preheating	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
750W, single zone (120mm x 120mm heating area)	○	○	○	○	○	○	○		
2000W, single zone (240mm x 240mm heating area)	●	●							
2250W, two zone with 750W Micro PCB Booster (240mm x 240mm heating area)			●	●	●				
2800W, three zone (240mm x 360mm heating area)									
3000W, 3 zone (240mm x 360mm heating area)								●	
3050W, three zone with 750W Micro PCB Booster (240mm x 360mm heating area)					○	●	●		
3200W, three zone (500mm x 270mm heating area)									●
Component Pick and Placement	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
Venturi Based High Power Vacuum Upgrade	○	○	○	○	○	●	○	○	○
Handheld vacuum placement system	●	●							
Standard vacuum placement system (Z-axis and Rotation)	○	○							
Professional vacuum placement system (Z-axis, Rotation and Soft Landing)			●	●					
Advanced Professional vacuum placement system (Y/Z-axis, Rotation and Soft Landing)					●	●	●	●	●
Component Nest/Flux Application Facility	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
Handheld flux dip tray or component print frame	○	○							
Jaw mounted nest with flux dip tray or component print frame			●	●		●			
Integrated nest with flux dip tray or component print frame					●		●	●	●
PCB Handling (PCB Capacity)	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
Portable Benchtop PCB workholder (12" x 10"/300mm x 250mm)	●	●							
Professional PCB table with micro X/Y (12" x 12"/300mm x 300mm)			●	●					
Advanced Professional PCB table with macro-micro X/Y (18" x 12"/450mm x 300mm)					●	●	●		
Advanced Professional PCB table with gantry/macro-micro X/Y (18" x 12"/450mm x 300mm)								●	
2Advanced Professional PCB table with gantry/macro-micro X/Y (24" x 18"/620mm x 460mm)									●
Component Temperature Sensing	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
Standard non-contact IR temperature sensor (Pyrometer) - Ø7mm+ Spot	●	●	●	●	●	●	●	●	●
PCB Temperature Sensing	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
K-type wire thermocouple	●	●	●	●	●	●	●	●	●
Standard non-contact IR temperature sensor (Pyrometer) - Ø7mm+ Spot	○	○	○	○	○	●	●	○	○
Advanced Thermal Process Control	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
Digital controller based thermal control	●								
Software based auto profile thermal control		●	●	●	●	●	●	●	●
Barcode scanner (profile selection)		○	○	○	○	○	○	○	○
Camera Based Vision Systems	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
Camera/Prism Based BGA/CSP/QFN Alignment System			○	●	○	○	○	○	○
Auxillary Process Observation Camera			○	○	○	○	○	○	○
Camera/Prism Based BGA/CSP/QFN Alignment System USB Interface			○	○	●	●	●	●	●
Auxillary Process Observation Camera USB Interface			○	○	○	●	●	○	○
Forced Air PCB Cooling	IR-C3S	IR-C3i	IR-D3i	IR-D3S	IR-E3S	IR-E3M	IR-E3G	IR-E6S	IR-E6XL
Highly effective, integral PCB cooling with air knife system					○	○	○	○	○



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