

Inline High Resolution, High Speed Automated Optical Inspection System BF-Frontier

High Resolution Optical System

With a superior resolution of 18µm and scanning line color CCD camera, the BF-Frontier provides a more accurate and stable inspection capability. Solder fillets on components as small as the high density mounted 0201 (0603) chip as well as ICs with 0.4mm pitch lead are easily inspected and analyzed with the BF-Frontier.

High Accuracy

The BF-Frontier inspection system utilizes a *Telecentric Lens System* (1) and an *Automatic Digital Brightness Control System* (2) for improved repeatability and increased accuracy of the inspection result. To further increase repeatability and accuracy, the BF-Frontier also employs a *Ball Screw-Driven Table* (3). Character Recognition, Polarity, and Solder Fillet Detection are achieved by the *Brilliant MLT Lightning* (4) which helps to capture a clearer PCB image.

Industry-Leading High Throughput

To maximize throughput, the BF-Frontier uses Saki's unique *Alternating Lighting Digital Scanning System* (5) to scan and capture images of the entire PCB in a single pass. In addition, the scanning sequence is optimized to dramatically reduce inspection tact time. The average scanning speed is approximately 19seconds for a extra large-sized PCB (18inx20in, 460x500mm).



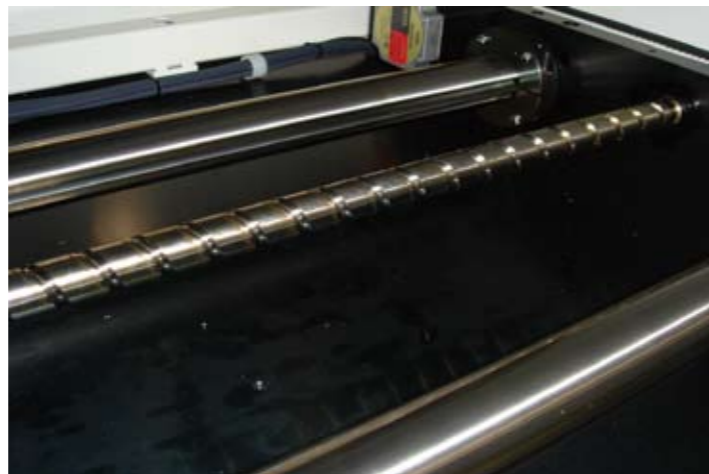
Flexibility

An upper and lower clearance of 40mm and 40mm respectively, allows the BF-Frontier to inspect PCBs with tall components on either side. In addition, the BF-Frontier can be placed at any stage of the PCB production process, from post-printing to post mounting and post reflow.

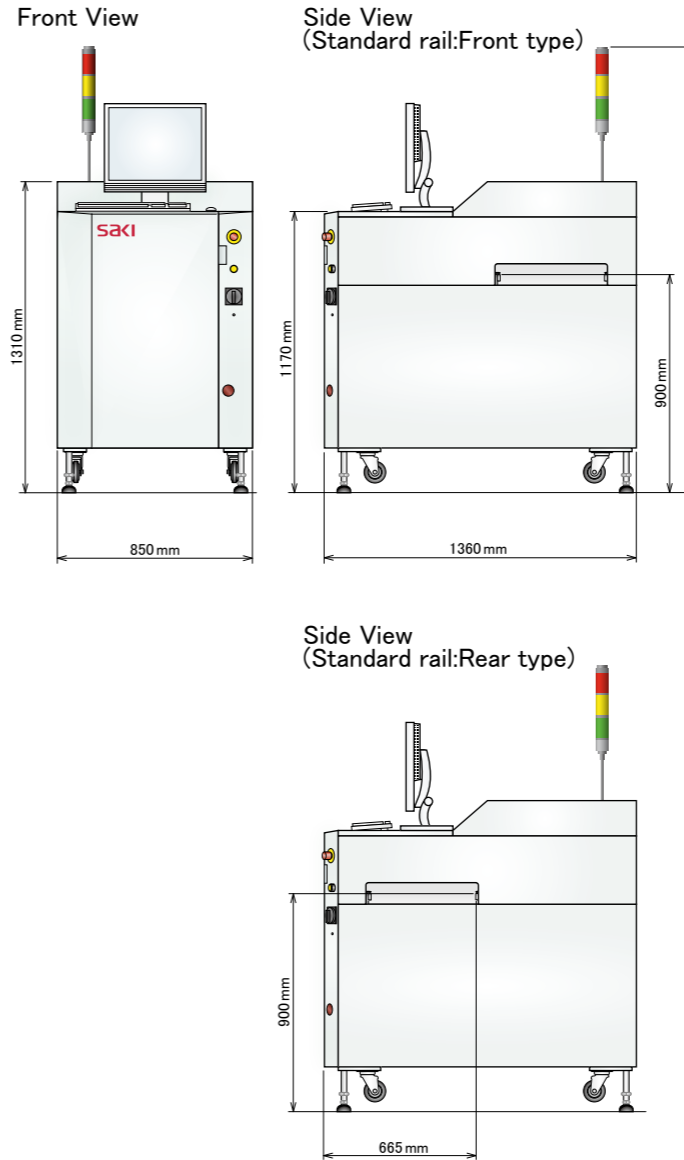
Real Time SPC Information

To aid in enhancing production yields, production management is supported by Real-Time SPC Information, where product quality can be monitored. The BF-Frontier can work together with analysis packages such as BF-Repair, BF-Editor, BF-Monitor, and BF-WebTracer to classify defects in real time during inspection and to provide immediate feedback on defects.

1. The BF-Frontier's unique telecentric lens system was designed to compensate for image distortion for more accurate defect detection.
2. Pixel brightness is automatically adjusted to produce a clearer image.
3. The table is precisely driven by a central ball drive screw while image scanning takes place.
4. The system employs 3 types of high intensity LEDs: Top Light, Full-Color Side Light, and Low Light.
5. The alternating lighting system in conjunction with the system's line scanning capability enables the system to capture multiple images of the entire PCB in a single scan.



Dimensions



System Specifications

Model	BF-Frontier
Board Size	50×60-460×500mm, 2×2.4-18×20in
Board Thickness	0.6-2.5mm, 24-100mils
Board Warp	+/-2mm, 79mils
PCB Clearance	Top: 40mm, 1.57in Bottom: 40mm, 1.57in
Rotated Component Support	Available for 0-359°rotation (unit of 1°)
Inspection Items	Missing, Shift/Skew, Misalignment, Tombstone, Reverse, Polarity, Wrong, Bridge, Dirt/Dust, No Solder, Short Solder, Cold Solder, Lifted Lead, Un Insertion, OCR
Scanning Speed	460×500mm: 19seconds
Typical Inspection Speed	3s/10,000windows(reference)
Load/Unload Time	4seconds
Image Resolution	18µm
Camera (Image Processing)	Line Color CCD
Lighting System	LED
Conveyor Type	Flat belt
Conveyor Adjustment	Automatic width adjustment
Conveyor Height	900+/-20mm, 36+/-0.8in
OS	Windows XP English
Inspection Output	OK/NG signal, Monitor Display, Internal Marking, Paper Printer* Data File "as is" or sent to BF-Repair* or BF-WebTracer *Optional

System Requirements

Electrical Requirement	AC100-120V, 200-240V, 1500VA, 50/60Hz
Air Requirement	0.5Mpa@5L/min, 73PSI@0.18CFM
Temperature/Humidity	15°C (59F) to 30°C (86F) / 15 to 80% RH (Non-condensing)
Footprint Dimensions	W850×D1360×H1310mm (Main body) 34×55×52in
Weight	450kg, 992lbs

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