



# BF - Frontier

High-Resolution Image and High-Throughput System

## Inline High Resolution and High Speed Automated Optical Inspection Machine

### Industry-Leading High Throughput

**The Alternate Color Digital Scanning System (\*1)** provide a single scan of capturing the entire PCB image with high throughput. The Scanning speed is only 22sec for the extra large size PCB (460mm\*500mm).

(\*1) The liner scanning and alternate lightning system capture the multi images of the whole PCB at a single scan.

### High-Resolution Imaging System

The superior resolution; 18  $\mu$  m with color line CCD provide more accurate and stable capability to inspect the solder fillet on the small components such as the highly density mounted 0201 (0603) chip and 0.4mm pitch lead.

### High Accuracy

**The Telecentric Lens(\*2)** and **the Automatic Digital Shading System(\*3)** increase the repeatability and the compatibility, and hence provide high accuracy of the inspection result. And **Ball Screw Table Scan(\*4)** also provide high repeatability and compatibility of machine accuracy.

(\*2)The table with the PCB is moving while capturing. Table is moved by ball screw.

(\*3) The unique lens developed is able to compensate the distortion (the field angle) of the image for a more accurate detection.

(\*4)The brightness of each pixel for a clearer image is calibrated automatically.



### Accurate Inspection Results

**The Multi Lightening Technology(\*5)** is newly developed to improve the inspection capability of the solder fillet after reflow process, especially to detect the lifted chip and the lifted lead.

(\*5) New Lower lighting is add to conventional lightings; the side lighting and the co-axial overhead lighting.

### Real Time SPC Information

**The real time SPC information** is shown to support the management of production quality, and therefore the increase of production yield.

BF-Frontier together with the analysis packages such as BF-Repair, BF-Editor, BF-Monitor, Net-View classify defects in real time during inspection, providing immediate feedback on defect types.



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## Model

BF-Frontier

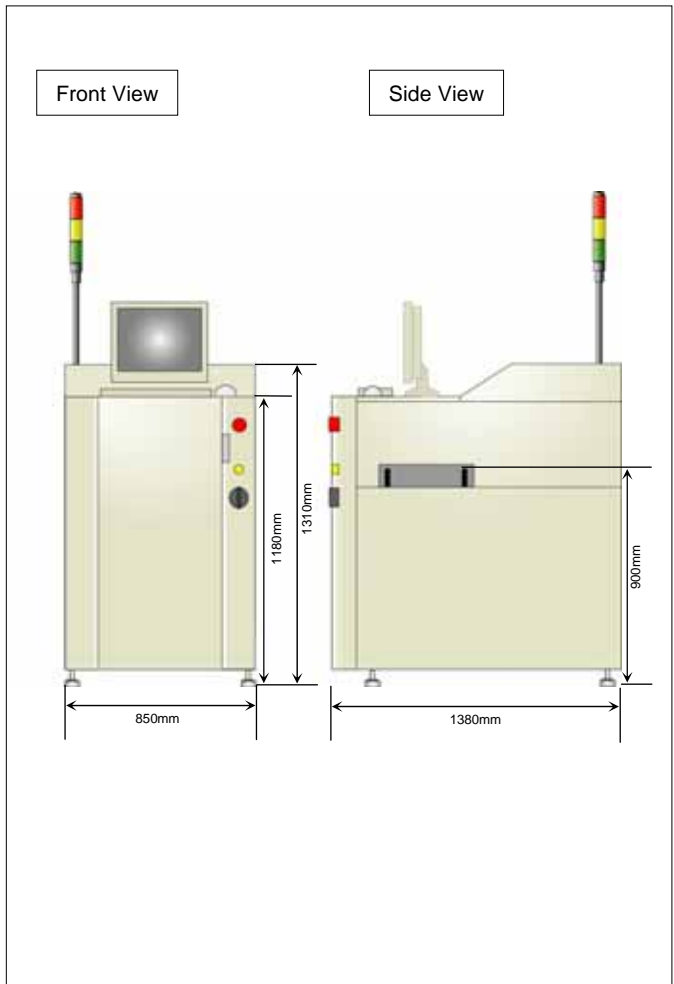
## System Specifications

Conveyable Board Size	50*50 – 460*500mm
Board Thickness Range	0.3 – 4.0mm
Board Plainness	2mm
Clearance from PCB	Top: 40mm Bottom: 40mm
Rotated Component Support	Available for 0 - 359 ° rotation (unit of 1 ° )
Inspection Items	Missing, Shift, Miss Alignment, Tomb Stone, Reverse, Polarity, Other component, Bridge, Dirt, Dust, No Solder, Short Solder, Cold Solder, Lifted Chip, Lifted Lead, Un Insertion, OCR (Optical Character Recognition/Verification)
Scanning Speed	(PCB Length[mm]+30)/14.6(mm/s) 460*500mm : 22s
Typical Inspection Speed	0.1ms/Window
Load/Unload Time	4 sec
Image Resolution	18 μ m
Camera (Image Processing)	Color line CCD
Lighting System	White LED
Conveyor Type	Flat belt
Adjustment of Conveyor	Auto and Manual
Conveyor Pass Line	900+/- 20mm
OS	Windows2000 (Choose from Japanese, English)
Inspection Output	OK/NG signal, Display on monitor, marking by an internal plotter, role paper printer*, Data file to BF-Repair*, Dada file, Data base to Net-View* (*: Option)

## System Requirements

Electrical Requirement	AC 100, 115, 200, 220, 240V, 800W, 50/60Hz
Compressed Air Requirement	0.5Mpa, 5L/min
Temperature/ Humidity	15 to 30 degree C/ 5 to 80 % RH (No Condensation)
Foot Print Dimensions (w*d*h)	(W)850*(D)1380*(H)1310mm
Weight	450 Kg

## Dimensions



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