NEW

Inline PCB inspection system

VT-S500-02

OMRON

Best quality @min.Q-cost

VT-S500 series

realizing

Market environment **Various needs surrounding the surface mount industry**

Globalized issues in the surface mounting industry

Demands from the market

Intensified cost competition

Super mass-production

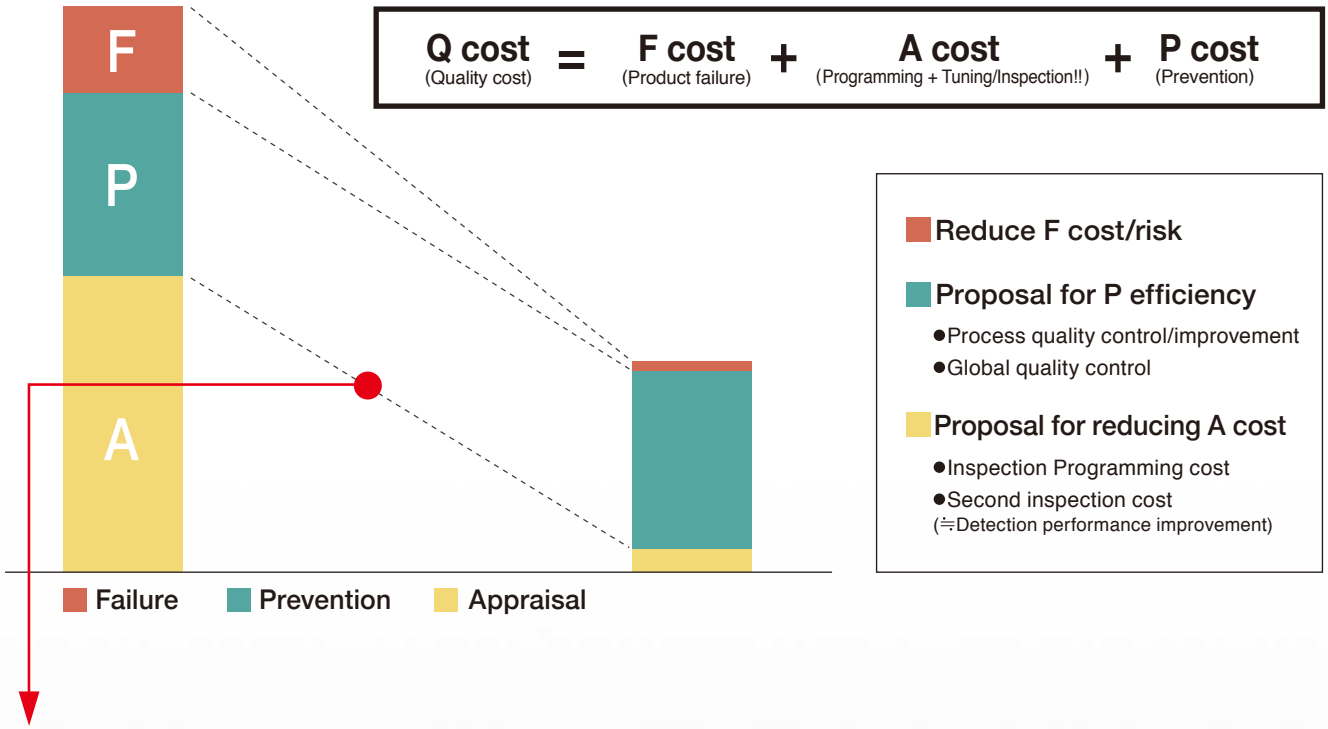
Diversification of mount components

OMRON presents the quality you require at the minimum cost.
The inspection system meeting the market demands.

- Vertical startup of inspection
- High-speed/ stable inspection
- Quality improvement support

New concept in AOI for "optimization of customer's quality cost".

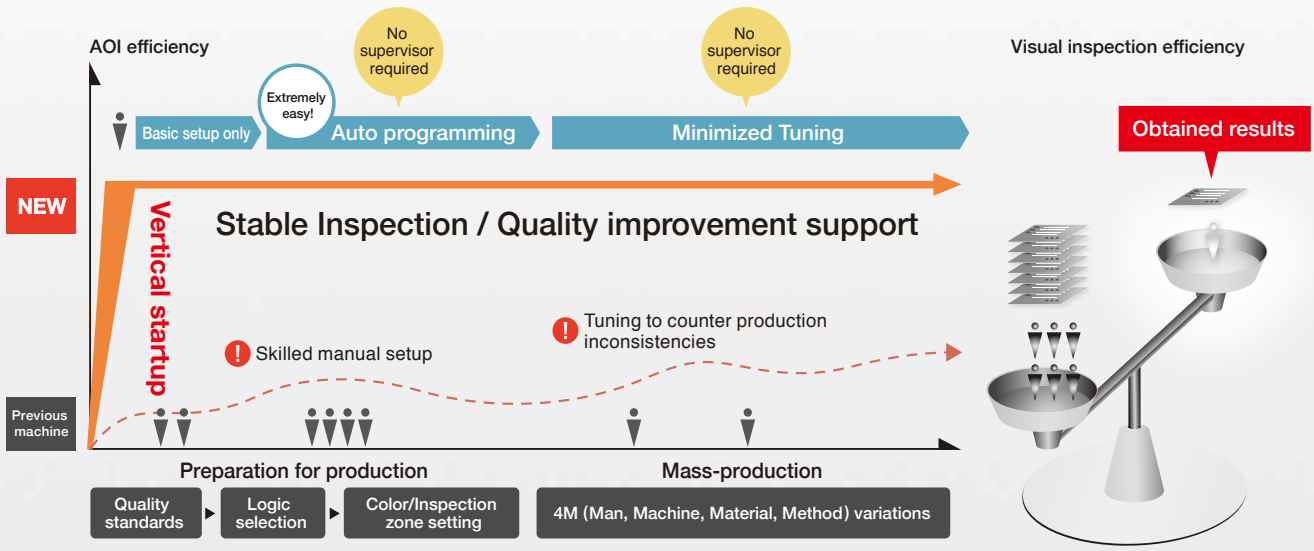
The system uses innovative technologies to greatly reduce "inspection costs," which has been a major issue in conventional AOI technologies. Moreover, while harnessing quality improvement systems, it facilitates efficient "defect prevention" to contribute to the reduction of "the end customer failure costs."



Q cost (Quality cost) = **F cost** (Product failure) + **A cost** (Programming + Tuning/Inspection!!) + **P cost** (Prevention)

- **Reduce F cost/risk**
- **Proposal for P efficiency**
  - Process quality control/improvement
  - Global quality control
- **Proposal for reducing A cost**
  - Inspection Programming cost
  - Second inspection cost (≒Detection performance improvement)

Minimization of A cost = "Challenge for 'true' auto inspection"



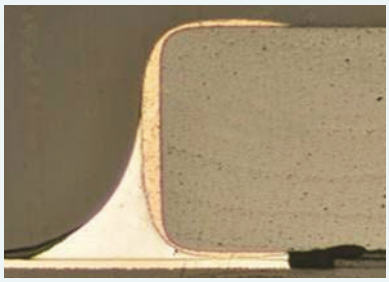
VT-S500 for realizing vertical st

Vertical startup of inspection

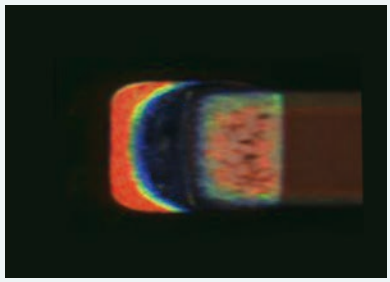
High-speed/stable inspection

Equipped with Color Highlight™ 3D

Core Technology



Actual image



Captured Image

Automatic extraction of "fillet features"

"The VT-S500 uses new image processing technology to automatically extract fillet features, which are quantified in numerical values and used for inspection."

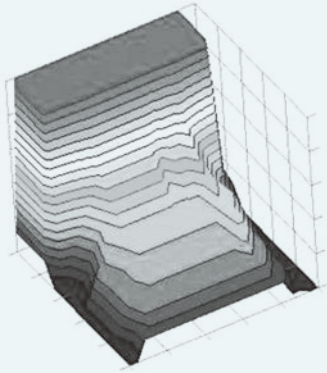
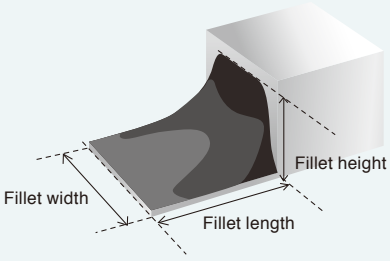


Image after internal processing

Direct input of quality standards. High-speed startup with automatic programming.

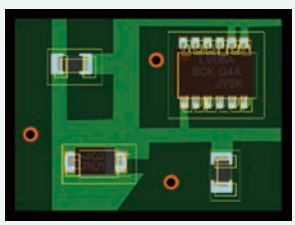
Patent Pending



Automatic inspection programming is possible simply by setting inspection criteria for fillet features (length, height and width).

PCB position adju

Automatically detects t land position according



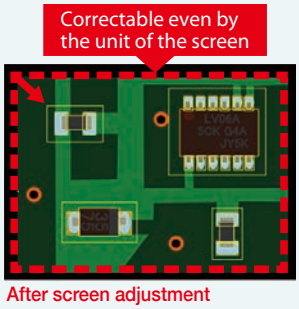
Before screen adjustment

Inspection accuracy has been improv at the correct position using the new p entire screen instead of the conventio

tartup and stable inspection

ustment algorithm

o offset position of
to PCB variation and warpage.

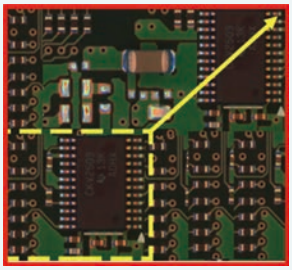


After screen adjustment

ed and it has become possible to inspect
position adjustment method based on the
nal land-based adjustment.

High-speed/stable inspection

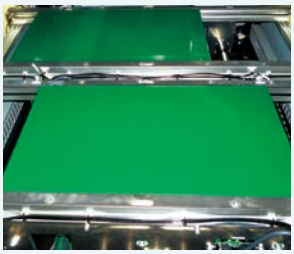
Inspection time improves of 60%* compared with conventional models



Higher-speed inspection has become possible to respond to a significant increase in productivity.

* Compared with the evaluation result of VT-RNS2 series. (Omron's PCB)

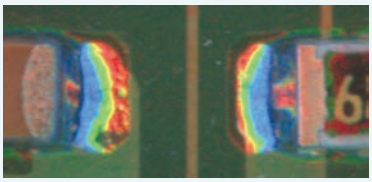
Available in dual lane



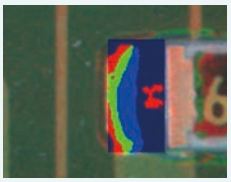
Dual lanes for reduced cycle time. Position of lanes can be selected according to the customer's production facility.

Minimize the effect of secondary reflection and shadow

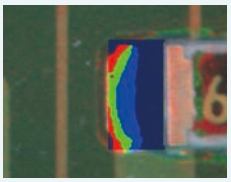
Parameters have been optimally set to pick up gradations unperceived by Human Eye and automatically separate good from bad components.



Example image of secondary reflection

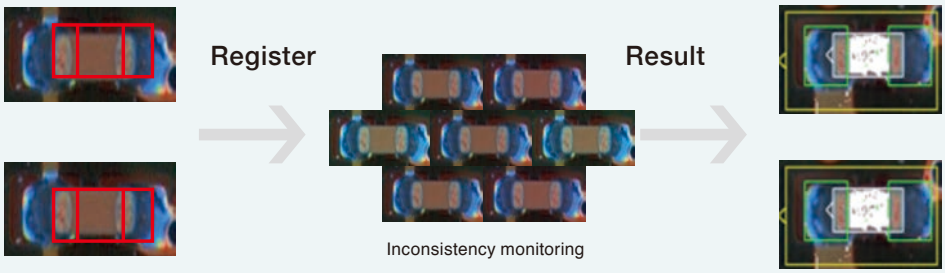


Without Correction



VT-S500 eliminates reflection

Auto parameter calculation to counteract the variation of components

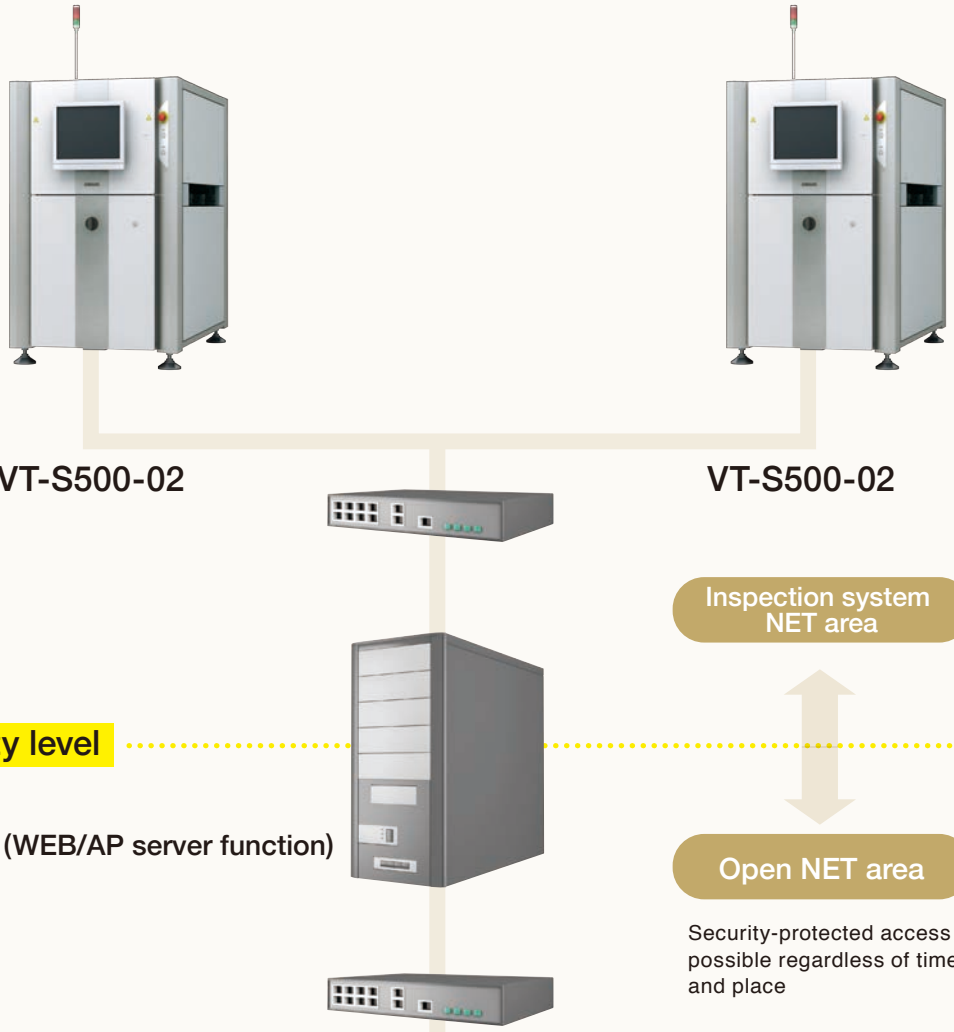


In order to cope with component inconsistencies, parameters can be automatically calculated - simply by registering required components.

System

Quality improvement support

Different security levels can be assigned to the inspection system and its peripheral devices. The peripheral devices are connectable via an open network for location-free networking.



Flexible access to the tools by Web application.

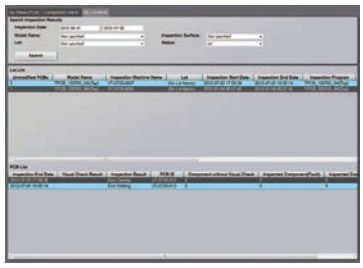
solution

WEB application
v-CA

WEB application

Visual check application Inline Check

Inspection result can be obtained using such as PCB-ID and lot number, facilitating visual check of defective locations.



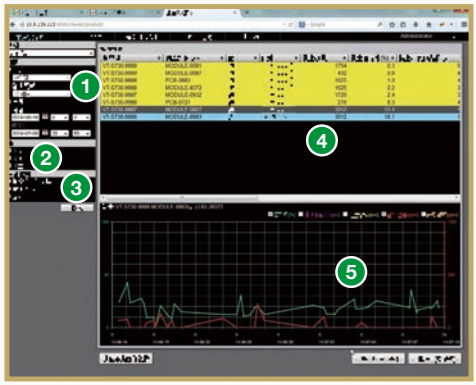
Listing by PCB-ID and lot number

Inspection result check screen

WEB application
Q-up Navi

WEB application

Monitoring of production status and quantification of defect causes/ tendencies enable the acceleration of process improvement and process control cost reduction, while enhancing quality improvement support.

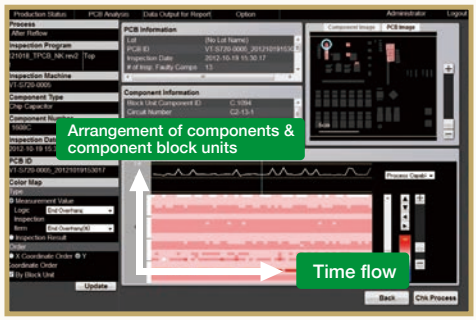


Quality/ production control screen

Monitor

Pass rates and real fault rates can be checked in real time to swiftly manage quality issues.

1. Production shift
2. Can select calculation units of inspection programmes from single and multiple production lines
3. Can check abnormal production conditions using preset warnings parameters
4. Can check for production anomaly using preset warning value
5. Can check in real time the production conditions such as first pass yield and real defect rate

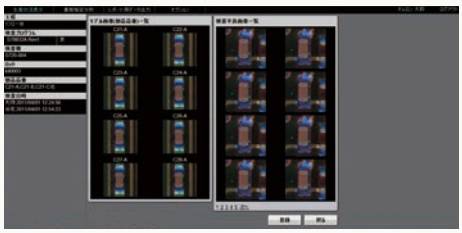


Process stability check

Check

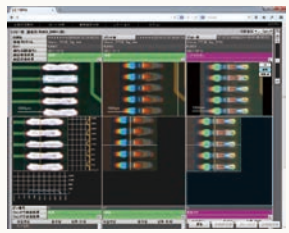
Color map

A Unique Fast and Easy visual method, identifying trends in process control, without the need for special skill and analysis time.



Monitoring of the impact from product inconsistencies

Analysis function
Shows real faults and false alarms in Pareto chart



Process comparison
Patent No.3994925

Prevention of defects

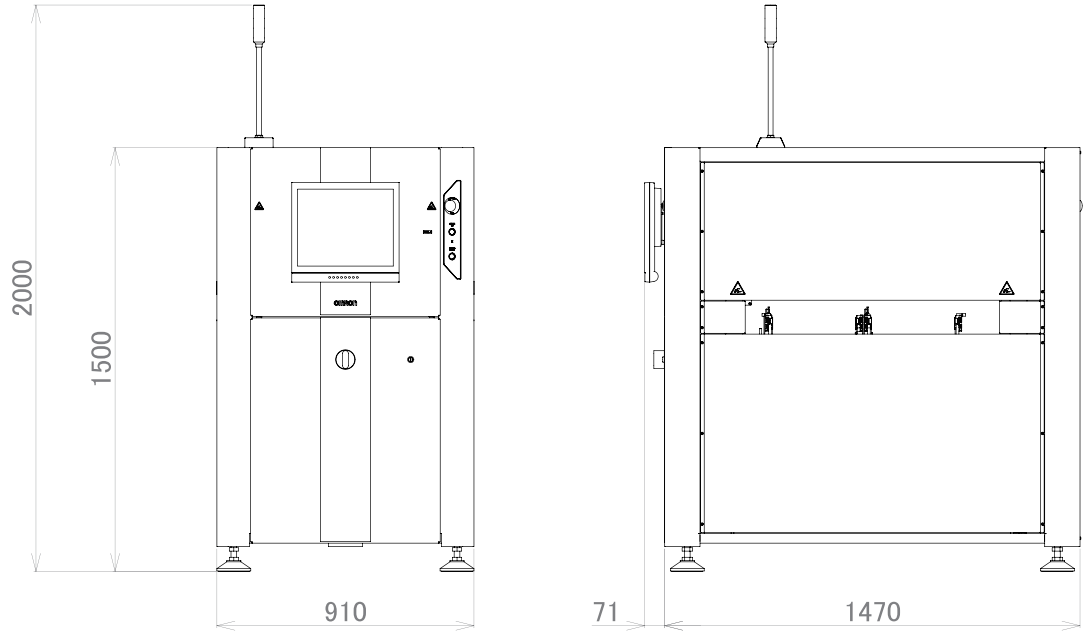
Specifications

Image signal input unit	Imaging System	5Mpixel camera / Telecentric Lens
	Imaging Method	Color Highlight, 3D solder shape reconstruction
	Resolution	10μm, 15μm
Main unit	Feed method	Edge Belt Conveyor, Automatic Raid width Adjust
	Line height	900 ±20 mm Adjustment from adjustable feet
	PCB carrier width adjustment	Automatic
Power supply		200 to 240 VAC (single phase)
Ambient operating temperature		+10 to +35°C
Ambient operating humidity		35 to 80% RH (with no condensation)
Weight		Approx. 500kg
Dimensions		910 (W) × 1470 (D) × 1500 (H) mm

Functional Specifications

Inspectable PCBs	Type	Post-reflow/Flow/Post-placement
	Dimensions	Single lane: 50(W) × 50(D) to 510(W) × 610(D) mm Dual lane: 50 (W) × 50(D) to 510 (W)× 300(D) mm
	Thickness	0.4 to 4.0 mm
Clearance		Above PCB: 50 mm, Below PCB: 50 mm
Inspection items		Missing components, Wrong components, Component shifting (X/Y/skewing), Fillets (wettability length, height,width of the tip, wettability angle, length of the side), Land exposure, Polarity shifting, Polarity lifting Solder balls, Bridging, Objects,Through hole, Polarity, Inversion
Number of inspection points		10,000 components/PCB max.

VT-S500-02 Dimensions



(Unit: mm, Tolerance: IT16)

- **This document provides information mainly for selecting suitable models. Please read the Instruction Sheet carefully for information that the user must understand and accept before purchase, including information on warranty, limitations of liability, and precautions.**
- **This product may cause interference if used in residential areas.**

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