

High-speed automated X-ray CT inspection system
VT-X750

OMRON



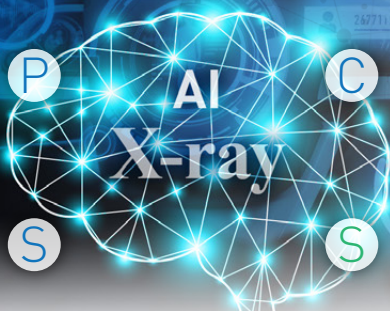
VT-X750

In-line Full Inspection System

Best quality @min.Q-cost

VT-X750

Best Quality at the Minimum Q-cost.



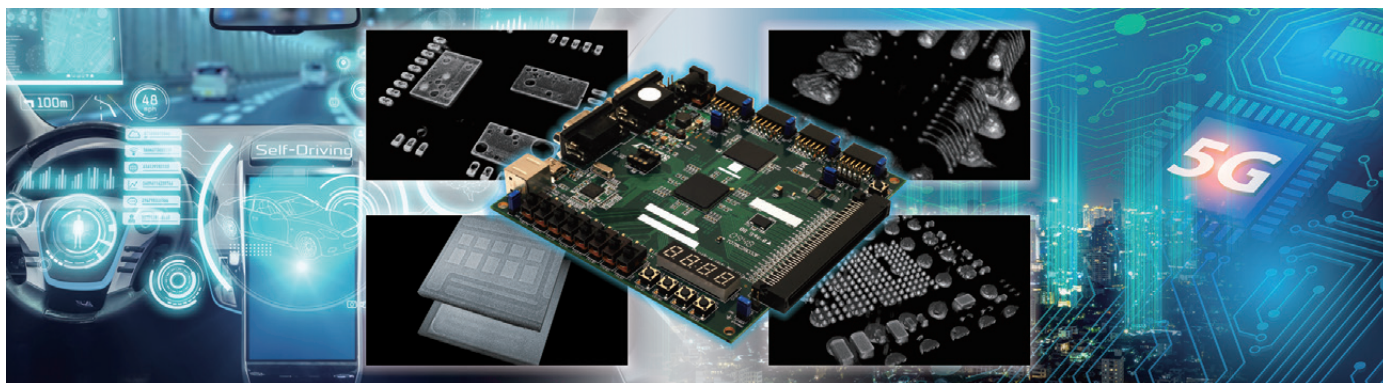
Productivity
Capability
Safety
Security

Innovation to maximize ROI.



VT-X750 Case Study

The X750 is used for non-destructive inspection of 5G infrastructure/modules and in-vehicle electrical components as a high-definition, high-quality inspection using full 3D-CT. In recent years, the VT-X750 has been used for inspection of solder voids and solder filling of through-hole connectors in final assembly of power devices such as IGBTs and MOSFETs, which are essential for EVs, as well as Integrated machine and electric power. It has also been widely utilized in the fields of aerospace, industrial equipment, and semiconductors.

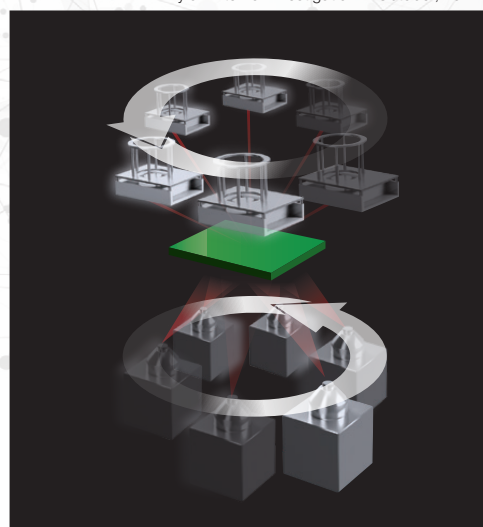
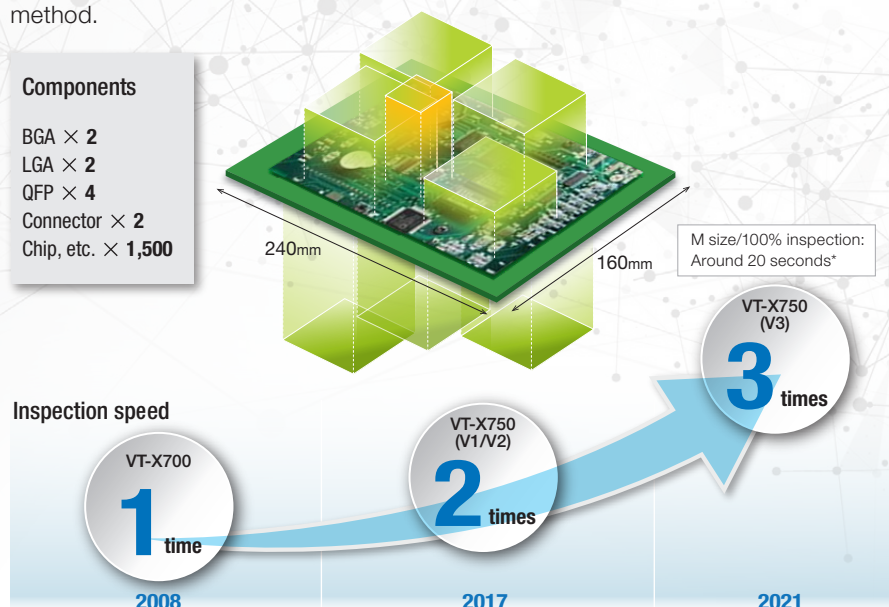


P Productivity

In-line full inspection coverage Omron Patent

The VT-X750 improves upon previous Omron 3D-CT technology making it the fastest X-Ray inspection system to date ^{*1}. The automated inspection logic has been improved for many parts such as IC heel fillets, stacked devices (PoP), through hole components, press-fit connectors, and other bottom terminated parts. Increasing automated inspection speed and expanding inspection logic enables full, in-line inspection coverage by 3D-CT method.

^{*1}. By an internal investigation in October, 2021.



* Time for all PCB inspection of M size substrate. Excluding PCB load and unload time. It is the 3D inspection time both sides of board including 2 pieces BGA which has 2,000 to 3,000 pins, or SiP.

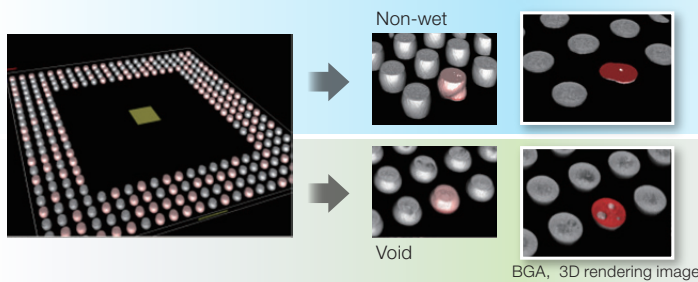
C Capability

Visualize solder joint strength

OMRON's unique 3D-CT reconstruction algorithms provide excellent solder shape recognition and defect detection.

Quantitative analysis allows for an automated inspection process which minimizes the risk of escapes while providing fast and repeatable operation.

Visualize
solder joint
strength



Design constraint free

Dense and dual sided board design can provide challenges for X-Ray inspection.

However, Omron's 3D-CT technology can overcome such design restraints.

AI Dynamic Approach using Omron AI

Criteria setting by Auto-Judge reduces the dependency on a dedicated programmer Patent Pending

This dynamic approach enables a comprehensive analysis using **Omron AI** with quantitative decision making based on conventional inspection standards for OK / NG judgment. (3D cross-sectional display functionality has been integrated into the screen, making the inspection criteria settings easier to understand.)

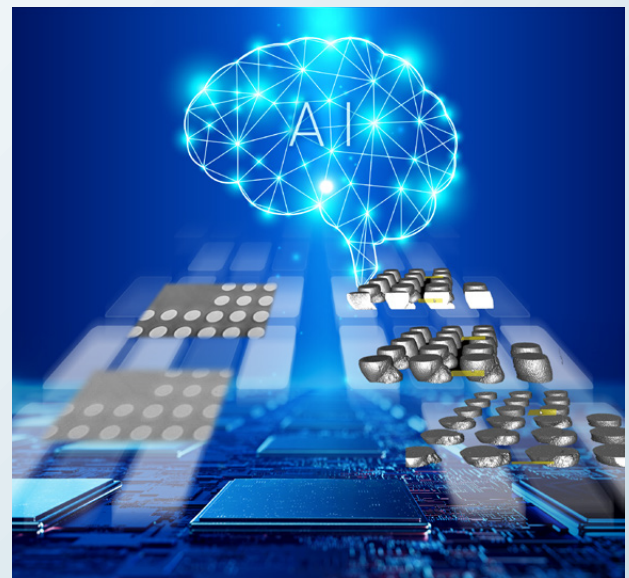
Faster creation of new programs Omron Patent

Omron AI assists in the quick creation of new programs. Along with automated program generation using CAD data, **Omron AI** automatically tunes the parts library using inspection result data.

Accelerated simulation for production preparation Omron Patent

Omron AI simulates the optimum tact and exposure dosage for each part and automatically determines the corresponding conditions for the X-ray inspection process.

* Simulation pertains to specific parts.

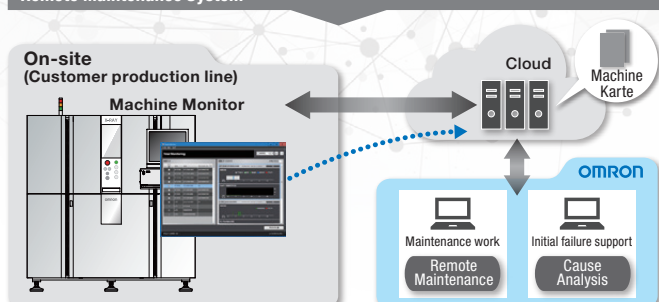


S Safety

Zero down time

To achieve "Never stop the production line = Zero downtime", OMRON provides global support for customer operations with a full range of maintenance services, including machine monitoring for predictive maintenance and remote access for emergency support.

Remote Maintenance System Monitor machines with the Machine Monitor to reduce downtime to a minimum.



S Security

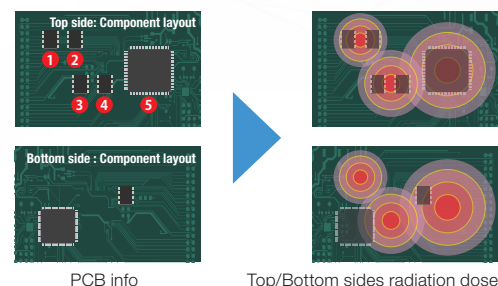
Reduction of product radiation exposure

• High speed and low radiation imaging technology

A filter that reduces the effects of radiation exposure has been installed as standard, and concerns about radiation exposure, especially to memory components, have been minimized by realizing high-speed imaging.

• Parts radiation exposure simulator Omron Patent

The exposure of each component on the top side and bottom side of PCB can be simulated with high accuracy.



Specifications

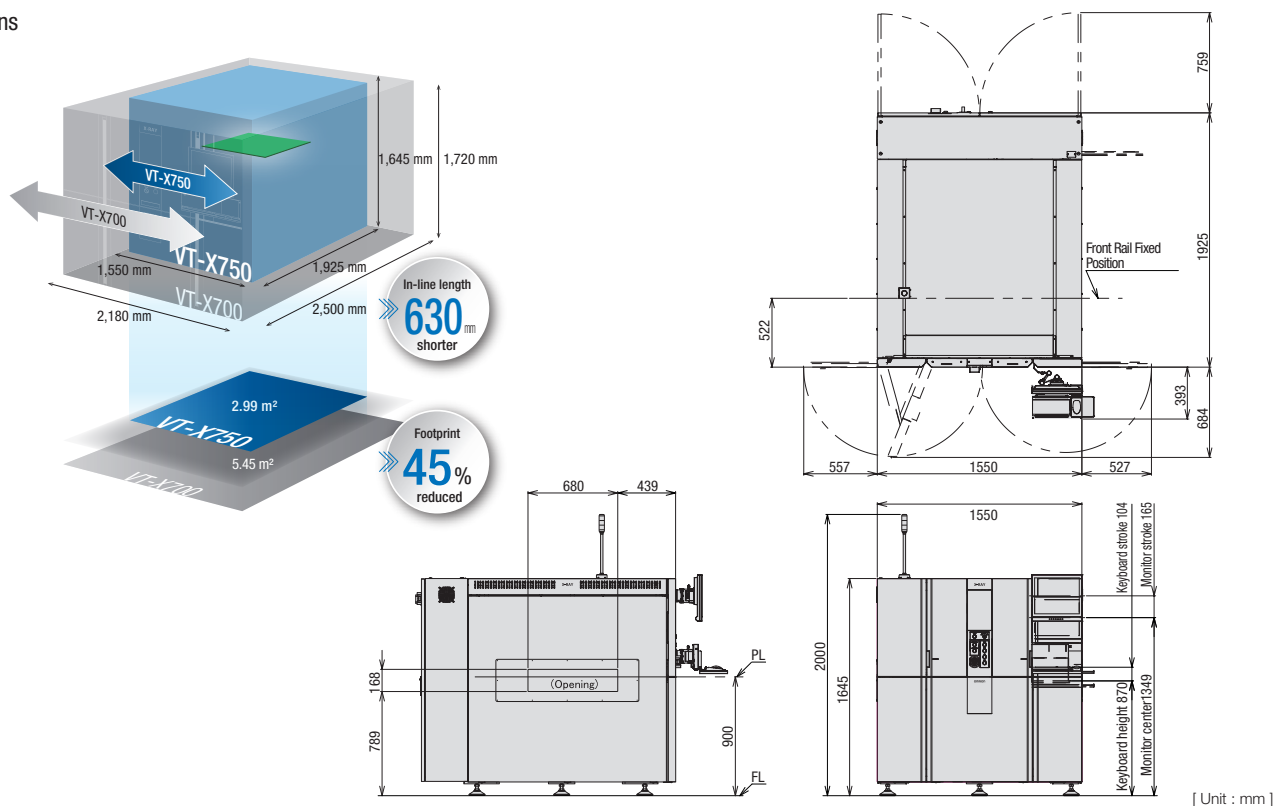
■ Hardware configuration / Function

Item		Description		
Model		VT-X750		VT-X750-XL
Type		V3-H	V3-C	V3
Inspection object		BGA/CSP, inserted components, SOP, QFP, transistors, R/C chips, bottom-side terminal components, QFN, Power devices, POP, Press-fit CN, etc.		
Inspection items		Void, open, non-wet, Solder Volume, shifting, foreign object, bridging, Solder fillet, TH Solder filling, Solder ball, etc. (selectable to applications)		
Imaging system	Method	3D-slice imaging by using parallel CT		
	Resolution	6,8,10,15,20,25,30μm/pixel (selectable in the inspection program)	3,6,8,10,15,20,25,30μm/pixel (selectable in the inspection program)	10,15,20,25,30μm/pixel (selectable in the inspection program)
	X-ray source	Micro-focus closed tube		
	X-ray detector	Flat panel detector		
PCBA	Size	50x50~610x515 mm (2x2 to 24x20 inch), Thickness: 0.4~5.0mm (0.4~3.0mm in 3μm resolution)		100 x 100~1200 x 660 mm, Thickness: 0.4~15.0 mm
	Weight	Less than 4.0 kg, Less than 10.0 kg (option) (*1)		Less than 15kg
	Component clearance	Maximum top: 40 mm, 90 mm (option) (*1), Maximum bottom: 40 mm		Top: 40 mm, Bottom: 50 mm
	Warpage	Less than 2.0 mm (Less than 1.0 mm in 3 μm resolution)		Less than 3.0 mm
Main body	Footprint	1,550(W) x 1,925(D) x 1,645(H) mm		2,180(W) x 2,510(D) x 1,735(H) mm
	Weight	Approx. 3,100 kg		Approx. 5,350 kg
	Conveyor height	900 ±20 mm		
	Power supply	Single phase, 200 to 240 VAC, 50/60 Hz		
	Rated power	2.4kVA		2.58kVA
	X-ray leakage	Less than 0.5 μSv/h		
	Air supply	0.4 to 0.6 Mpa		
	Safety standard	CE, SEMI, NFPA, FDA		CE, FDA

*1: For details about the options, please contact your Omron sales representative.

Dimensions

■ VT-X750



EtherNet / IP™ is the trademark of ODVA.

EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

- 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.

OMRON Corporation

INDUSTRIAL AUTOMATION COMPANY INSPECTION SYSTEMS BUSINESS DIVISION SALES DEPARTMENT

Shinagawa Front Bldg. Conference 7F
2-3-13 Kounan Minato-ku Tokyo
108-0075 JAPAN
TEL +81-3-6718-3550 FAX: +81-3-6718-3553

OMRON INDUSTRIAL AUTOMATION (CHINA) CO., LTD.

F20, Tower A, NEO Building, 6011 Shennan Avenue,
Futian District, Shenzhen, Guangdong 518048, China
TEL: +86-755-8359-9028 FAX: +86-755-8359-9628

Omron AOI Business Europe, Omron Europe B.V.

Zilverenberg 2, 5234 GM 's-Hertogenbosch,
The Netherlands
TEL: +31 (0) 736 481811 FAX: +31 (0) 736 481879

OMRON TAIWAN ELECTRONICS INC.

9F-1, No. 8, Ziqiang S. RD., Zhubei City, Hsinchu
County 302, Taiwan R.O.C.
TEL: +886-3-667-5557 FAX: +886-3-667-5558

OMRON ELECTRONICS KOREA CO., LTD.

21F, Kyobo Tower B Wing, 465, Gangnam-daero,
Seocho-gu, Seoul, Korea 137-920
TEL: +82-2-3483-7789 FAX: +82-2-3483-7788

Omron Asia Pacific Pte Ltd

438B Alexandra Road #08-01/02
Alexandra Technopark, Singapore 119968
Tel: (65) 6835-3011 Fax: (65) 6835-2711

Omron Automation Pvt. Ltd.

The Qube, 5th Floor, Unit No. 501-504 MV Road,
Marol, Andheri (East), Mumbai - 400 059, India
Fax: (91-22) 7115 5602

OMRON ELECTRONICS LLC

2895 Greenspoint Parkway, Suite 200,
Hoffman Estates, IL 60169, U.S.A.
TEL: (1) 847-843-7900 FAX: (1) 847-843-7787

Authorized Distributor: