

Dimension inspection machine

VT-M12 Series

Contribute to a more secured and safer manufacturing with autonomous driving technology

ZERO DEFECT

- To achieve Zero defect

Full automatic dimension inspection starts from here

Full inspection

Repeatability
 $\pm 8\mu\text{m}$

Automatic
inspection

VT-M121

ZERO DEFECT



The age of autonomous driving is coming

Level3 autonomous vehicle by 2020, Level4 will be achieved goal by 2025.

Coming era of **driving control system**



More secure and safer manufacturing

ADAS evolution enables sophisticated/high precision automotive parts

Growing demand for **Zero-defect** importance to realize safe and secure society



Change from sampling inspection to full inspection coverage

Growing demand for full inspection rather than process certification by sampling inspection of component diameter due to higher quality requirement by automakers.

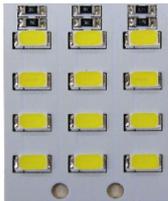


Omron VT-M121 completely inspects component dimension and supports all parts on traceability.

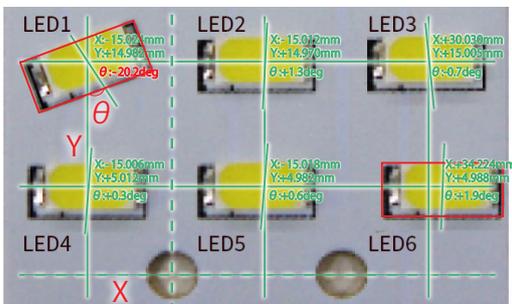
Application example

Measure designated parts of test object and determine OK/NG **at ±8um accuracy**

● Headlamp LED PCB



Measure XY position/angle of mounting LED.

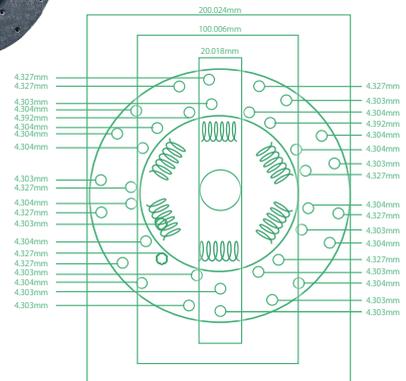


The image shows the screen of measurement and automatic judgement. It is different from actual confirmation screen.

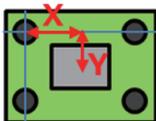
● Disk/Gear



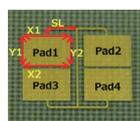
Measure multiproduct of disk, gear hole position, diameter and concentricity.



CMOS sensor PCB



Millimeter wave PCB



Connector pin



IGBT power module



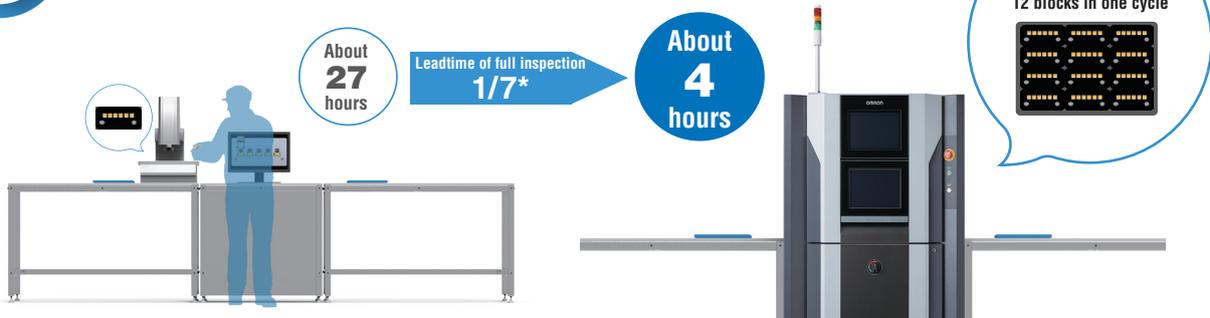
ZERO DEFECT

~ZERO Defect~

Full automated dimension inspection starts from here to achieve zero defect.

POINT
01

Sampling inspection by operator to full automated inspection

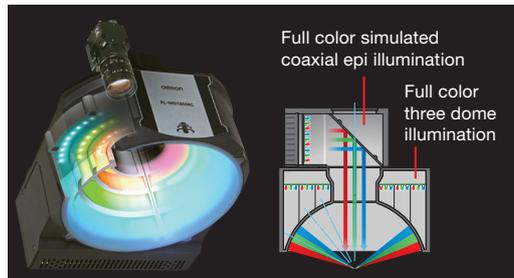


*Inspecting 5000 blocks on a PCB where each blocks consists of 6 LEDs

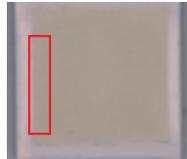
POINT
02

Reducing adjustment time by installing automated optimization tool for illumination condition

MDMC illumination



Designated edge part.



optimization tool
of illumination condition

Optimized status



Automatic illumination condition to
extract the edge clearly

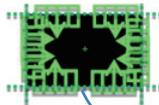
POINT
03

Reduction programming time by utilizing library

Library

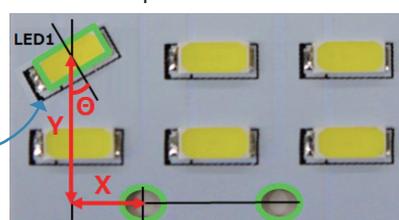
Measurement libraries	
	Right angle dimension from reference line
	Vertical horizontal dimension between two parts
	Reference dimension of circle and ellipse
	Automatic extraction of connector pin
	Dimension, angle and distance of LED

4 corners and center

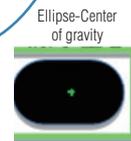


Drag and drop

Inspection window



Circle-Center

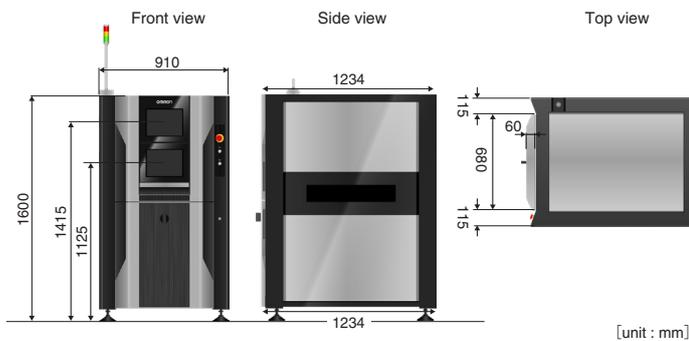


Ellipse-Center of gravity

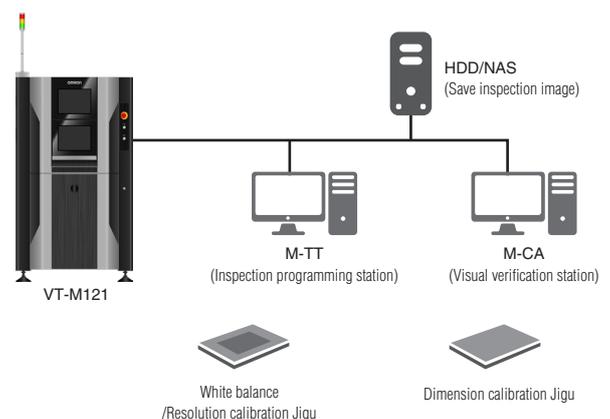
Specifications

Item		VT-M121-6	VT-M121-10
Installation part	Power supply voltage	(Single phase) allowable variation range	
	Operating air pressure/Flow rate	0.3~0.6MPa	
	Operating air temperature range	10~35°C	
	Operating humidity range	35~80%RH (No condensation)	
	External dimensions (WxDxH)	910 x 1234 x 1600mm *Not including the protrusion, signal tower	
	Weight	Approximately 520kg	
Mechanism part	Carrier system	Belt conveyor carrier system with width adjustment mechanism	
	Carrier height	from floor surface 900±20mm *Adjust by adjuster foot	
	Conveyor width adjustment	50~460mm	
	Carrier clearance	Top 55mm, Bottom 50mm	
	Inspection range (XxYxZ)	510 x 460 x 60mm	
	Allowable carrier height	Less than 4kg	
Illumination part	Camera	1200 mega pixel CMOS camera (FH-SCX12)	
	Pixel resolution	6µm/Pixel	10µm/Pixel
	Depth of field	Approximately 1mm	Approximately 3mm
	Illumination	MDMC Illumination (FL-MD180MC, Full color simulated coaxial epi illumination + Full color three dome illumination)	
Inspection function	Test object	LED PCB, CMOS sensor PCB, Ceramic PCB, Millimeter wave radar, Aluminium PCB IGBT power module, Metal processed product, Connector, Motor stator	
	Object size	Min. 50mm x 50mm~Max. 510mm x 460mm	
	Inspection item	Dimension measurement	Component position, Component rotation, Component distance, Terminal distance External dimensions ,Concentricity ,Hole diameter..

System appearance



System configuration



- 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,TowerA,NEO Building,6011ShennanAvenue,
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 ELECTRONICS LLC

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

OMRON ELECTRONICS KOREA CO.,LTD.

21F, KyoboTower 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

438A Alexandra Road #05-05/08 (Lobby 2)
Alexandra Technopark Singapore 119967
TEL:+65-6835-3011 FAX:+65-6835-2711

Authorized Distributor: