

NEW

2D Dimension & Visual Inspection Machine VT-M12 Series

ZERO-DEFECT

It's the beginning of a revolutionary **automatic full inspection** which makes "ZERO DEFECT" possible.



Scan the QR code for a video



E-1		E-1	102504[um]	OK
E-2		F-1	102498[um]	OK
H-1		F-2	1500[um]	OK
H-2		H-2	1620[um]	NG
L-1		L-1	744[um]	OK
L-2		L-2	738[um]	OK
F-1		F-1	7392[um]	OK
F-2		F-2	7386[um]	OK
J		J	2532[um]	NG
P		P	6204[um]	OK
Q		Q	6198[um]	OK

Towards achieving
"ZERO DEFECT"

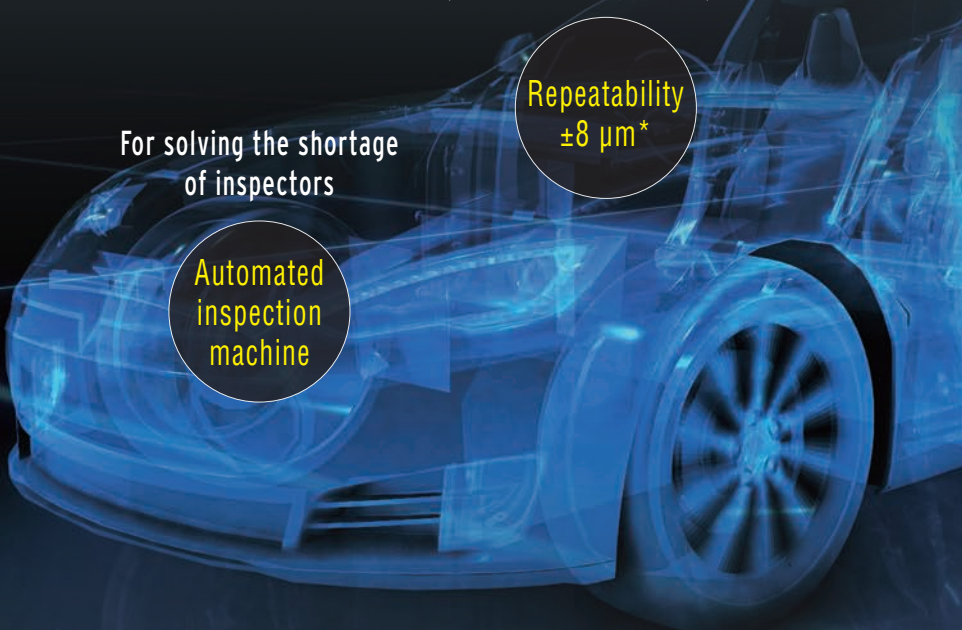
Full
inspection

For highly accurate design
capable of dimension inspection

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

For solving the shortage
of inspectors

Automated
inspection
machine





What is required for manufacturing

Zero defect No defect is allowable

What issues we must deal with to make it

100% inspection Sampling inspection is not enough

False call and undetected fault must be eliminated Inspection by human fluctuates

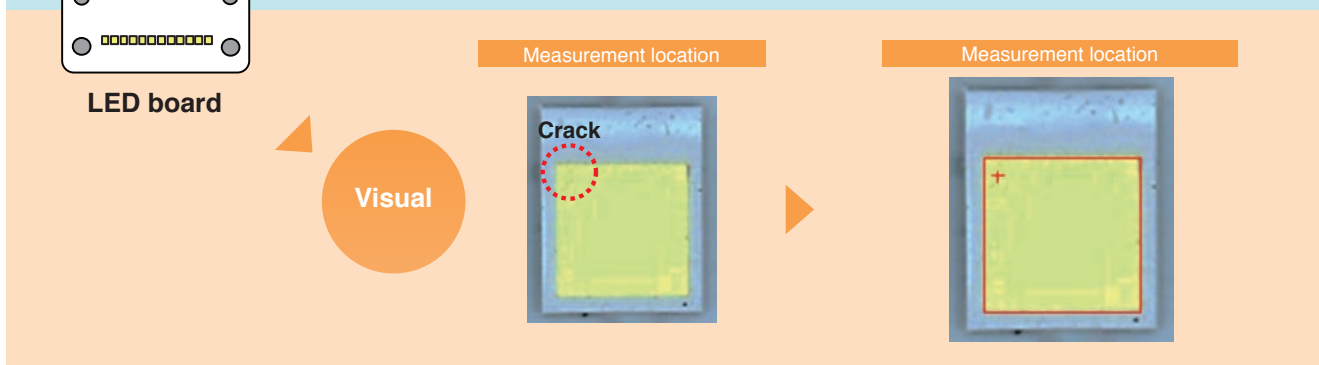
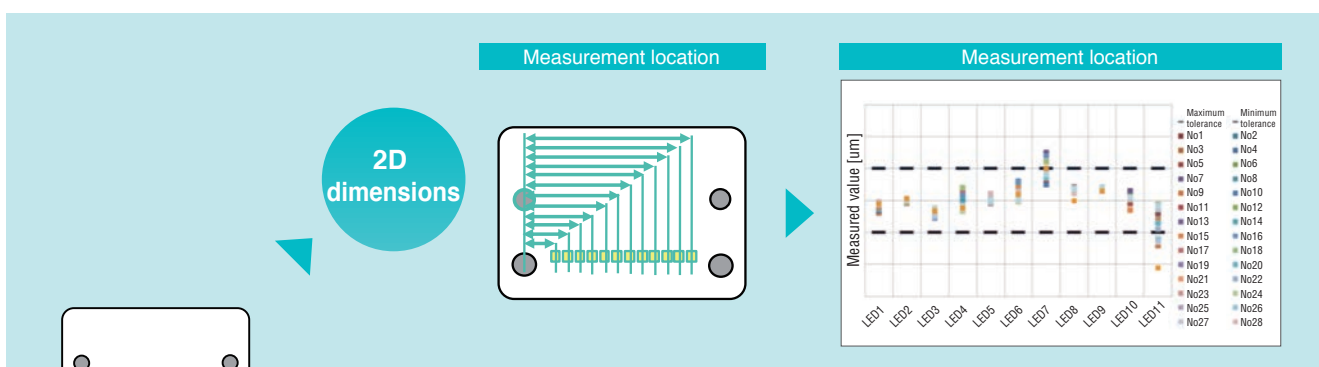
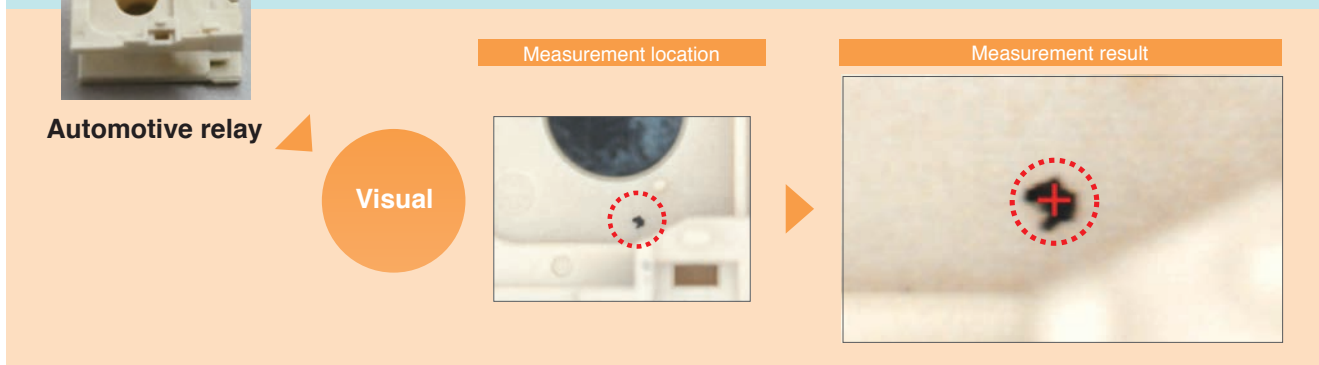
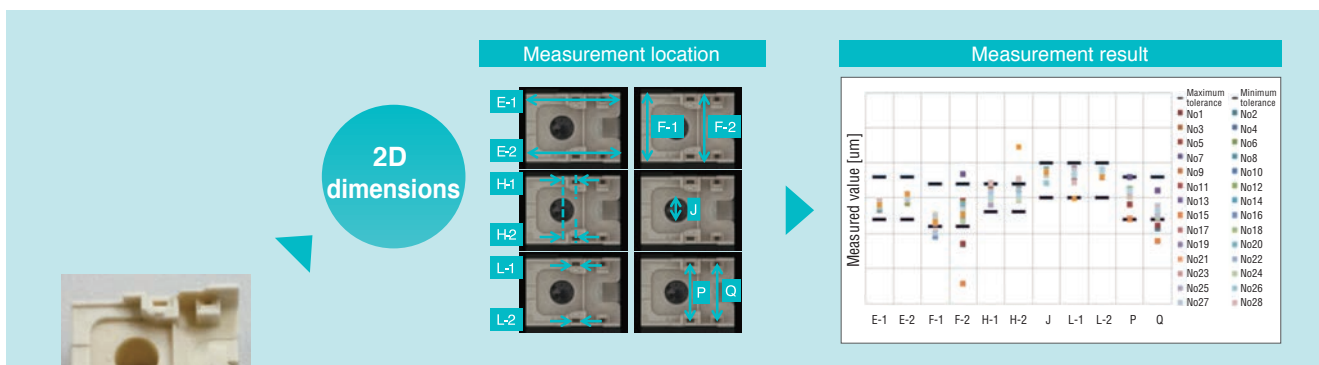
Evidence must be protected Evidence that determines "good" products must be protected

What will be achieved by the above

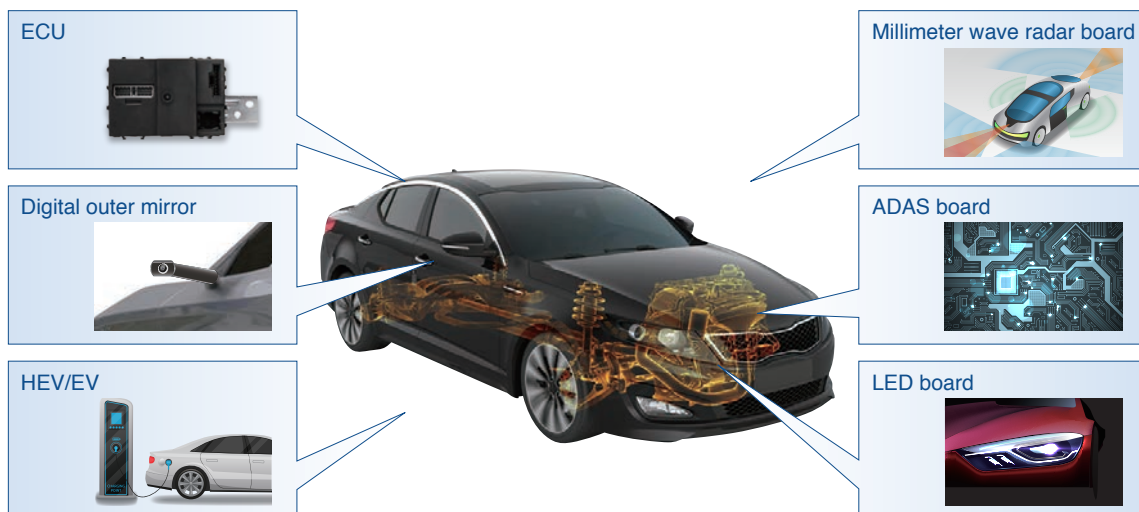
Understanding your own process capability Based on trend analysis through total inspection and quantitative information

Keeping on manufacturing the same quality.
Materialization of manufacturing aiming at the "center value"

VT-M12 series conducts both 2D dimension and visual inspection at the same time!



Examples of products to be inspected by VT-M12 series



What Omron can propose for customers to achieve zero defect

FROM

Offline inspection by human

Challenge 1: You cannot ensure quality for all products

Lot	Maximum tolerance	Minimum tolerance
LotA	No1	No8
LotB	No8	No15
LotC	No15	No1

Challenge 2: Inspection results fluctuate

Inspector	Measured Value [mm]
Inspector A	10.600
Inspector B	10.800
Inspector C	10.900

TO

VT-M12 series installed in your line

Innovation 1: You can ensure quality for all products

Lot	Maximum tolerance	Minimum tolerance
LotA	No1	No10
LotB	No2	No12
LotC	No3	No13
	No4	No13
	No5	No14
	No6	No15
	No7	No8
	No8	No9

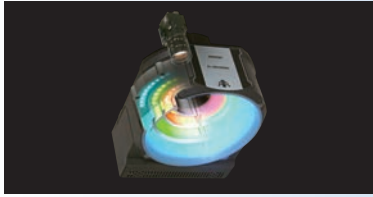
Innovation 2: Quantitative inspection results

System	Measured Value [mm]
System A	10.806
System B	10.806
System C	10.806

* Reference value

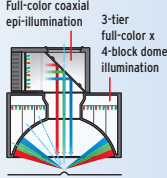
MDMC illumination

Can make high contrast!!



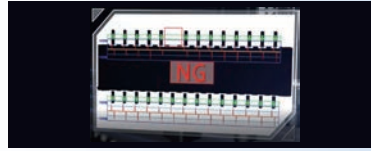
[Irradiation mechanism]

The direction, color, and light quantity of irradiation can be combined in various ways to adjust to the optimum illumination for defects of various inspection objects.



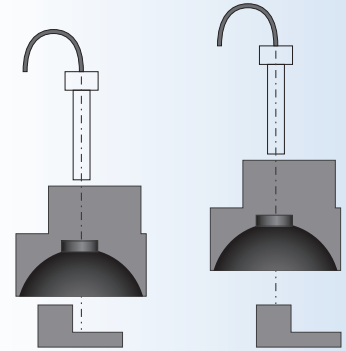
FH camera

Can do high accuracy detection with image processing libraries!!



Z height adjustment mechanism

Can correspond to any height!!

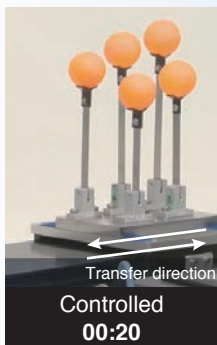


VT-M12 equipped with OMRON's latest technologies capable of high-speed, high-accuracy dimension inspection!

- Z height adjustment mechanism
- NJ damping control
- Linear encoder
- FH camera
- MDMC lighting

NJ damping control

Can do high speed shot by damping control!!

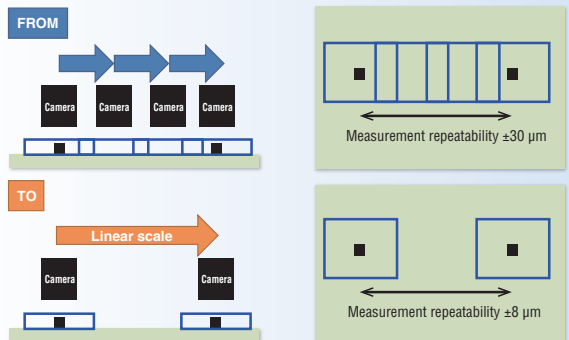


* Reference value

Linear scale

* Competitor's product

Can do high accuracy measurement even at long distance!!



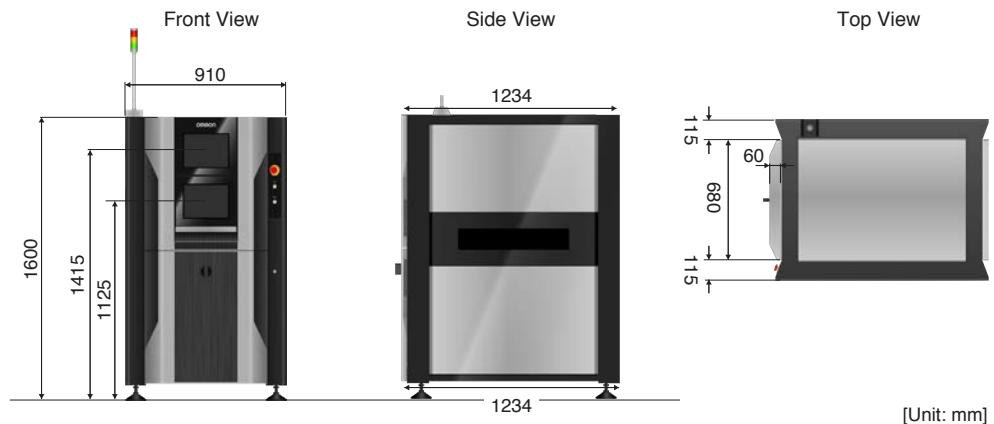
* When the pixel resolution 6 μm type is used, and jigs and tools designated by OMRON are used under a constant temperature environment

Specifications

Item		VT-M121-6	VT-M121-10	
Power rating	Voltage	200 – 240 VAC (Single Phase) ±10%		
	Frequency	50/60Hz		
	Rated power	1.4 kVA or less		
Installation	Installation	D-class grounding (Grounding resistance value: 100Ω or less)		
	Usage air pressure/flow rate	0.3 - 0.6MPa		
	Usage temperature range	10 - 35°C		
	Usage humidity range	35 - 80%RH (No dewing)		
	Dimensions	910(W)×1234(D)×1600(H) mm *Protrusions and tower lamp not included		
	Weight	Approx. 520kg		
	Coating color	1. BLACK (Dark gray N3 / Silver PANTONE 877C) 2. WHITE (Silver PANTONE 877C, Stone gray 2.5PB 8.5/0.5 (PANTONE 427C))		
Mechanical block	Transfer height	900±20 mm from the floor level, adjustable by leveling foot		
	Loading port clearance	Upper 70 mm, Lower 50 mm		
	Transfer method	Belt conveyor with width adjustment		
	Transfer size	Chuck thickness 0.4 - 4.0 mm		
	Conveyor width adjustment	50 - 460mm		
	Range of movement for Z axis of camera and illumination system	Max. 60 mm		
	Transportable weight	Less than 4kg		
Imaging block	Camera	12-million pixel color CMOS camera (FH-SCX12)		
	Image resolution	6 μm/pixel	10 μm/pixel	
	Depth of field	Approx. 1 mm	Approx. 3 mm	
	Lighting	MDMC lighting (FL-MD180MC, full-color Pseudo-coaxial epi-illumination + full-color 3-tier dome illumination)		
Measurement inspection function	Inspection target	Resist board, millimeter wave radar board, LED board, lead frame, onboard sensor, onboard fuse, power module, sheet metal, thin molded parts, etc.		
	Target size	Min. 50 mm×50 mm - Max. 510 mm×460 mm		
	Inspection item	Dimension measurement	Inter-component distance, reference point-component distance, reference line-component distance, component dimensions, component center position, XY slope, inter-terminal distance, width	
		Visual inspection	Foreign material, dirt, irregular defect (scratch, dent), chip scratch, chipping, TH solder inspection	
	Detection capability	φ20μm	φ30μm	

Machine size

VT-M121-6
VT-M121-10



- 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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