



Contributing to Carbon Neutrality

Konica Minolta Sensing Americas Automotive Industry Solutions



Sustainable Materials

Production Process Automation



Electrification

Advanced Driving

DX Promotion

Konica Minolta Sensing Americas — Solutions for the Automotive Industry

		Colorimeters	Illuminance & Luminance Meters	High-Speed Spectrophotometers	Imaging Colorimeters	Visual Inspection Systems	Tunnel Inspection Systems	Hyperspectral Cameras
Carbon Neutrality Measures	Keywords							
Electrification	• EV • LIB • Lubricants	• Color & gloss of battery components • Lubricant degradation level				• Battery component dents & defects		• Inspections across LIB production
Sustainable Materials	• Carbon fiber • CNF • Lighter resins • Recycling • LED adoption	• Material color fading • Blackness evaluation of carbon black • Color & gloss of decorative film before /after forming	• Illuminance, luminance, color temp. & CRI of LED light sources	• Light characterization from UV to NIR (LED sources, etc.)	• 2D luminance & chromaticity of LEDs	• Scratches & defects on high-design materials		• Black plastic sorting • Perovskite color & PL evaluation • Resin degradation diagnosis
Advanced Driving	• HUD • CMS	• E-mirror coating color	• HUD & CID brightness /color evaluation	• CID: optical parameters vs. material temperature, etc.	• HUD, CID, CMS & decorative panel brightness / color			
Production Automation	• Line automation • Space saving	• Robot-arm color inspection					• Inline appearance & fit inspection • body / paint / assembly lines • gap & flush • Space saving	• Inspections across LIB production
DX Promotion	• DX promotion						• Traceability data utilization	
(Incl. conventional uses)		• Exterior, interior & CID reflection: color / gloss	• Lamps, IP / navi & interior lighting: brightness / color	• Lamps, IP / navi & interior lighting: brightness / color	• Lamps, IP / navi: brightness / color			

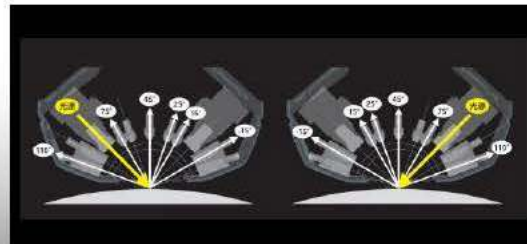
Paint-less needs — measuring the color & texture of high-design new materials



Multi-Angle Spectrophotometer **CM-M6**



A spectrophotometer that evaluates metallic and pearl finishes — whose color appears different depending on viewing angle — at six angles. Its double-pass optical system enables stable measurement even on strongly curved parts.



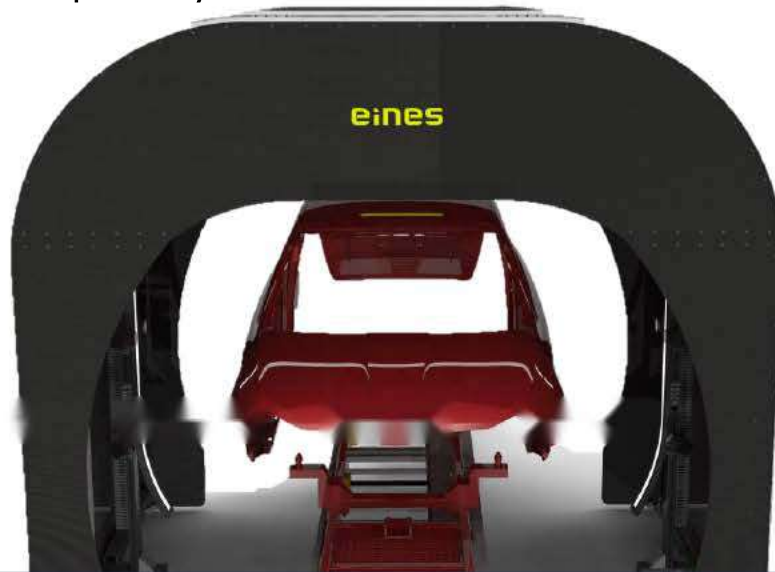
Contributing to **production-line DX & labor saving**

Automated inspection of paint defects & gap / flush

Tunnel-Type Paint Defect Inspection System



- Paint appearance inspection (lightweight, space-saving)
- Adapts to major painting processes
- High-speed conveyor ready
- Auto-repair ready



電着塗装

プライマー塗装

トップコート

最終組立



E-coat



Primer coat



Top coat



Final assembly

Tunnel-Type Gap & Flush Inspection System



- Multiple inspection add-ons available
- Scratch & dent inspection*esd
- Error-proofing (poka-yoke)
*MEP (Multi Error Proof)



Recycled-plastic needs — high-design new materials: measuring color & gloss

**Spectrophotometer
CM-17d**

The CM-17d has an electronic viewfinder, so the measurement point can be checked on-screen and positioned exactly as intended.



**Spectrophotometer
CM-26dG**

Color and gloss are measured with a single unit — no need to alternate between a separate colorimeter and gloss meter — improving efficiency even for high-volume sample measurement.



**Gloss Meter
GM Series**

Used to manage and control the degree of surface gloss.



* Both models support SCI+SCE measurement and measure black samples with high accuracy.

Recycled plastic resin sorting — even black plastics can be sorted

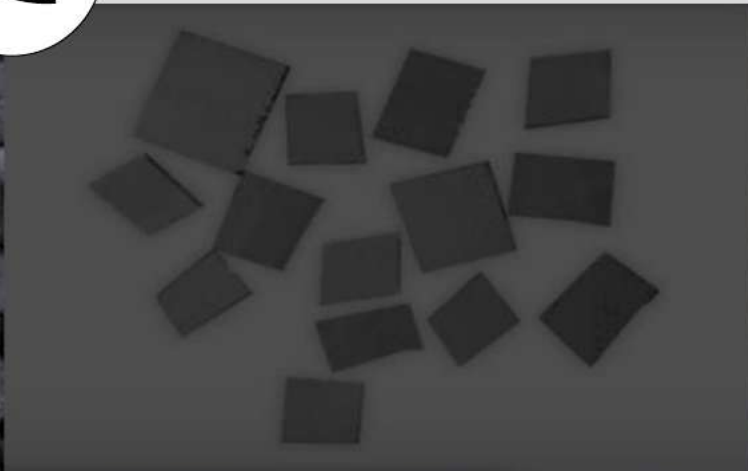
Black Polymer Identification

Hyperspectral
Camera FX50

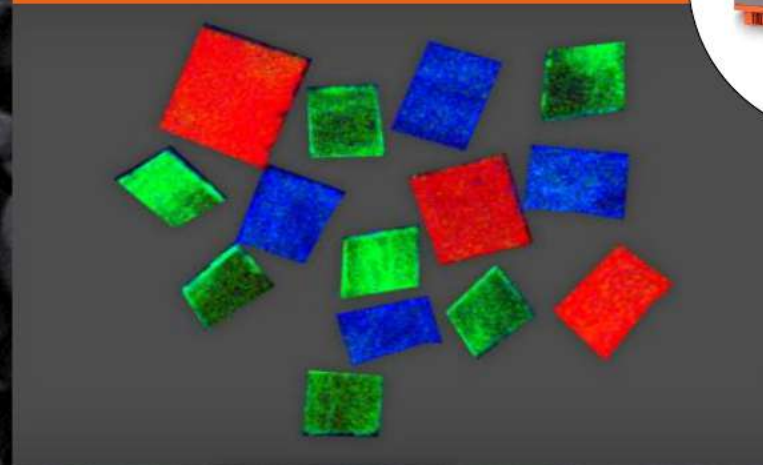
SPECIMFX



Standard camera image



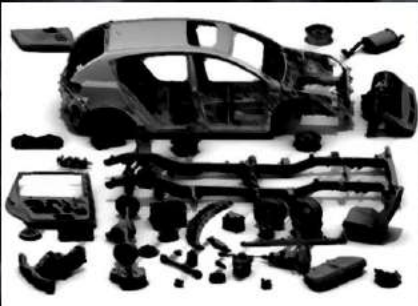
SPECIM camera analysis image



■ PS

■ ABS

■ PE



Black plastics that were hard to identify in the near-infrared
can now be identified instantly with the mid-infrared range
of the FX50

Meters & car navigation and lights & interior lighting — LED sources: measuring brightness & color



Imaging Colorimeter
ProMetric® I Series



Illuminance
Spectrophotometer
CL-500A



Luminance & Color
Meter
CS-150/160

Head-Up Display Visibility Evaluation

An optical evaluation system for head-up displays compliant with SAE J1757-2. This standard defines how to verify the visibility of the HUD virtual image from the driver's viewpoint. Combining an imaging photometer with software developed specifically for HUD inspection enables evaluation in accordance with the standard.

/Sensing
/Communication
/Battery
/Navigation
/Mirrorless
/Ecology



Imaging Photometer
ProMetric® Y Series

100m

48
mph

TT-HUD™ Head-Up Display Test Software



● Key evaluation items — SAE J1757-2

Field of view



Contrast



Uniformity



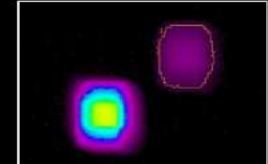
Rotation



Distortion



Ghost image

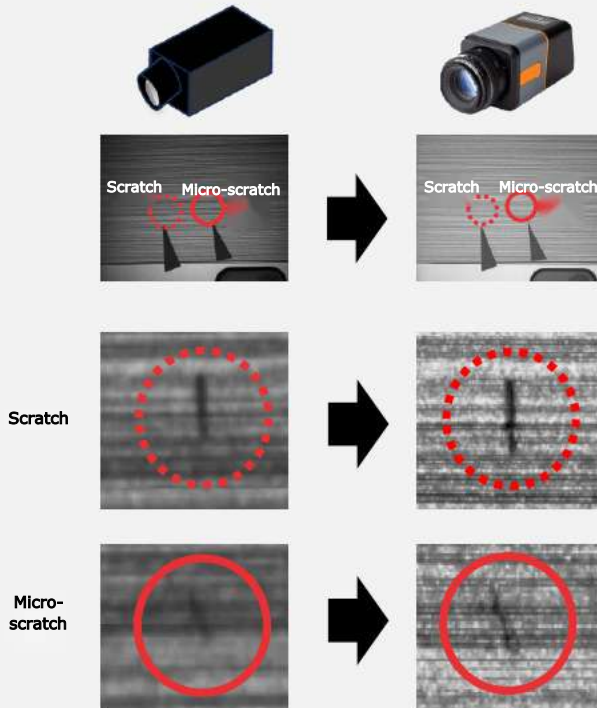


High-performance materials: automated detection of micro-scratches & fine stains

Automated “micro-scratch” detection

e.g., aluminum cover

Standard inspection camera High-precision camera PMY



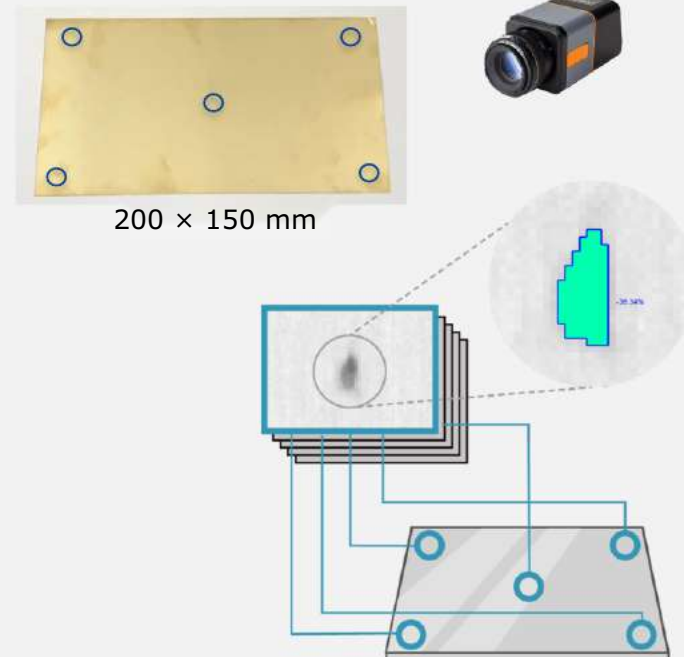
Unaffected by the defect's background contrast ratio —

Clear images!!

Automated “fine stain” detection

e.g., metal plate

High-precision camera PMY



Micro-defects anywhere in the measurement area —

Clear images!!

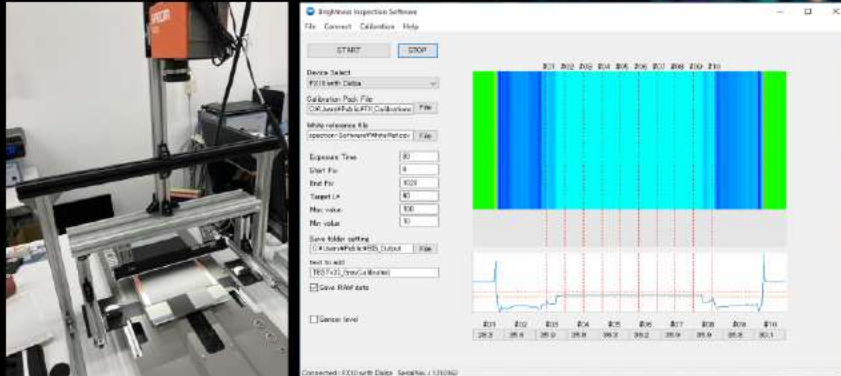


**Imaging Photometer
ProMetric® Y Series**

This camera is calibrated as a set: a high-precision instrument-grade camera — with the high resolution and contrast resolution used for display image-quality evaluation such as luminance non-uniformity —plus a dedicated lens. The result is high-quality inspection images with strong detection capability, and detection stays stable even when multiple units are used. It is chosen because it detects defects that other visual inspection cameras cannot.

In the LIB manufacturing process:

Inspection of defects, foreign matter, coating & film thickness



Hyperspectral
Camera FX Series

SPECIM FX



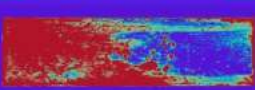
Even where images from an RGB camera cannot tell materials apart,
hyperspectral camera images distinguish them clearly.

Material inspection

Electrode fabrication

Cell fabrication

Defect inspection



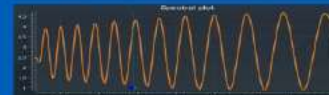
Distinguishes oil
deposits from
processing and
scratches on coatings

Uniformity inspection



Monitors slurry condition
in real time from the
 $L^*a^*b^*$ distribution of
the coating

Film thickness



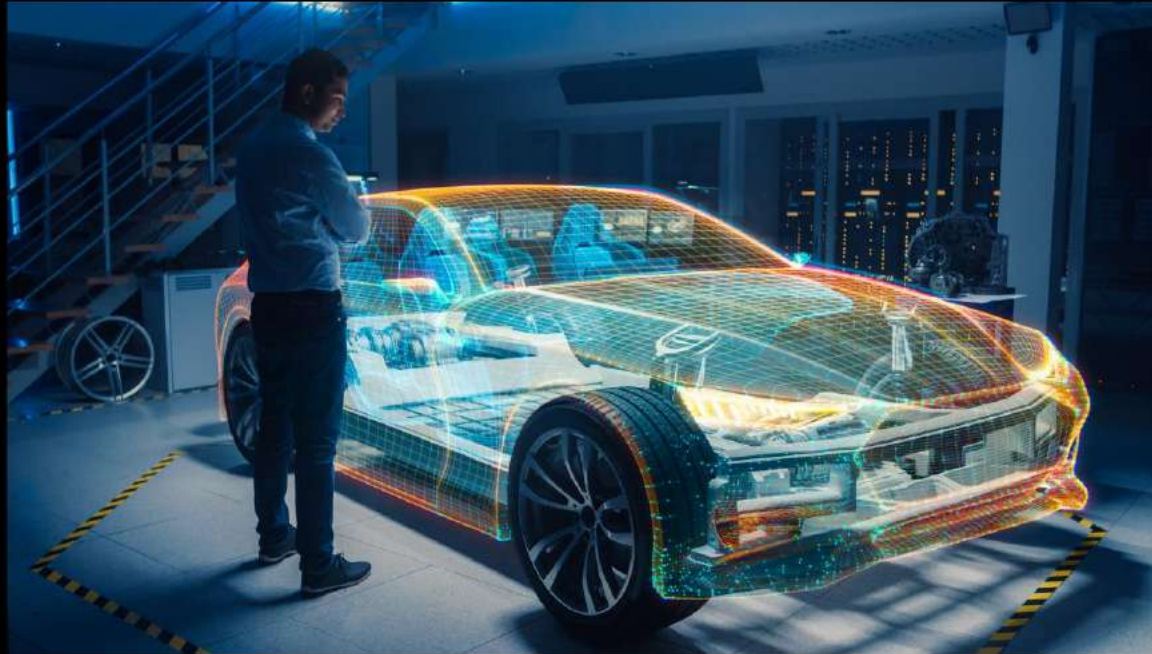
Estimates film
thickness contact-
free from spectral
interference

Foreign matter



Detects foreign
matter through the
film

**Color & texture, light evaluation, visual inspection and more —
consult us about any automotive measurement & evaluation concerns!**



● The content, specifications and appearance described herein are subject to change without notice.

Feel free to contact us below for demos and consultations!

For inquiries about measuring instruments:
<https://sensing.konicaminolta.us/us/contact-us/>

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