

# MEASUREMENT SENSORS

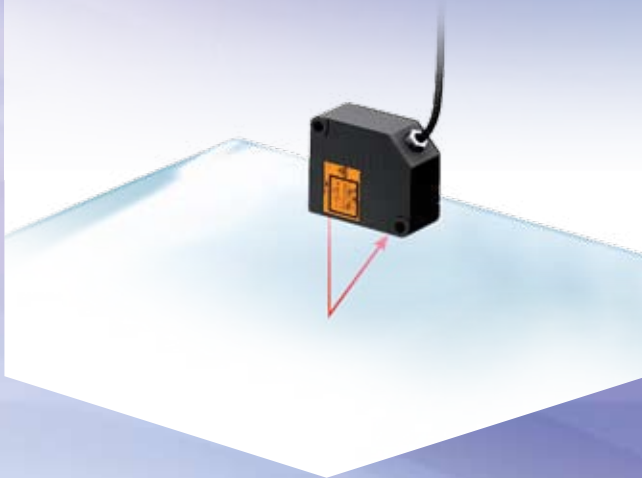


High precision quality inspection

HIGH PRECISION MEASUREMENT  
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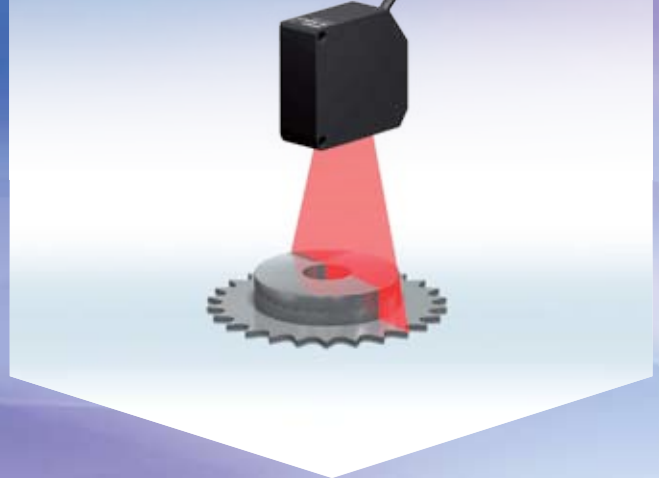
realizing

## High performance in the 3 measurement disciplines



### DISPLACEMENT/DISTANCE

Accurate measurement of distances can be done by laser triangulation, inductive or tactile principles. The Smart sensors ZX and ZS represent a powerful platform matching the accuracy and technology, which is required for this application.



### PROFILE MEASUREMENT

Scan the profile of an object with a laser beam. Depending of the height, the laser beam is reflected differently and creates the profile information.

By moving the sensor or the object, the complete surface can be inspected. The Smart profile sensors ZG provides an easy to use solution.

## NEVER FAIL IN MEASUREMENT

Customer satisfaction highly depends on the quality of the finished goods or the performance of the machine in use. Zero defects in production is a key criterion for success. The speed of production lines is getting increasingly faster. On the other hand the machines should never fail. But can you trust the result?

To ensure highest inspection performance these smart measurement sensors offer accurate, reliable and fast measurement. Various inspection principles and technologies always provide the best solution for your application.



### POSITION/DIAMETER/WIDTH

Determine accurately the position or diameter of an object. The object interrupts the laser beam, which allows the edges of an object to be determined. The smart laser micrometer ZX-GT is the perfect choice for this task.

### Displacement/distance measurement

- ▶ **ZS-series** 4  
All in one – smart, accurate and scalable
- ▶ **ZX-series** 6  
Smart sensing in different technologies

### Profile measurement

- ▶ **ZG-Series** 8  
Easy profile measurement

### Position/diameter/width measurement

- ▶ **ZX-GT Smart Laser Micrometer** 10  
Accurate and fast on all surfaces



## YOUR BENEFITS

- One sensor – any surface and distance
- One controller – multi-tasking
- One software – remote control
- One solution – any application

## ZS-SERIES – ALL IN ONE – SMART, ACCURATE & SCALABLE

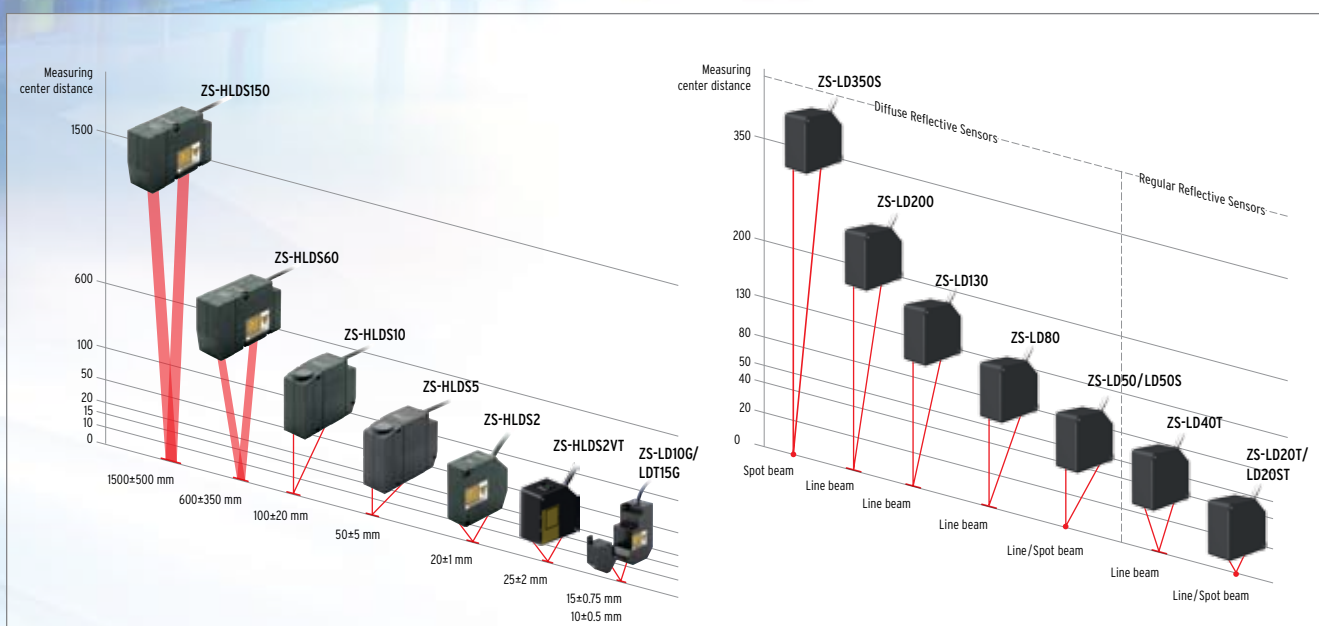
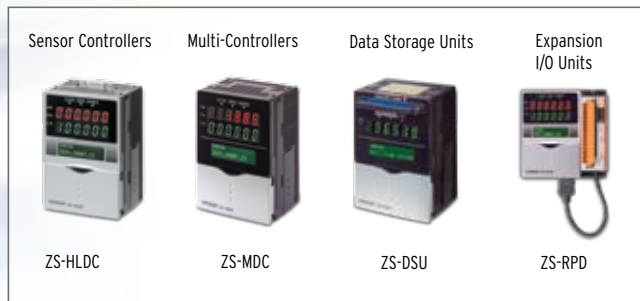
The ZS laser sensor family provides outstanding measurement performance on all kind of materials. Its huge range of sensor heads and scalable concept makes it a versatile platform for all high precision sensing applications. The ZS-series features an unique sensor head for glass inspections, which simplifies mounting and allows measurements even on round glass.



▲ Black rubber thickness inspection



▲ Piston evenness inspection

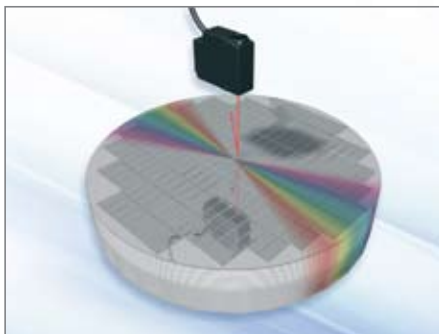


#### 14 x sensor heads for any purpose:

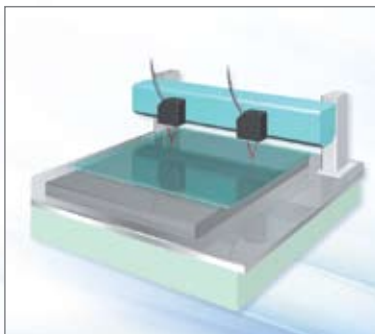
- Flexible sensing distance: from 10 mm to 1.500 mm
- High accuracy: 0,25 – 5  $\mu\text{m}$
- Difficult surfaces: glass, shiny metal, black rubber, etc.
- Measure multiple surfaces of transparent objects
- CMOS technology

#### Powerful controller:

- LCD display for setup and immediate result display
- Fast sampling time: 110  $\mu\text{s}$
- Multi-tasking enabled by a single controller
- Scalability of up to 9 controllers (heads)
- Multi-controller unit (MDC)
- Remote control via communication interfaces and PC software



▲ Wafer thickness and warping inspection



▲ Glass evenness inspection



▲ Disk surface inspection



## YOUR BENEFITS

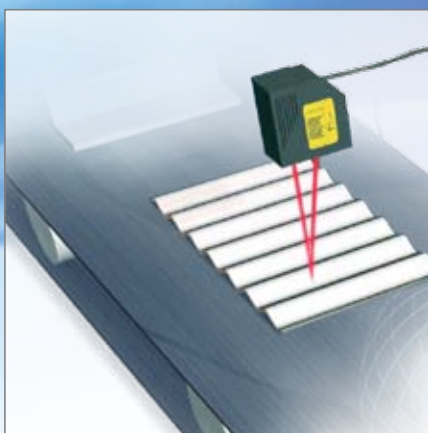
- Modular platform
- Combine tactile, inductive and laser sensors
- Plug and play – interchangeable sensor heads
- Multi-point measurements
- Calculate and communicate
- Digital I/Os and analogue outputs

## ZX-SERIES- SMART SENSING IN DIFFERENT TECHNOLOGIES

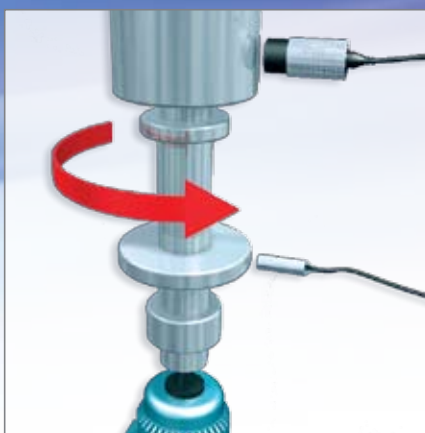
The ZX displacement sensor platform offers a variety of interchangeable sensor heads, including laser, inductive and contact types. They can be easily connected to a standard amplifier.

Simply select the sensor head that fits your application based on material and accuracy. The easy exchange of sensor heads reduces installation time and saves maintenance costs.

The modular platform enables different sensing technologies to be combined in one platform. The easy set-up of ZX can be done with the amplifier or by the intuitive Smart Monitor PC software.



▲ Measurement of structured surfaces



▲ Eccentricity control of a rotating shaft



▲ Thickness measurement

#### ZX-L – smart laser displacement

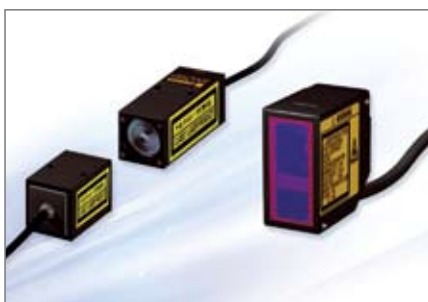
- Sensing range from 2 mm – 500 mm
- High resolution
- Fast response time
- Surfaces: plastic, metal, paper, rubber, etc.

#### ZX-E – smart inductive displacement

- High resolution of 1  $\mu$ m
- Sensing range from 0.5 mm – 7 mm
- High linearity for any metal
- Mutual interference prevention
- Thickness, evenness, warpage measurement

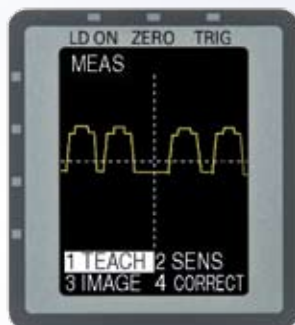
#### ZX-T – Smart contact measurement

- Wide range of heads and contact tips
- Long life ball bearing structure
- High resolution of 0.1  $\mu$ m
- Pressing force alarm to prevent malfunctions



# PROFILE MEASUREMENT

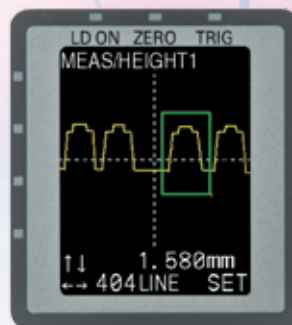
**1** Adjust sensor head  
Check on LCD display



**2** Select function  
Simple ICON menu



**3** Select range  
Automatic calculation



▲ 3 step setting up of measurement via built-in LCD display

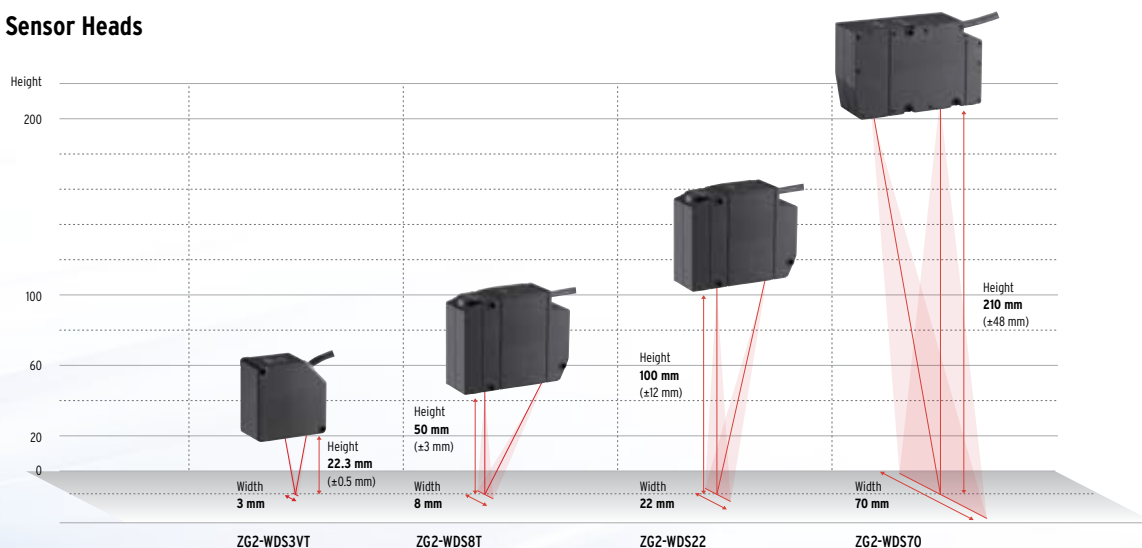
## YOUR BENEFITS

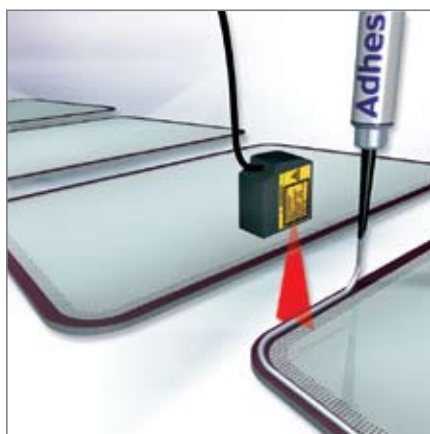
- Intuitive – easy to use
- Live – LCD monitor for display and setup
- Versatile – 18 tools
- Accurate – 5  $\mu$ m resolution
- Wide profiles – up to 70 mm
- Stable measurements on challenging surfaces

## ZG-SERIES - EASY PROFILE MEASUREMENT

The new ZG smart sensor demonstrates that profile measurement with easy operation is no longer impossible. The built-in LCD monitor for an easy and intuitive user interface supports efficient installation and setup. Immediate live feedback of the measurement result is provided in real time. Advanced measurement tasks can be configured within 3 steps to save operation and setting-up time. The fine tuning of the settings can be achieved in seconds.

### Sensor Heads





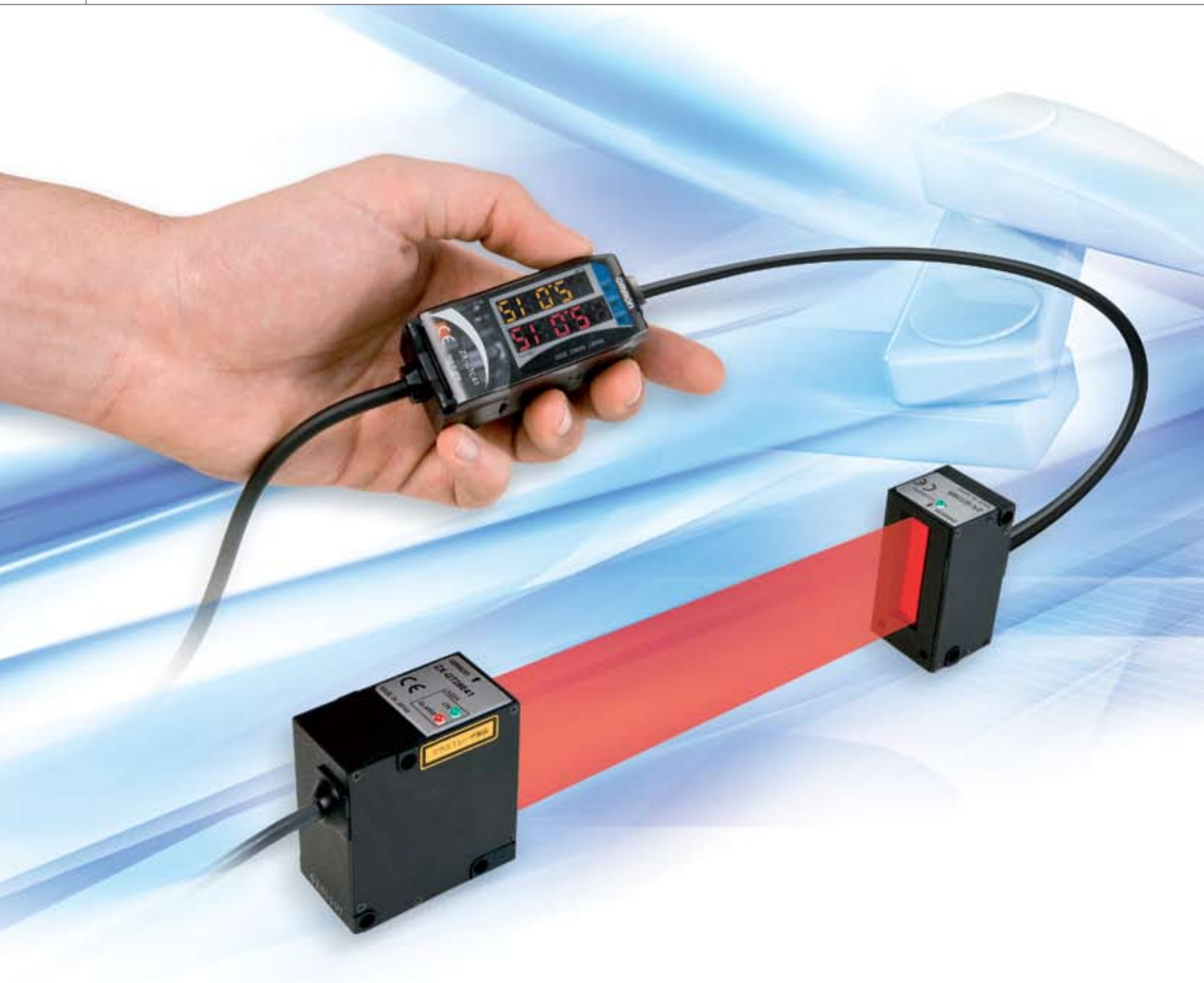
▲ Glue seam inspection



▲ Precise gap measurement in automotive industry



▲ Checking the shape of vehicle structural parts. The wide beam allows the measurement in a single operation.

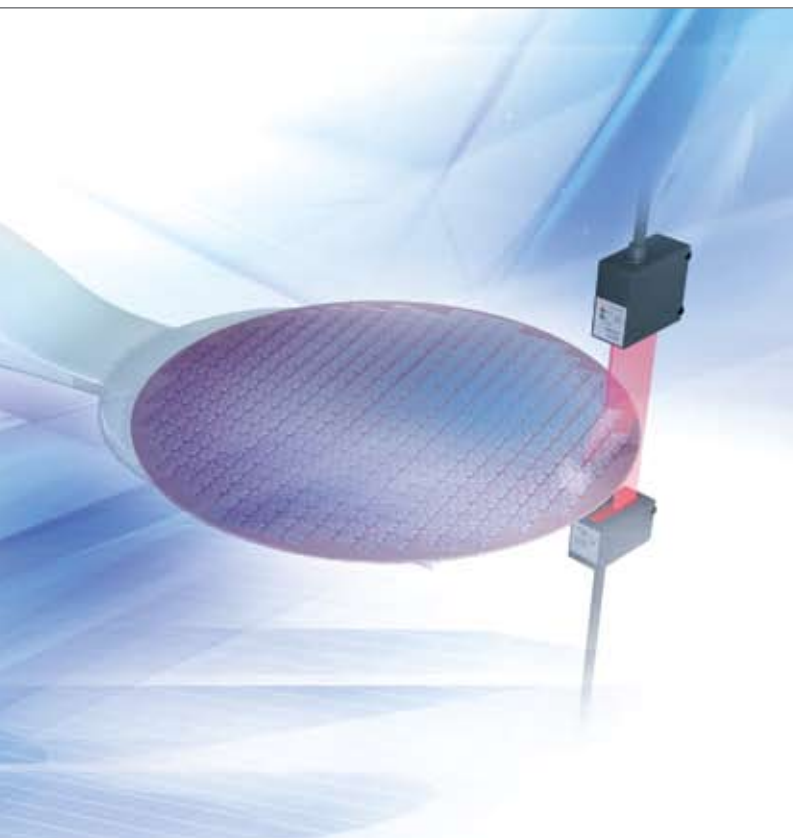


## YOUR BENEFITS

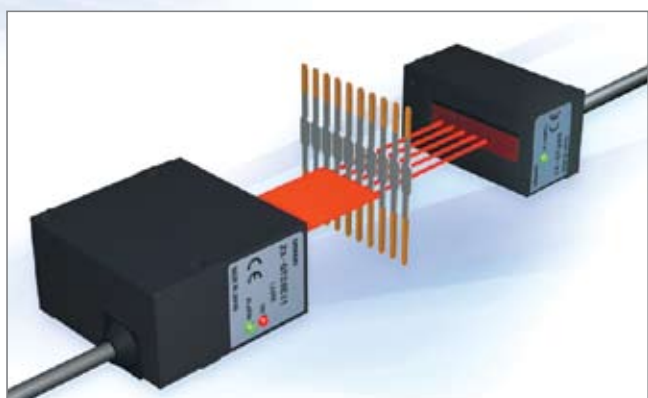
- High accuracy: 10  $\mu\text{m}$
- All surfaces
- Long sensing distance:  $< 500 \text{ mm}$
- Line width up to 28 mm
- Calculation unit for multiple heads

## ZX-GT SMART LASER MICROMETER: ACCURATE AND FAST ON ALL SURFACES

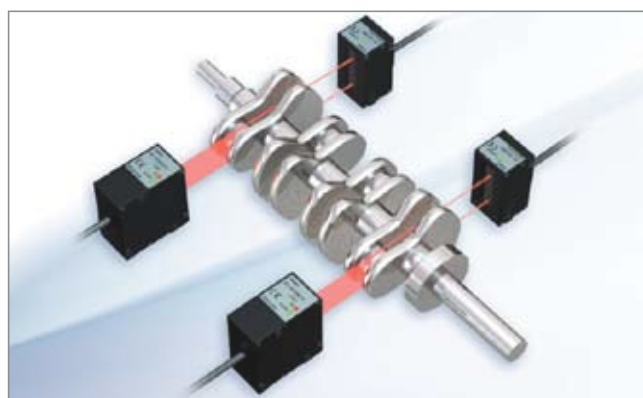
The new ZX-GT smart laser micrometer complements Omron's Smart Laser Measurement platform. ZX-GT is able to detect edges, measure diameters of objects and calculate precisely the position on all kind of materials. Based on CCD technology ZX-GT achieves high accuracy and speed under difficult environmental conditions. Transparent objects, reflective surfaces or different positions do not have an influence on the result. The PC Smart Monitor software helps to easily setup and configure the laser micrometer.



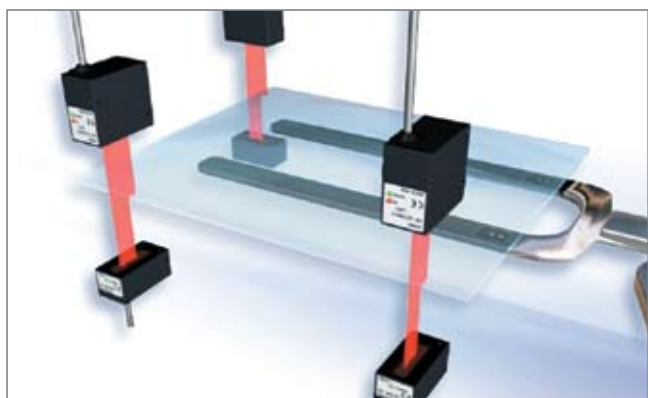
▲ Modular and scalable



▲ Electronic components - lead-pitch and diameter measurement



▲ Automotive - diameter inspection of large tubes



▲ LCD - glass-edge measurement



▲ Automotive - diameter measurement of large-scale pipe

