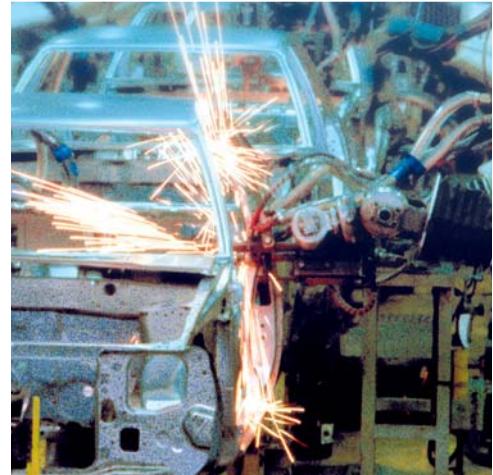




#### Automotive Applications:

Error-proof assembly of auto body components to meet automakers' 100% quality requirement by performing these inspections:

- Profile measurement to verify crucial gap tolerances before welding of raw stampings
- Inspection of intricate geometry and contours
- Position of components



#### Problem:

Undetected misalignment of stamped body components during welding results in costly rejects and lost productivity.



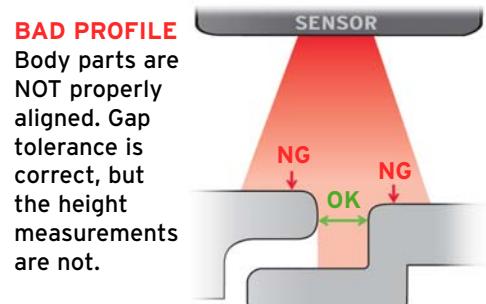
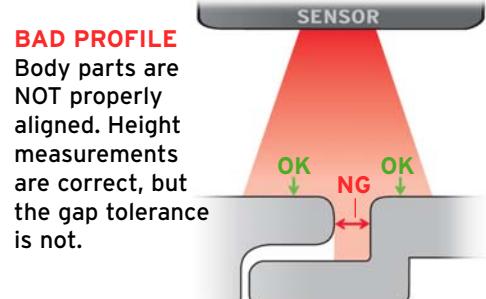
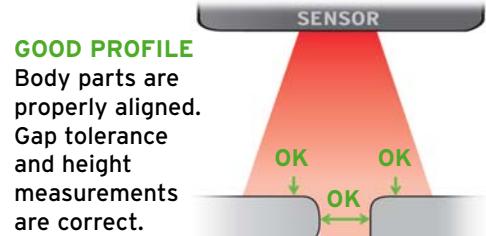
#### Omron "FACTS" Advantage

Error-proof system reduces scrap and improves production quality

**Z500-SW6 Laser Sensor**

**Z500-MC10E-001 Controller**

Omron's Z500 profile measurement inspection system features a unique combination of a wide-beam laser and a two-dimensional CCD receiver that enables extremely accurate assessment of component gap and height relationships before welding. Non-standard components are identified early, controlling assembly costs, reducing waste and optimizing productivity. The Z500 offers multiple inspection capabilities and monitoring options to respond to changing requirements across a range of quality checks in automotive assembly operations.



## Profile Measurement Application Details

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### Issue

- Misaligned body shell components cause component malfunction, excessive wear, customer dissatisfaction and recalls.
- Once welded, components cannot be realigned, and become waste
- Accurate early assessment of component gap and height alignment before welding can eliminate the problem

### Cause

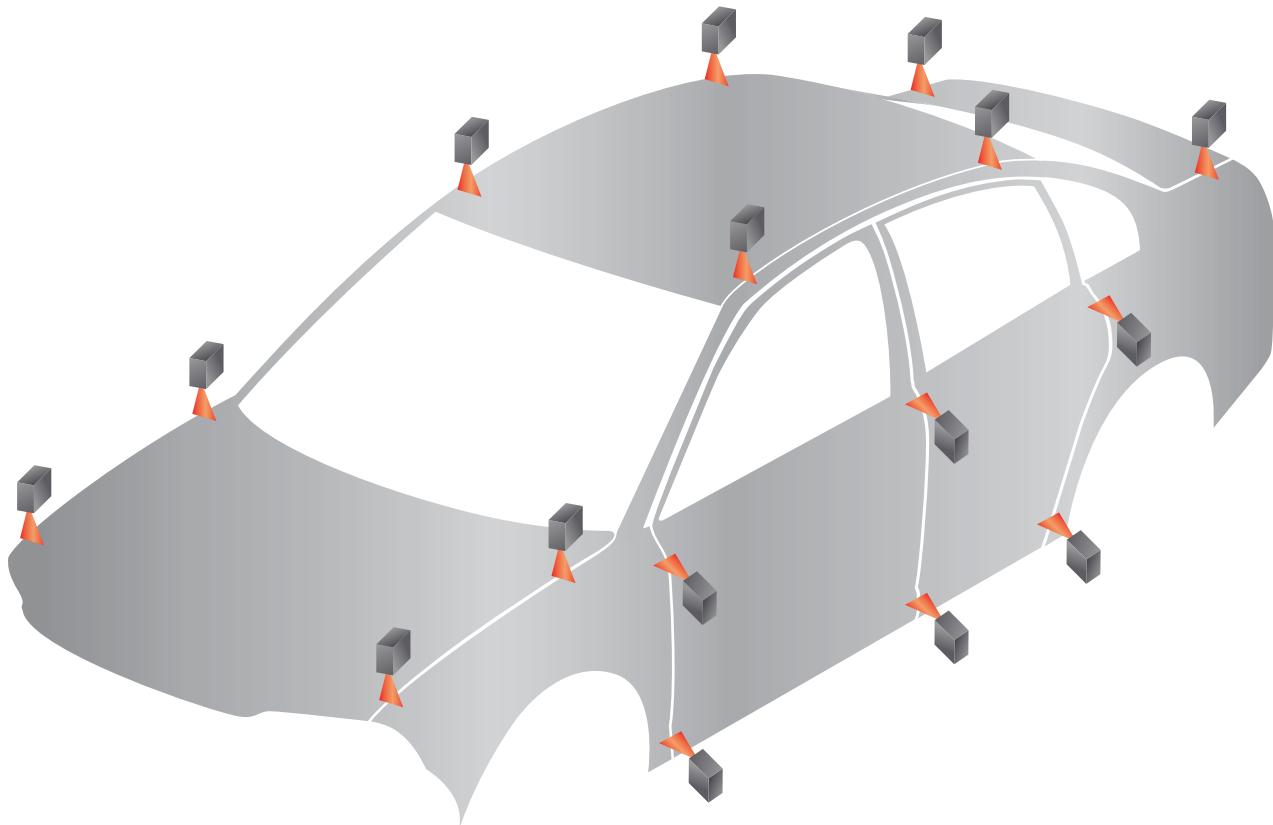
- Malformation of the component
- Misadjustment of placement equipment
- Wrong component
- Wrong component orientation

### Omron's Unique Solution

- Z500 Sensor's combination of wide-beam laser and two-dimensional receiver delivers high-speed, highly-accurate assessment of alignment
- Wide-beam laser eliminates need to reposition sensor during changeover
- Small sensor head allows convenient positioning of the system
- Simple setup and operation
- Integrates with existing controls
- Global availability of product, training and service

### Results

- Timely detection eliminates installing misaligned components, reducing waste and supporting product quality
- Accurate, high-speed inspection improves the production quality of vehicles without slowing production
- Data collection supports quality assurance

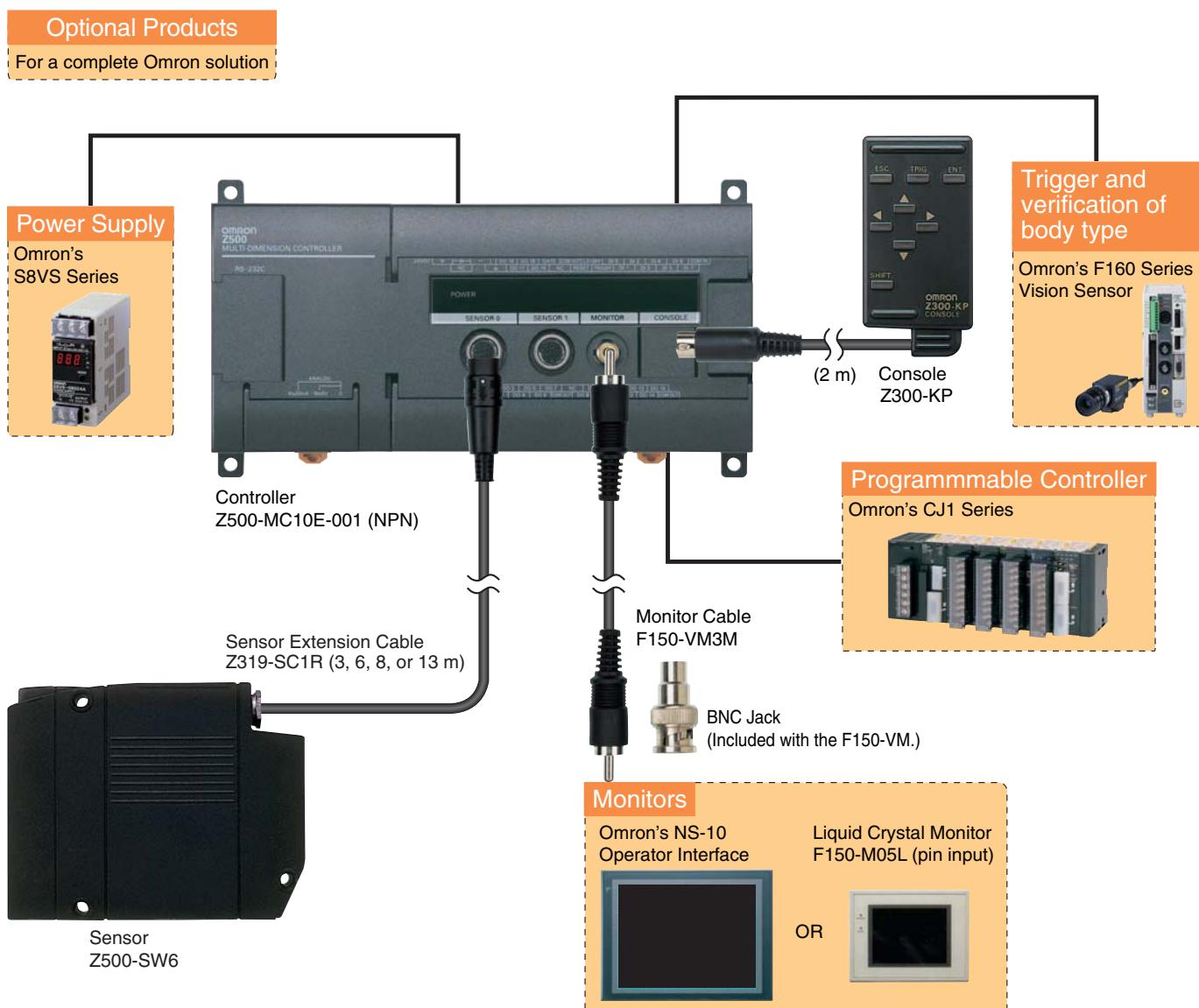


## Bill of Materials

Description	Part Number
Laser Sensor	Z500-SW6
Controller	Z500-MC10E-001 (NPN)
Monitor	NS10-TV01BV1 + NS-CA002 or F150-M05L
Monitor Cable	F150-VM3M
Console	Z300-KP
Power Supply	S8VS Series

## System Configuration

The configuration described here is one of many ways to solve similar inspection problems. Let an Omron specialist propose the best system for your application.



## Specifications

<b>Sensor</b>	<b>Z500-SW6</b>	
Measurement range	±5 mm (diffuse reflection) at 50 mm measurement distance	
Light source	Visible-light semiconductor laser, 658 nm wavelength, Class 3B	
Linearity	±0.1% F.S.	
Resolution	0.3 µm	
Cable length	0.5 m	
<b>Controller</b>	<b>Z500-MC10E-001</b>	
Input/Output type	NPN	
Number of sensors	2 sensors can be mounted	
Measurement functions	Angle, Height, Step (2 points), Step (3 points), Edge position, Width, Edge center, Peak/bottom, Define	
Area of interest	Region specification of line beam and displacement direction is possible	
Trigger functions	Free, External 1, External 2, Auto	
Results output	Judgment output via RS-232C output and terminal block Measurement value output via RS-232C and analog (4-20 mA) output	
Data displays	Profile monitor: Data on cross section height can be checked on a 3D gray scale image Image monitor: Both measurement data and profile image can be checked at the same time Digital monitor: Two or more measurement data can be checked at the same time Trend monitor: Time-series change of measurement data can be checked	
<b>Monitor</b>	<b>NS10-TVO1BV1* + NS-CA002</b>	<b>F150-M05L</b>
Screen size	10.4 inches	5.5 inches
Display type	TFT color liquid crystal	TFT color liquid crystal
Resolution	640 x 480 dots	320 x 240 dots
Input signal	NTSC composite video	NTSC composite video

\*Also available in 8" and 12" screens

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