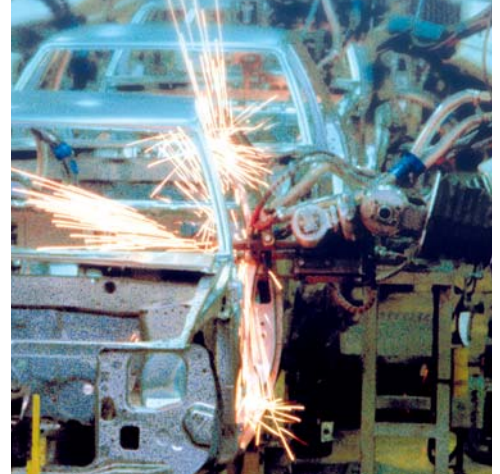




Automotive Applications:

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

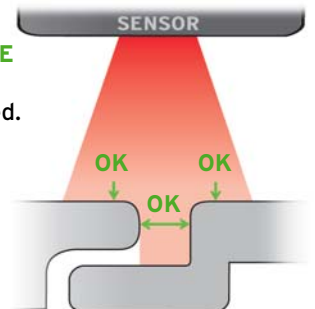
Error-proof system reduces scrap and improves production quality

Z500-SW6 Laser Sensor

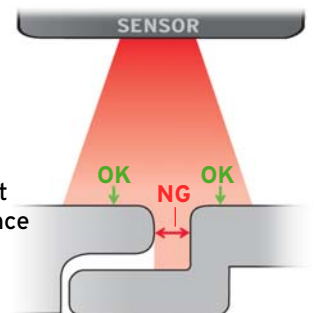
Z500-MC10E-001 Controller

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.

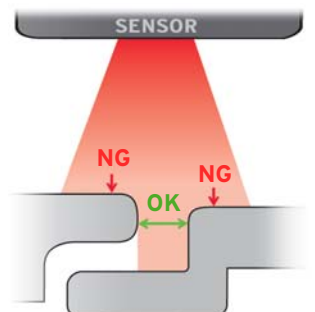
GOOD PROFILE
Body parts are properly aligned. Gap tolerance and height measurements are correct.



BAD PROFILE
Body parts are NOT properly aligned. Height measurements are correct, but the gap tolerance is not.



BAD PROFILE
Body parts are NOT properly aligned. Gap tolerance is correct, but the height measurements are not.



Profile Measurement Application Details

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

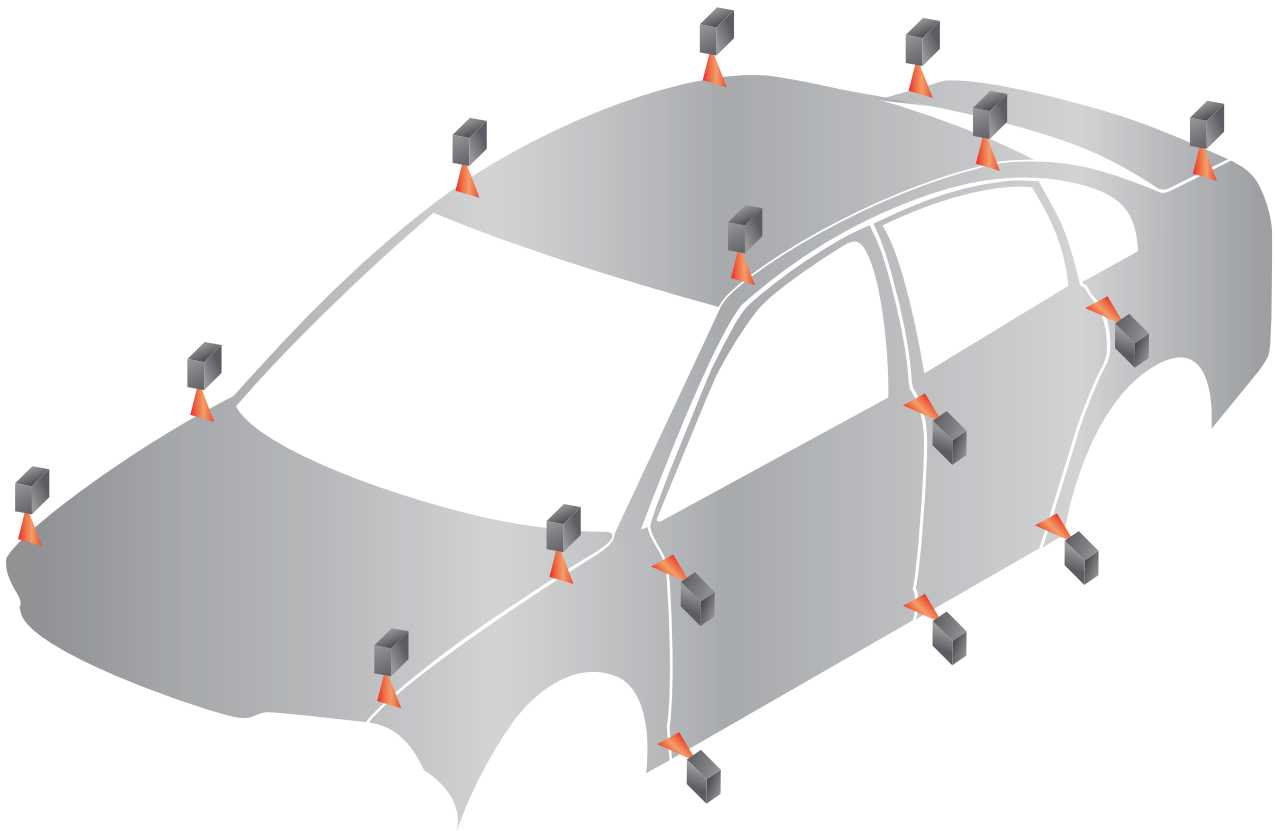
- Malformation of the component
- Misadjustment of placement equipment
- Wrong component
- Wrong component orientation

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



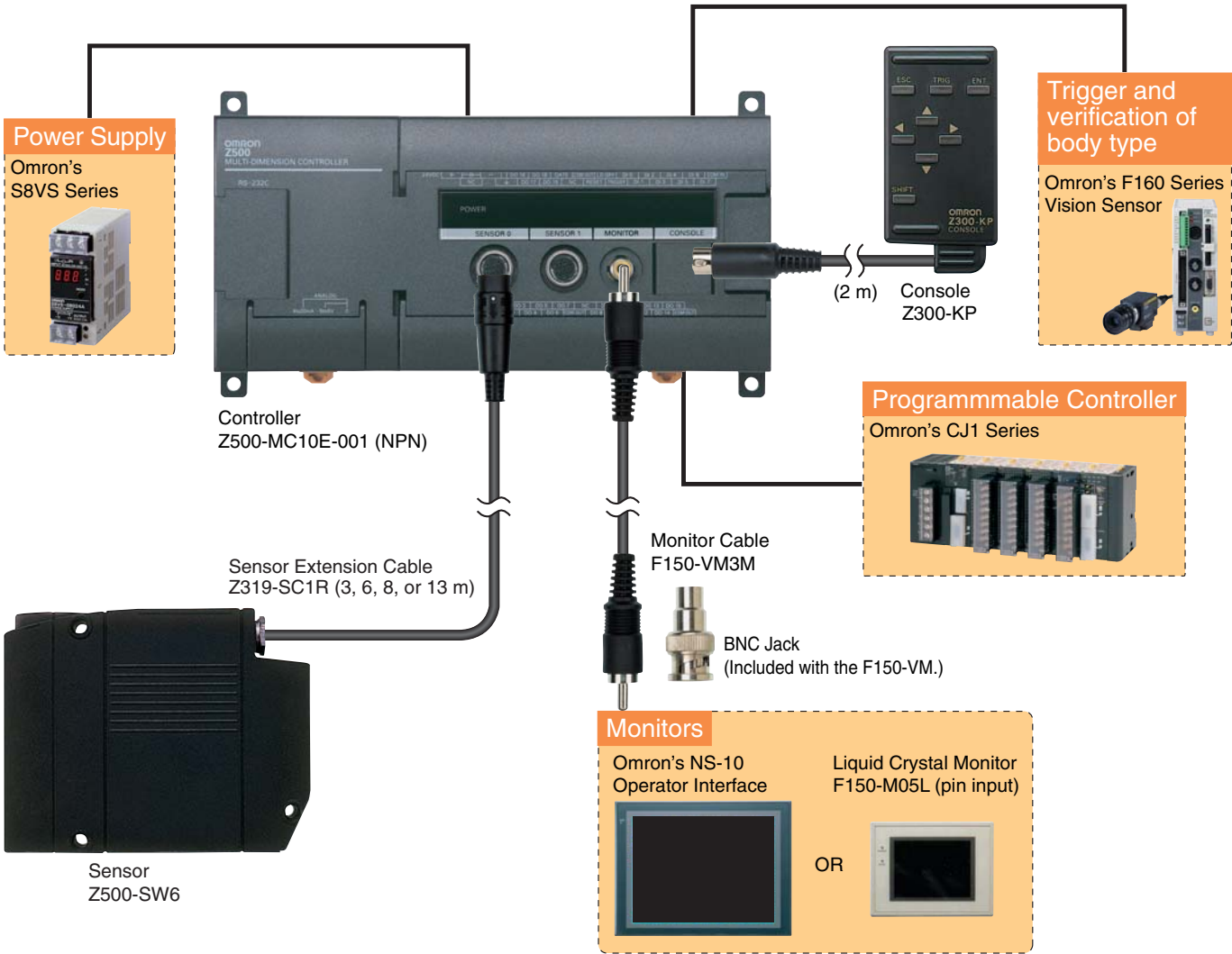
Bill of Materials

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.

Optional Products
For a complete Omron solution



Specifications

Sensor	Z500-SW6
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

Controller	Z500-MC10E-001
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

Monitor	NS10-TV01BV1* + NS-CA002	F150-M05L
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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