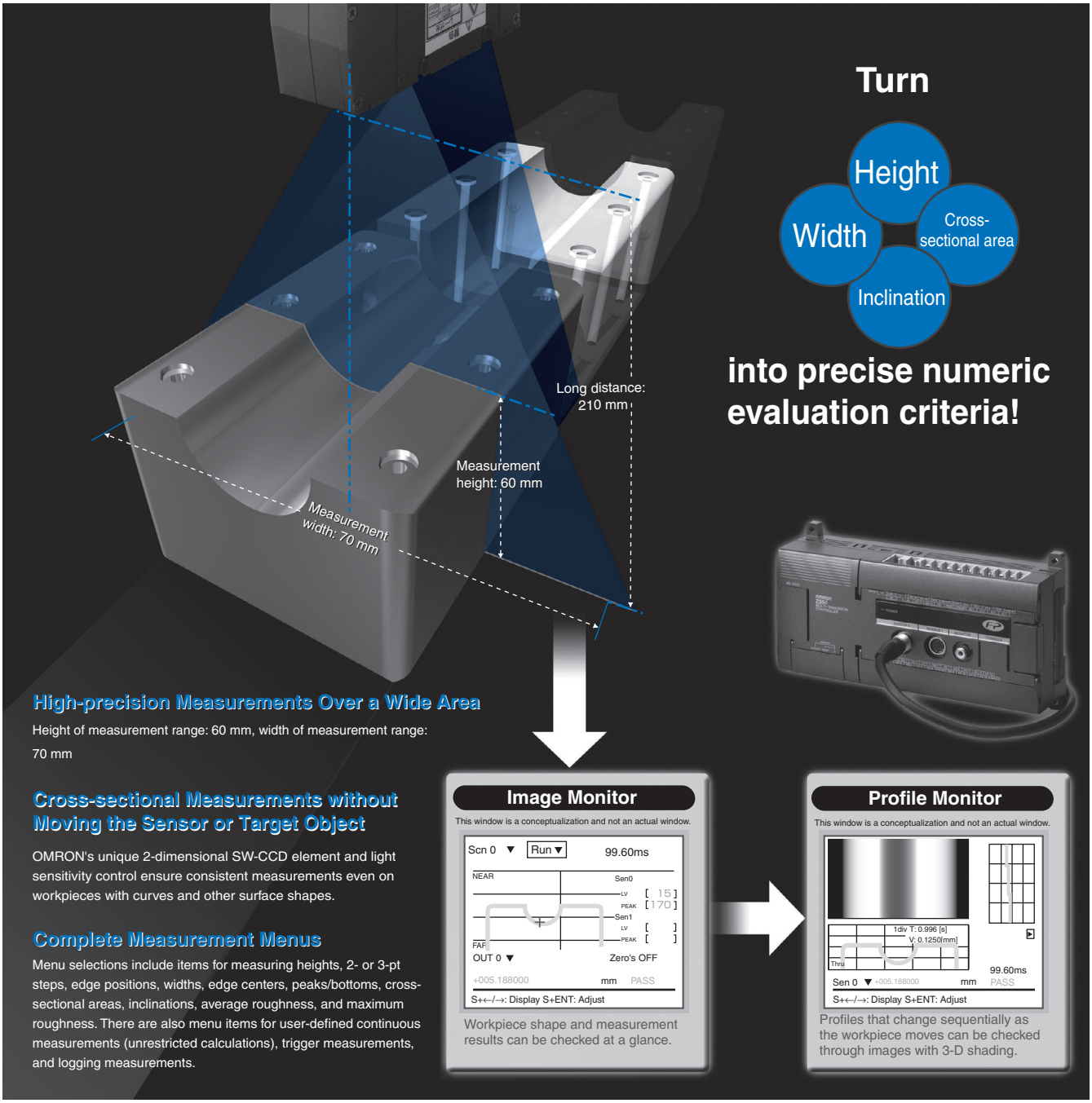
Multi-Dimensional Sensor

Z550

- Inline profile inspections for workpieces made of metal, plastic, or other materials all at one time

Features



Specifications

Z550-MC10/MC15 Controller

Model	Z550-MC10	Z550-MC15
I/O type	NPN	PNP
Power supply voltage	21.6 to 26.4 V DC	
Current consumption	1 A max. (with 2 sensors connected)	
Insulation resistance	Between the group of external DC terminals and the ground terminal: 20 MΩ max. (at 100 V DC) (when the built-in surge absorber is removed)	
Dielectric strength	Between the group of external DC terminals and the ground terminal: 1000 V AC at 50/60 Hz (when the built-in surge absorber is removed)	
Leakage current	10 mA max.	
Noise resistance	1,500 Vp-p; Pulse width: 0.1 ms/1 ms; Rising edge: 1-ns pulse	
Vibration resistance	10 to 150 Hz (at a double amplitude of 0.1 mm) for 8 minutes each in the X, Y, and Z directions	
Shock resistance	200 m/s²; 3 times each in 6 directions	
Ambient temperature	0 to +50 °C at operation, -15 to +60 °C at storage (no icing or condensation)	
Ambient humidity	Operating and storage: 35% to 85% (no condensation)	
Ambient environment	No corrosive gases	
Ground	D-type ground (ground resistance of 100 W or less) * conventional class 3 ground	
Degree of protection	IEC60529 IP20 (in-panel)	
Materials	Console: ABS	
Weight	Approx. 0.7 kg	
Number of connectable sensors	Up to two Z550-SW70 sensors can be connected.	
Number of scenes	16	
Averagin number	9 levels (1 to 256 times)	
Sensor control	6 levels (varies depending on the sensor)	
Area specification function	Available	
Control of quantity of light	Multi-sensitivity adjustment (dynamic range or sampling interval takes precedence) fixed sensitivity, automatic sensitivity adjustment	
Measurement time[*1]	100 ms (at fixed sensitivity) 120 ms (at automatic sensitivity) 100 ms to 250 ms (when sampling interval takes precedence) 100 ms to 620 ms (when dynamic range takes precedence)	
Run Mode	Continuous measurement or trigger measurement	
Image pre-processing	Noise removal	
Measurement pre-processing	Interpolation processing, filter processing, Inclination compensation processing, Height and position compensation processing	
Detection method	Height position method, Reflectance method	
Measurement item	Height, Step: 2 pts, Step: 3 pts, Edge position, Width, Edge center, Peak/Bottom, Cross-sectional area, Inclination, Roughness, User-defined	
Logging function	The measurement results of up to 3,000 measurements can be stored. (It is possible to select the number ofmeasurements after which the measurement results will be stored.)	
Output pre-processing	Forced zero, Offset/span adjustment	
Profile data output	Up to 1024 height profiles can be output in one batch. The output format may be either ASCII code or binary format (when sending via XMODEM)	
Results output	Terminal block: Judgment result Analog: Measurement result RS-232C: Measurement result, judgment result, profile data	
Screen display	Image monitor, Trend monitor, Digital monitor, Profile monitor	
Tool function	Peripheral image display function, test measurement function	
Terminal blocks	11 input points: $\overline{\text{TRIGGER}}$, $\overline{\text{LD-OFF}}$, $\overline{\text{RESET}}$, $\overline{\text{DI0}}$ to $\overline{\text{DI7}}$ 21 output points: $\overline{\text{DO0}}$ to $\overline{\text{DO19}}$ and $\overline{\text{GATE}}$	
RS-232C (Baud rate)	Up to 115 kbps (at XMODEM transmission, external trigger measurement) Normally 38.4 kbps	
Monitor interface	1 channel (for pin jack or overscan monitor)	
Analog output resolution	The full output scale can be divided into a maximum of 40,000 divisions. Resolution[*2]: 0.25 mV (±5 V), 0.4 mA (4 to 20 mA)	

*1. The sampling interval varies depending on the measurement settings. Check the actual sampling interval on the image monitor.
*2. When performing measurement taking the average of every 64 measurements with an OMRON K3AS linear sensor controller connected.

Z550-SW70 Sensor

Sensor installation		Diffuse reflection only
Reference distance (direction of height)		210 mm (for 60-mm measurement range mode)
Measurement range	Direction of width	70 mm (at 200 mm-reference distance)
	Direction of height*1	±30 mm max. (for 60-mm measurement range mode)
Light source		Visible semiconductor laser (wave length: 658 nm, 15 mW max, class 3B)
Beam dimensions*2		120 µm x 75 mm typical at the 200 mm-reference distance
Resolution in the direction of width*3		0.1 mm
Resolution in the direction of height*4		10 µm
Linearity in the direction of height*5		±0.5% F.S.
LED indicator lamp		Lit when the laser is on
Temperature characteristic*6		0.1% F.S./°C
Operation environment robustness	Degree of protection	IP66
	Ambient operating illumination	Illumination at light-receiving surface: 3,000 lx max., incandescent light
	Ambient temperature	0 to +50°C at operation, -15 to +60°C at storage (no icing)
	Ambient humidity	Operating and storage: 35% to 85% (no condensation)
	Vibration (durability)	10 to 150 Hz (at a double amplitude of 0.35 mm) for 8 minutes each in the X, Y, and Z directions
Materials		Body: Aluminum die-cast Cable sheathing: Heat-resistant PVC Connector: Zinc alloy and brass
Cable length		0.5 m
Minimum bending radius		68 mm
Weight		Approx. 550g
Accessory		CLASS 3B Warning label (IEC60825-1: 1993 +A1: 1997) x 2

*1. For 60-mm measurement range mode

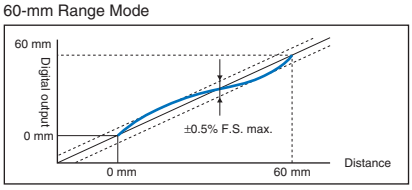
*2. Defined as $1/e^2$ (13.5%) of the central light intensity. Leakage of light is also present in areas other than those defined. Thus, there are some influences in cases where the reflection factor of the area surrounding the workpiece is higher than that of the workpiece itself.

*3. When an OMRON-standard workpiece (alumina ceramics) is placed at 200-mm distance, and edge position is measured. 60-mm measurement range mode is used. The average of 16 measurements is taken. Note that the resolution performance may not be satisfied in the presence of strong magnetic fields.

*4. When an OMRON-standard workpiece (alumina ceramics) is placed 200-mm away and the average height of all lines is measured. The measuring range is 60 mm and the average of 16 measurements is taken. Resolution performance, however, may not be satisfied in the presence of strong magnetic fields.

*5. The error in relation to an ideal straight line when the average height of all lines on an OMRON-standard workpiece (alumina ceramics) is measured. The measuring range is 60 mm. The degree of linearity may change depending on the workpiece.

60-mm Range Mode



*6. The value obtained at measurement with the space between the sensor and the workpiece fixed with an aluminum jig. The measurement range is 60 mm.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. Z192-E2-01-X In the interest of product improvement, specifications are subject to change without notice.