Contact measurement sensor

ZX-T SERIES

digital technology for maximum reliability

Advanced Industrial Automation

OMRON

Omron has expanded its smart sensor family with the introduction of the ZX-T, a contact displacement measurement sensor for high-precision applications. Like the other smart sensors in this range, the ZX-T features a host of remarkable features and functions. Diverse calculation and controlling functions, for example, allow you to measure and control the application by high-pass-low output. An auto-scale function enables you to connect any sensor head simply by plug-and-play, and the amplifier automatically displays the measurement distance after the sensor head has been connected. There's a multi-point calculation feature that allows you to connect up to 8 units for addition and subtraction, to give the most even calculation result possible. And problems caused by excessive pressing force in an inappropriate measurement situation can be detected in advance to prevent malfunction.

Digital measurement sensing concept – only from Omron!

Each sensor head has a long service life thanks to its unique linear ball-bearing structure. Sliding parts move smoothly and the rubber sleeves keep dust out. IP67 protection makes this sensor robust enough for use in the harshest environments. All of these features make the ZX-T ideal for those who need a very reliable, very accurate, high-resolution sensor for measuring all kinds of materials and surfaces where non-contact sensor types cannot be used. Potential markets include the automotive industry, metal-processing machinery and all kinds of assembly machine applications.

The industry's highest level of measurement performance!

ZX-T SERIES

What's innovative about the ZX-T is its accuracy; it can measure the length, width, thickness, diameter, eccentricity, flatness, inclination and the evenness of an object with a resolution of less than 0.1 micrometre! It incorporates digital technology and is not affected by electrical noise or interference, making it a more reliable, accurate, high-performance solution for advanced quality-control applications. And it fits seamlessly into Omron's Smart Platform concept, so setting up, programming and operating the product is simply drag-and-drop via a HMI screen.

The range consists of three different sensor heads, five sensor tips, and two amplifiers. Two of the sensor heads are exactly the same in terms of measurement range, the only difference is that one is designed for low-torque measurement, making it suitable for use on delicate or soft surfaces. One of these, the long-stroke ZX-TDS04, achieves high-precision measurement with the industry's best-in-class resolution (0.1µm) and linearity (0.3% F.S. max.). The ZX-T's 6mm-diameter heads are among the smallest in the industry, and can be used in very narrow spaces or for multi-point measurement.

Features and benefits of the ZX-T series

Plug & Play with auto-scale

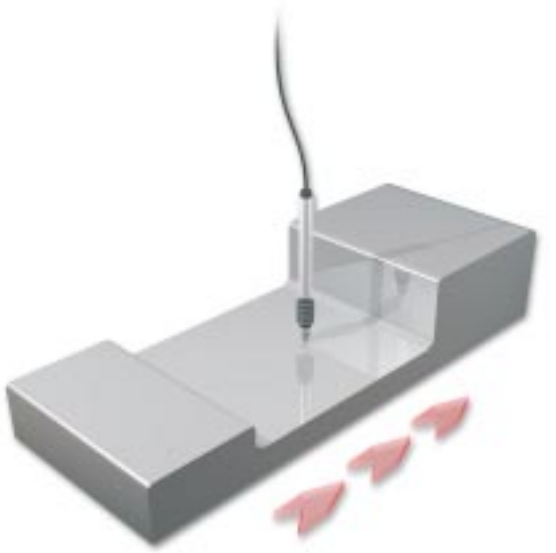
Innovative chip technology inside each sensor head makes the ZX-T plug-and-play; there's no re-calibration required when you change a sensor head, which minimises down-time and makes maintenance easy. In addition, the amplifier automatically displays the measurement distance when it is connected to the sensor head. An extension cable (the ZX-XC_A) can be used to extend the connection by up to 10 metres without any affect on the sensor characteristics.

Long-life structure

The ZX-T features a unique ball-bearing structure that ensures a long service life for the sensor head. Sliding parts move smoothly while the rubber sleeve keeps dust out.
Different rubber sleeves provide measurement ranges from 1mm to 4mm with a resolution of 0.1µm.

Multi-point calculation

An internal bus in the ZX-T enables up to 8 sensors to be connected for multi-point calculation. Using one sensor as reference, up to 7 points can be added or subtracted to get the most even calculation result.



Pressing force alarm

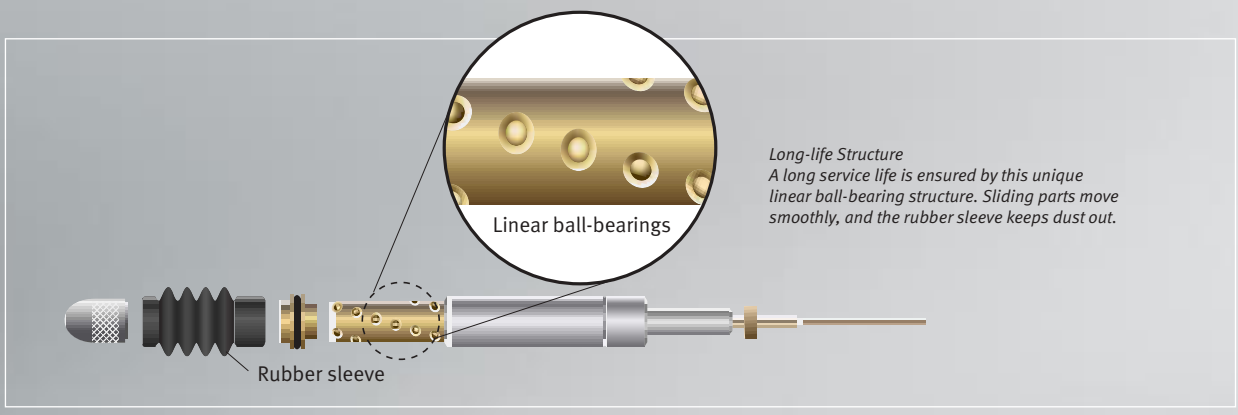
Problems caused by excessive pressing force during a measurement situation can be detected in advance, and a signal can generated to prevent malfunctions.

Warming-up display

Once the power is turned on, a display on the ZX-T indicates when the sensor head has warmed up to its optimum measurement condition to ensure the most accurate readings.

Auto-key saves set-up values

The Auto-key feature uses innovative transducer technology to eliminate the need for master adjustment and origin calculation each time the sensor is started up. Even after a power interruption the values are retained so there's no need to reset the origin.



Long-life Structure
A long service life is ensured by this unique linear ball-bearing structure. Sliding parts move smoothly, and the rubber sleeve keeps dust out.

- Large display
- Easy to set up parameters

Calculating unit for thickness measurement

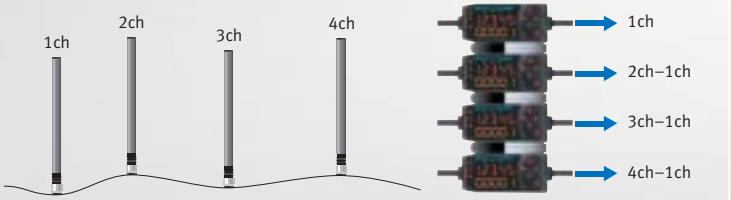
By inserting a ZX-CAL2 calculating unit between two amplifiers the thickness measurement of a product is easy to obtain, and the measured result will be displayed on the amplifier. And because the measurement results are digital. They can be directly uploaded to a PC or PLC via an RS-232C cable.

Smart Monitor software (V3)

Omron's latest Smart Monitor software (V.3) package is ideal for quickly and easily setting up parameters and values via a PC or Notebook. Signal analysis and data logging results can be processed for quality control information. What's more, this software package is compatible with all of the ZX sensor series.

Smart and Seamless Technology for total solutions

Omron's Smart & Seamless Technology (SST) concept supplies solutions for machine automation with the emphasis on ease-of-use and a high degree of integration between devices. This technology is device-centric, and regards system architecture as an information highway where different field networks feed into each other seamlessly. SST is the ideal solution for system engineers who are faced with the challenge of delivering customised machines or installations. It provides modular control systems for separate machine parts. It offers customised solutions without a significant increase in integration time or complexity. And it enables machines to be built without extended programming. This leads to important cost savings in the creation of tailored solutions that satisfy both the price and performance requirements of the most discerning customer. Omron's smart sensors are designed to seamlessly integrate with other products on the same network using this technology. For more information go to www.europe.omron.com.



Smart Monitor software tool enables easy system set-up via PC or Notebook.

Amplifier Units

Appearance	Power supply	Output type	Model
	DC	NPN	ZX-TDA11
		PNP	ZX-TDA41

Sensor Heads

Size	Type	Sensing distance	Resolution*	Model
6mm dia.	Short	1mm	0.1µm	ZX-TDSO1T
6mm dia.	Standard	4mm	0.1µm	ZX-TDSO4T
6mm dia.	Low torque measurement	4mm	0.1µm	ZX-TDSO4T-L

* The resolution refers to the minimum value that can be read when a ZX-TDA## amplifier unit is connected.

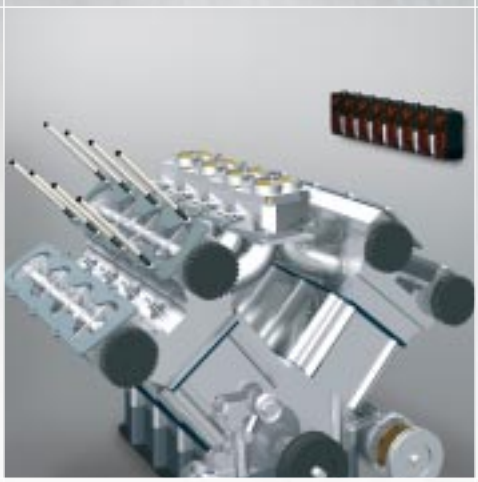
Calculating unit

Appearance	Model
	ZX-CAL2

ZX-series communications interface unit

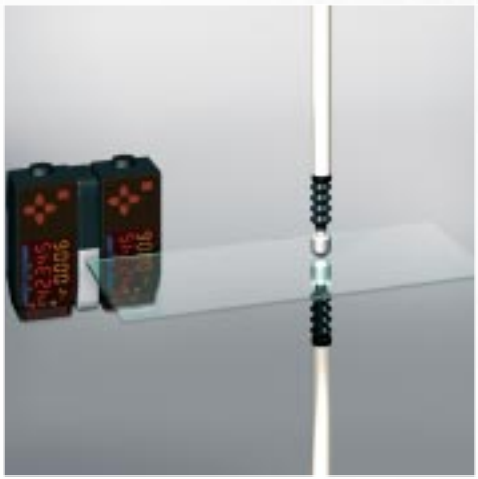
Appearance	Name	Model
	ZX-series communications interface unit	ZX-SF11
 + CD-ROM	ZX-series communications interface unit + ZX-series sensor set-up software Basic	ZX-SFW11EV3
CD-ROM	ZX-series sensor set-up software	ZX-SW11EV3

Measuring precision tooling of engine block
Up to 8 sensor units can be connected for addition and subtraction measurements, to give the most even calculation result possible.



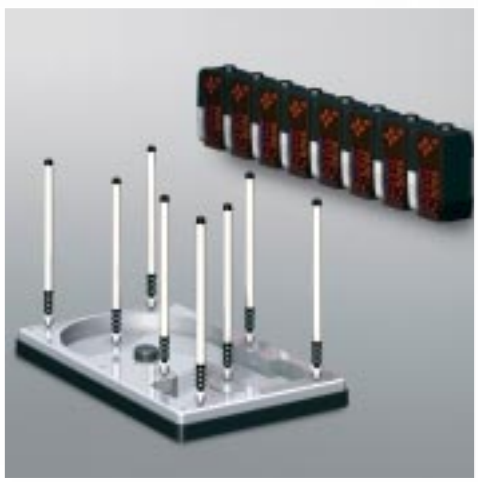
Diameter and eccentricity measurement
Measuring the diameter and eccentricity of valves and shafts with a high resolution of 0.1µm can be performed without any influence from surface conditions.

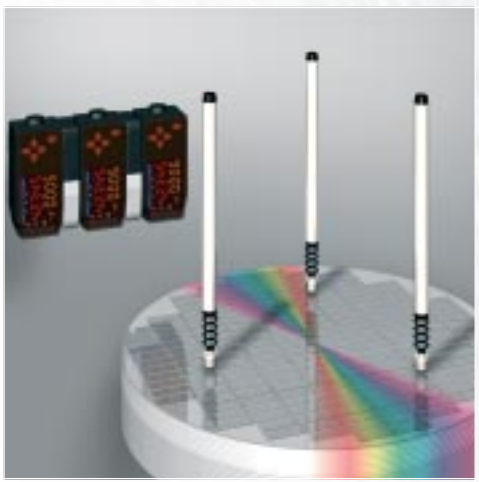
Measuring parts height during clock assembly
The sensor head can be placed in direct contact with the measurement object, so that height differences – no matter how small – can be confirmed.



Measuring warp and inclination
Integrated calculation functions can be used for P-P or A-B calculation.

Measuring warp in HDD chassis assembly
Up to 8 sensor heads can be combined in one application, and thanks to the small size of the sensor head (6mm diameter) it is possible to integrate it into narrow space applications like warp and HDD chassis assembly.





Semiconductor industry – wafer pre-alignment process
The ZX-T is ideal for checking the evenness (flatness) or inclination of a wafer before the next process.

The ZX-T series is the latest in a family of Omron sensor systems that include the E3X-DA-S/MDA series, the ZX-E series, the ZX series and the E3C-LDA series.

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