Smart sensor with Plug & Play Concept
for fast, accurate measurement

ZX-E SERIES

inductive displacement sensors

Advanced Industrial Automation

OMRON

Omron, the world's leading sensor manufacturer, continues to set new standards in fast, precise measurement sensing with the ZX-E series of inductive displacement sensors. Designed specifically for metal measurement applications, the ZX-E series is based on Omron's unique Plug & Play concept, in which a wide variety of interchangeable sensor heads can be connected to the same amplifier. This concept covers all of your measurement requirements and takes the costly and time-consuming process out of selecting the best sensor heads for the job!

Unique features for extremely accurate performance

The ZX-E features a host of remarkable features and functions, some of which are unique! These include the smart calculation function, simple linearity adjustment, easy resolution display, dual digital display and mutual interference prevention function. The ZX-E is not only easy to use, it also features intelligent communication, enabling it to detect and log data for more efficient and effective process analysis and quality control. This inductive displacement sensor is the ideal solution for those who need very accurate, high-resolution measurement sensing in high-tech environments like the packaging, metal processing, machinery, automotive and semiconductor industries.
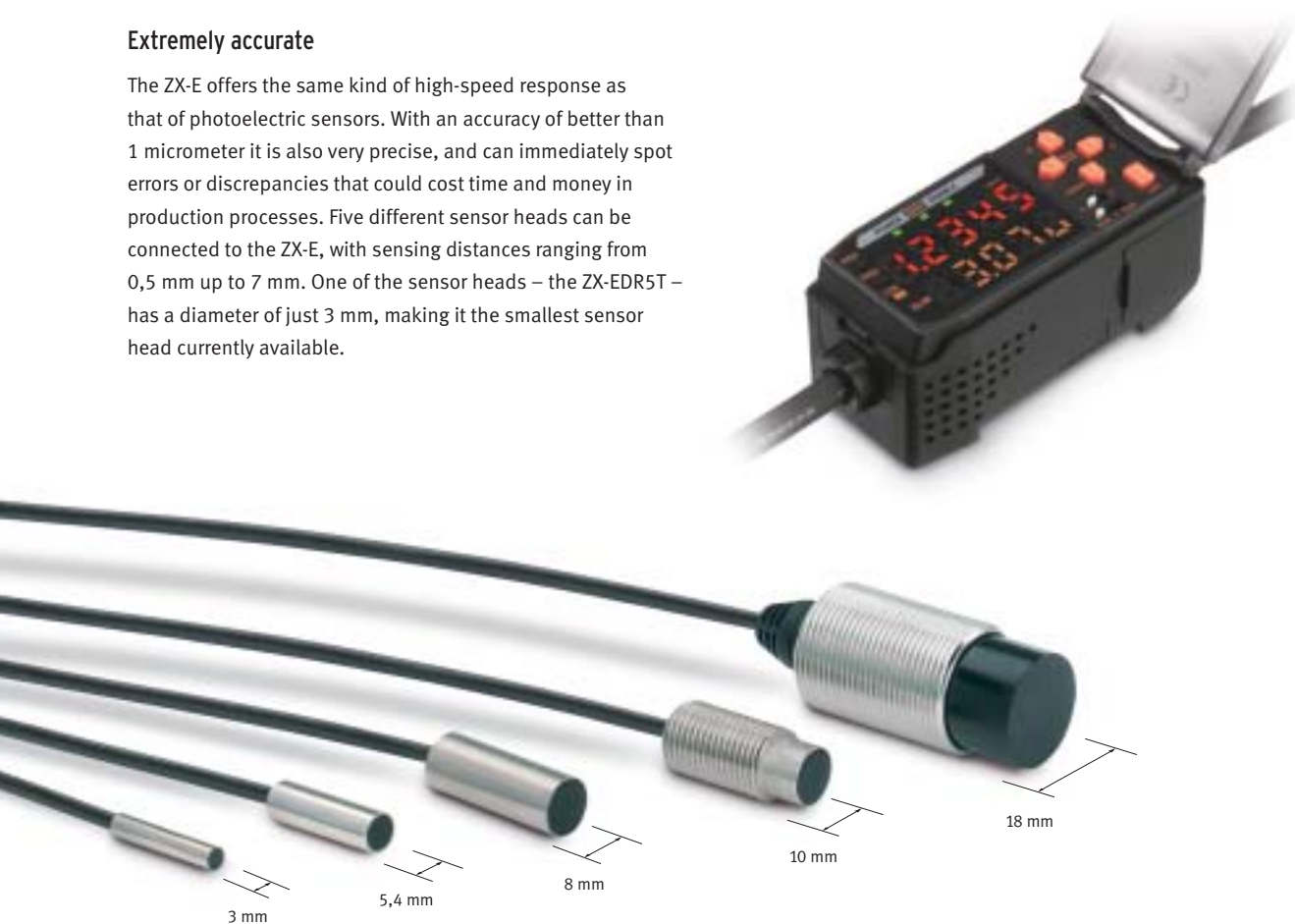
Designed to meet your measurement needs
ZX-E SERIES

What's innovative about the ZX-E sensor is that the same amplifier unit can be attached to any one of five sensor heads; It's simply a matter of selecting the sensor head that best suits your measurement application. And there's total compatibility between all sensor heads and the amplifier, making maintenance quick and easy.

Extremely accurate

The ZX-E offers the same kind of high-speed response as that of photoelectric sensors. With an accuracy of better than 1 micrometer it is also very precise, and can immediately spot errors or discrepancies that could cost time and money in production processes. Five different sensor heads can be connected to the ZX-E, with sensing distances ranging from 0,5 mm up to 7 mm. One of the sensor heads – the ZX-EDR5T – has a diameter of just 3 mm, making it the smallest sensor head currently available.
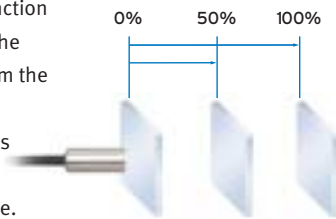
3 mm

5,4 mm

8 mm

10 mm

18 mm

Smart calculation function

By inserting a 'calculation unit' (ZX-CAL2) between two amplifiers the thickness and difference measurements are easily obtained, and these results will be displayed on the amplifier. This technology, patented by Omron, eliminates the need for connecting a digital panel meter and the troublesome wiring and setting up associated with it.

Simple Linearity Adjustment

With the ZX-E it is possible to adjust the linearity of the sensor for different types of metals, ferrous and non-ferrous. Using Omron's patented Linearity Adjustment Function you can perform a teaching function at 0%, 50% and 100% of the measurement distance from the object to the sensor head. The amplifier then confirms the result. This feature greatly reduces setting time.

Plug & Play Concept

All sensor heads are fully compatible to the amplifier unit and can be selected based on the application. Also for maintenance reason it is more efficient and cost saving to replace only the sensor head.

Easy-to-read resolution display

With Omron's resolution display function (patent pending), the resolution based on the object being measured is displayed and can be verified in real time. It is easy to learn the margin for threshold values with this resolution display, allowing accurate judgements on whether or not detection is possible.
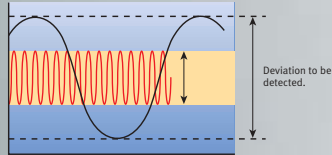
Dual digital display *(illustration ❶)*

This makes setting up and maintaining the ZX-E sensor a straightforward process. The smaller display shows the real resolution of the sensor based on the object being measured.
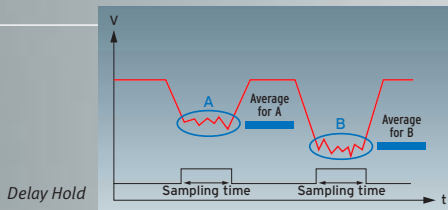
Mutual interference prevention function

Up to five sensors can be combined very closely together without any mutual interference occurring between them. This is achieved by placing a calculating unit (ZX-CAL2) between each sensor. With this unique feature multiple measurements can be made in a machine or a process.
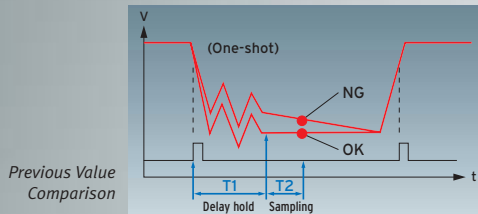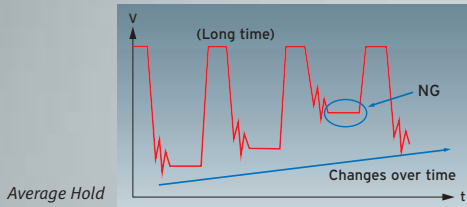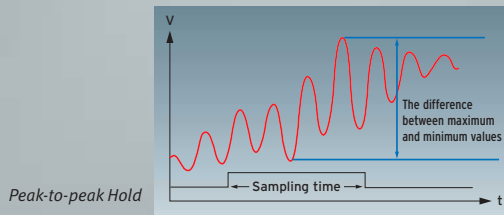
Easy-to-see resolution (patent pending).

Delay Hold
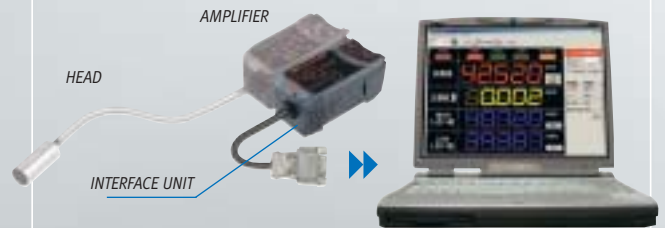
Previous Value Comparison

Average Hold

Peak-to-peak Hold

Advanced measurement functions for fast signal processing.

Calculation unit for thickness-measurement between two amplifiers (patent pending).

ZX-CAL2

AMPLIFIER

HEAD

INTERFACE UNIT

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

❶

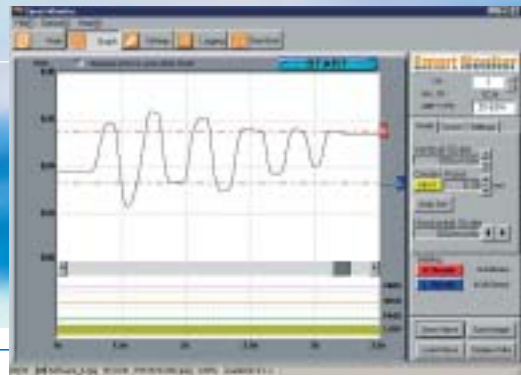*Easy to read dual digital display shows measurement results or multifunctional settings.*

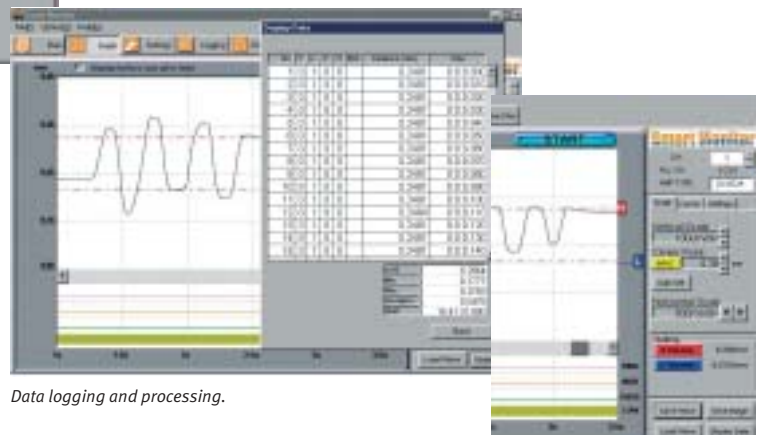## Easy to set up and operate

Easy to use keys

Five operation keys provide total control of the amplifier, enabling you to operate advanced functions that include Reverse Display, ECO Mode, number of figures for display, Display Saving Mode, Operation Lock, Function Lock, Zero Reset, various hold and timer functions, and Timing & Reset input.

Visualisation and monitoring of all measured data.

Waveform monitoring.

Data logging and processing.

Threshold setting by drag & drop graphic function.

Teaching functions for fast and easy set-up

The ZX-E sensor features three teaching functions
to set up threshold values. These are:

Direct input
Ideal for detecting whether or not
the OK/not OK values are known.

Position teaching
For high-precision positioning
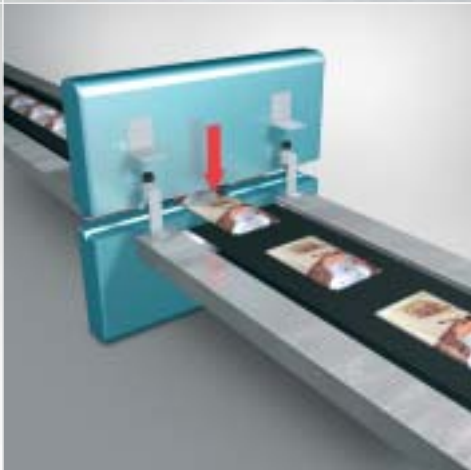applications.

Automatic teaching
For teaching under production conditions
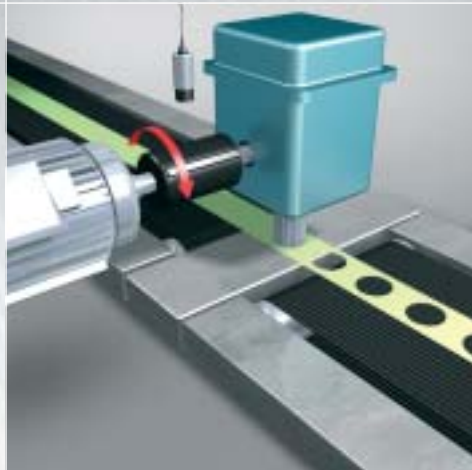without stopping the work-piece.

Intelligent Communication

SmartMonitor V2 software makes sensor set-up easier!
With Omron's interface unit and SmartMonitor V2 software
the ZX-E sensor can be easily connected to a Notebook or PC.
The software is ideal for quickly and easily setting up
parameters and values via the menu screen from a PC or using
the serial port of a PLC. It offers full visualisation of all
measured values on the spot. Threshold settings can be done
using the Position Teach feature or by entering the values
directly. All parameters and modes can be changed within
seconds and the interrupt time is kept to a minimum, which
is very important in production processes. In addition, all
settings can be saved on a computer, and reloaded based
on production requirements.

Data logging results can be processed using SmartMonitor
V2 software and stored automatically (as an Excel csv file)
for quality control information, leading to smoother production
runs. Data can also be displayed in waveform during logging.
Waveforms can be easily monitored and threshold values set
simply by dragging and dropping. High-speed waveforms can
be obtained and displayed in a one-shot operation.
This innovative feature is ideal for use in high-speed processes,
where the software can be used to generate a waveform.

Minute gap detection

Cutter control

Height and step detection

Injection Moulding

Eccentricity and vibration

Vertical packaging

Amplifier Units

Appearance	Power supply	Output type	Model
	DC	NPN	ZX-EDA11
		PNP	ZX-EDA41

Sensor Heads

Shape	Dimensions	Sensing distance	Model
Cylindrical	3 dia. x 18 mm	0,5 mm	ZX-EDR5T
	5,4 dia. x 18 mm	1 mm	ZX-ED01T *2
	8 dia. x 22 mm	2 mm	ZX-ED02T *2
Screw-shaped	M10 dia. x 22 mm	2 mm	ZX-EM02T *2
	M18 dia. x 46,3 mm	7 mm	ZX-EM07T *2

SmartMonitor sensor Setup tool for personal computer connection

Appearance	Name	Model
+ CD-ROM	ZX-series Communication Interface Unit + Setup Software	ZX-SFW11

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

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