

Increase Competitiveness, Reduce Costs

“All Inclusive” Optical-Fiber Sensors



Customer-specific production

Extremely simple operation

Precise object detection

Versatile communication

Fast start-up



Optical-fiber technology for challenging applications

① E3X-DAS

THE standard

② E3X-DA-B/G/H-S

For coloured objects and
colour mark sensing

③ E3X-MDA

Dual Amplifier

④ E3X-DA-AN-S

1 to 5 Volt Analogue
voltage output

⑤ E3X-DA-AT-S

Self adjusting
(compensates fluctuations
in sensing processes)



Compatible with ROHS

You are building serial
machines and looking
for potential savings?

You expect high precision?

Your machines are set up
in a rough environment
prone to dirt?

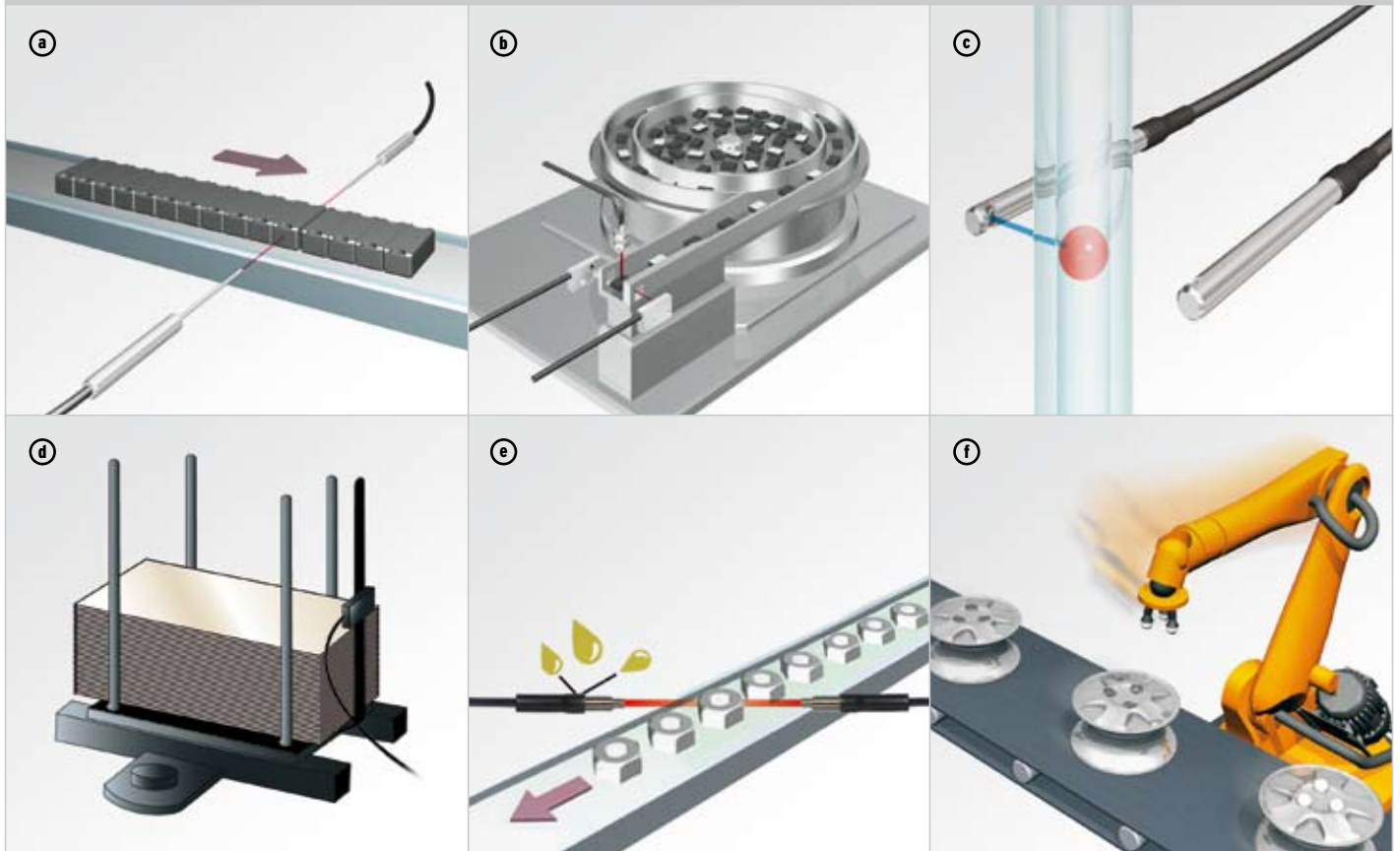
You want to combine
excellent functionality
with easy operation?

You want to avoid
setting errors?



Optical-fiber technology for basic applications

Application Examples



	Function	Header	Range with E3X-NA	Range with E3X-DAS	Product	Name
(a)		M4, tight bend radius, can be shortened	Approx. 280 mm	Approx. 530 mm	Optical-fiber through-beam sensor	E32-ET11R 2M
(b)		M6, tight bend radius, can be shortened	Approx. 90 mm detection range	Approx. 170 mm detection range	Optical-fiber diffuse sensor	E32-ED11R 2M
(c)		Diameter 3 mm, 90° optics, can be shortened	Approx. 240 mm	Approx. 460 mm	Optical-fiber through-beam sensor with 90° optics	E32-T14L 2M
(d)		Flat header, tight bend radius, can be shortened	Approx. 20 mm	Approx. 40 mm	Optical-fiber with narrow sensing head for small objects	E-32-EDS24R 2M
(e)		M4, coated with fluorin, can be shortened	Approx. 350 mm	Approx. 680 mm	Optical-fiber through-beam sensor, oil-resistant optical-fiber header	E32-T11U
(f)		M4, plastic fiber bundles for repetitive bending	Approx. 250 mm	Approx. 680 mm	Optical-fiber through-beam sensor, suitable for robotics	E32-T11

Pliable, robust and extendable - simply flexible!

The selection of the right optical-fiber material and the suitable accessories allows you to adapt Omron's optical fiber range to an extremely wide variety of applications. For instance, a large number

of ultra-fine fibers ensure that the optical fibers can be bent without losing any intensity. Special spiral protective hoses protect the sensors for applications in harsh machine environments.

You can easily increase the range of our optical fibers and with our add-on lenses the possibilities are greatly increased.



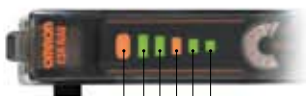
Ultra-fine fibers



Spiral protective hoses



Add-on lenses



Switch status
+20 %
+10 %
Switching shaft
-10 %
-20 %

The sensor is set via the precision potentiometer. The LED bar indicates the sensors set status, the switching threshold and the output state - simply!

Intuitive setting



The E3X-NA-F detects objects extremely quickly: it needs no more than 20 μ s. It reliably detects falling SMD components or small metal parts. It can also be used for mark sensing or for determining speeds.

20 μ s - high speed



E3X-NA offers reduced wiring via its master-slave connection system. This system allows many units to be powered from only one supply. The user then needs only to connect the individual outputs from each amplifier.

Via master-slave connections



Optical-fiber headers can be sized for extremely small spaces. With a diameter of just 0.5mm or 2.3mm flat headers, they fit into the smallest spaces.

Optical-fiber headers in a 0.5mm design



Infrared interface

Up to 10 amplifiers

When gang-mounted, the sensors can communicate via optical windows. This provides mutual interference protection and allows multiple amplifier operation on one common rail without any disturbances or malfunctions if sensors are mounted close to each other.

Operating stability thanks to signal decoupling

Switch status at a glance

The clear bar-graph display gives the user simple indication of the amplifiers status, both operation and output - even from a distance.



Detecting coloured objects

The standard amplifiers utilise a red light source, however, this is not always the best source light colour to use. Where difficult target colours need sensing, for example mark sensing on label webs, then either a blue, green or infrared light source may provide the best solution.



Excellent ambient light immunity

E3X amplifiers use pulsed signals to prevent influence from external light. As a result, the sensors will work perfectly without influence from fluorescent tubes or energy-saving lamps.

2 in 1 - saves space and costs



The E3X-MDA incorporates two separate amplifiers in one slim line housing, the same size as any other E3X unit. It is possible to treat these as separate outputs or they can be combined in AND - OR modes, saving space, wiring and hardware costs - and providing a solution to a wider range of applications.

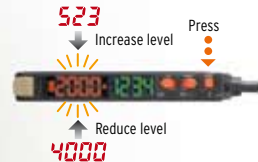


Full performance in half the space
The first dual-channel optical-fiber amplifier

Better detection reliability thanks to power tuning



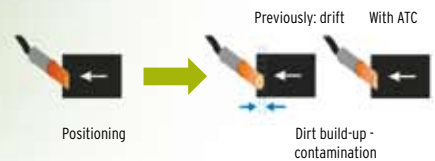
The light level can be adjusted to match the application during the set-up. This means that the full range of the optical-fiber amplifiers power is used over the switching point to give highest possible resolution.



ATC - precision and reliability despite dirt build-up

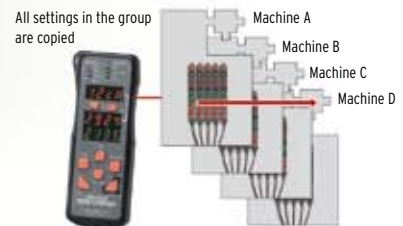


In many applications, the machines - and the sensors - become soiled in the course of time. The ATC (Active Threshold Control) updates the signal and the threshold as the dirt build up gradually increases. Therefore, the switching characteristics of your machines remain constant.



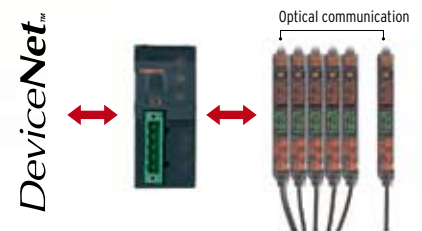
Don't set - just teach

Our amplifiers can be taught with or without an object, the switching threshold is defined automatically. This can be carried out in the E3X-DA-RMS either via an external input or via the communication bus. By using the communication bus, you can set-up entire banks of sensors for new batches, automatically, at the touch of a button.



Simple upload and download of data

Our E3X sensors possess an optical window for communication purposes from amplifier to amplifier when mounted together. This avoids setting them repeatedly as machines are built and means that it is possible to transfer each or all amplifiers settings to a new installation. With the setting console, you can set a number of E3X optical-fiber sensors, E2C inductive sensors or E3C laser sensors and copy these settings.



One device - two views

Large digital displays indicate the actual or current value in red and the user set switching threshold in green. If required, you can also switch to a bar display or set the sensor so that it supplies maximum and minimum values during the sensing process.

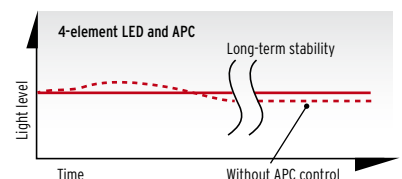


Switchable display



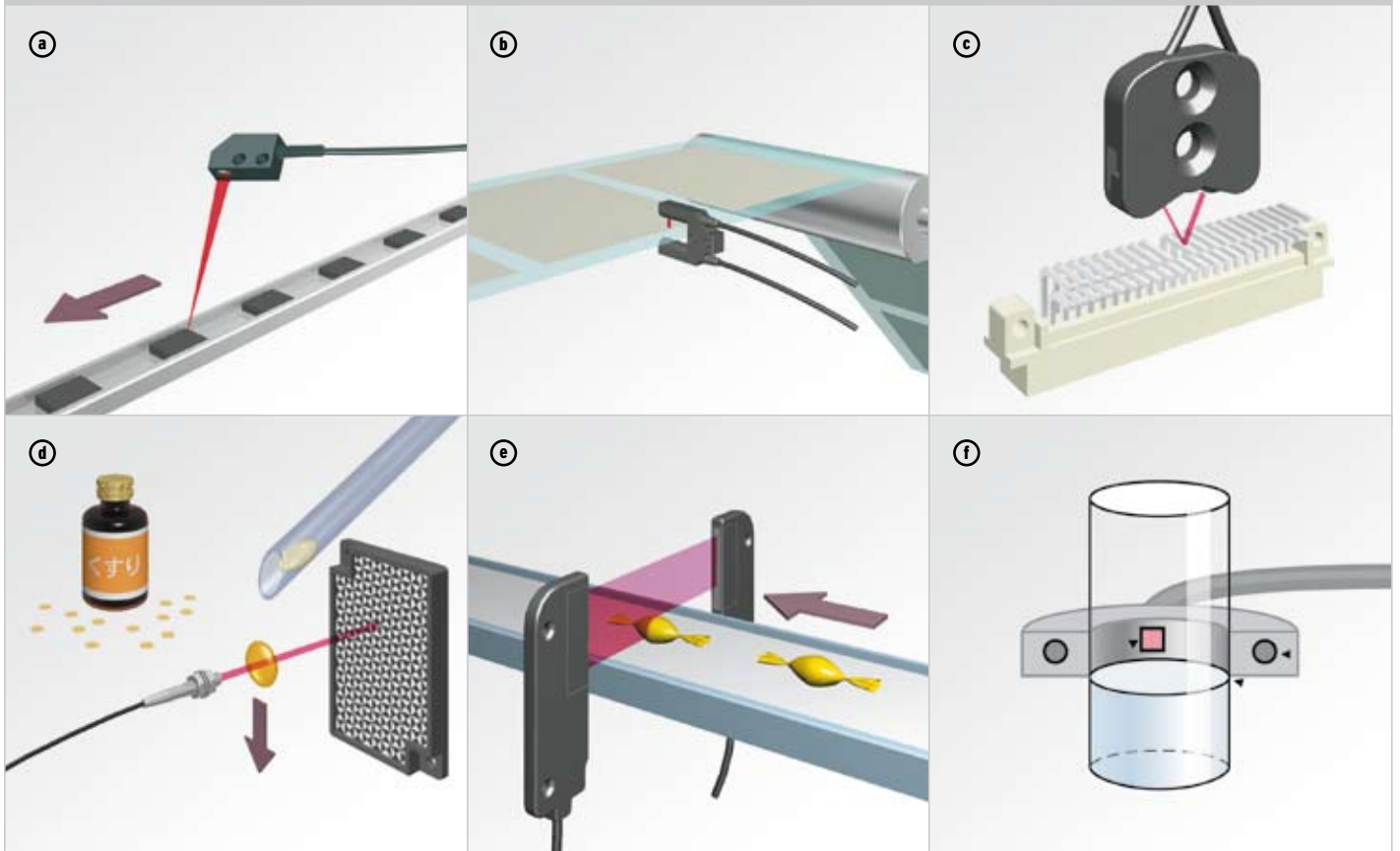
Long-term stability

In the OMRON E3X-DAS optical-fiber amplifiers, you can rely on the constant light emission performance of the LEDs. The sensors are equipped with an innovative 4-element LED coupled to an APC function (Automatic Power Control) that ensures a constant power output - long term sensing stability.



Optical-fiber technology for challenging applications

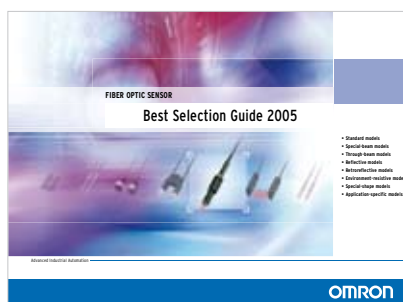
Application Examples



	Function	Description	Product	Name
(a)		Header with 90° optics, focus range adjustable from 8 to 25 mm, extremely small light spot	Coaxial optical-fiber switch & focusing lens	E32-EC31 2M E39-EF51
(b)		10 mm fork width for mark and label detection	Optical-fiber hybrid light barrier	E32-G14
(c)		Header with 90° optics, detection level 7 mm, heat resistant up to 105 °C	Optical fiber with background suppression	E32-L25L
(d)		Header: M6, MSR function (polarisation), range approx. 250 mm with E3X-DAS	Optical fiber with reflection light curtain	E-32-R21
(e)		70 mm light bandwidth, clearance up to approx. 400 mm with E3X-DAS	Optical fiber for range detection	E32-ET16WR-1
(f)		For transparent hoses, to 1/2"	Liquid-level sensor	E32-ED36-1

Capable Optical Fiber Range

With our optical-fiber selector, you can choose the right optical fibers for your application. We have fibers resistant to chemicals, heat, vacuums; there are add-on lenses, mountings, protective hoses, tools and a huge quantity of different sensor heads to deliver a solution to the widest variety of applications.



Do you need assistance in selecting the right sensor for the job? We shall be delighted to help you select the perfect solution.

Optical-fiber technology for basic applications

You are looking for sensors with intuitive operation?

Your machines work at high speed?

You want your wiring costs to be as low as possible?

You expect full functionality in extremely small spaces?

You expect the greatest possible operational stability?

- ① **E3X-NA**
THE standard
- ② **E3X-NA-G**
Green light for more detection
- ③ **E3X-NA-F**
Extremely fast response time of 20 μ s
- ④ **E3X-NA-V**
IP67 protection with M8 connector

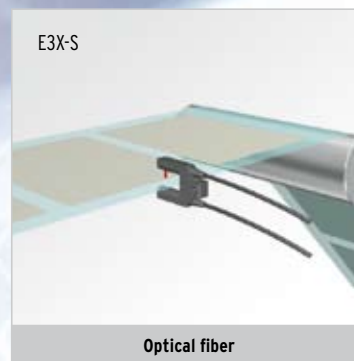
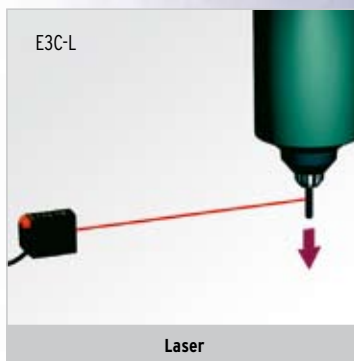
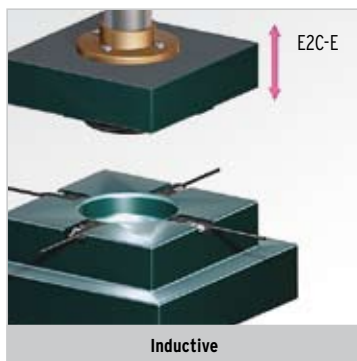


Compatible with ROHS

SMART & SEAMLESS - consistency in sensor technology!



**Unique:
3 procedures - 1 concept**



Optical fibers "Made in Germany"

With our production and development site near Stuttgart, we are close to our European customers and can always act quickly and reliably. Flexibility, customised product modifications, availability and quality are the keys to our international success.

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