

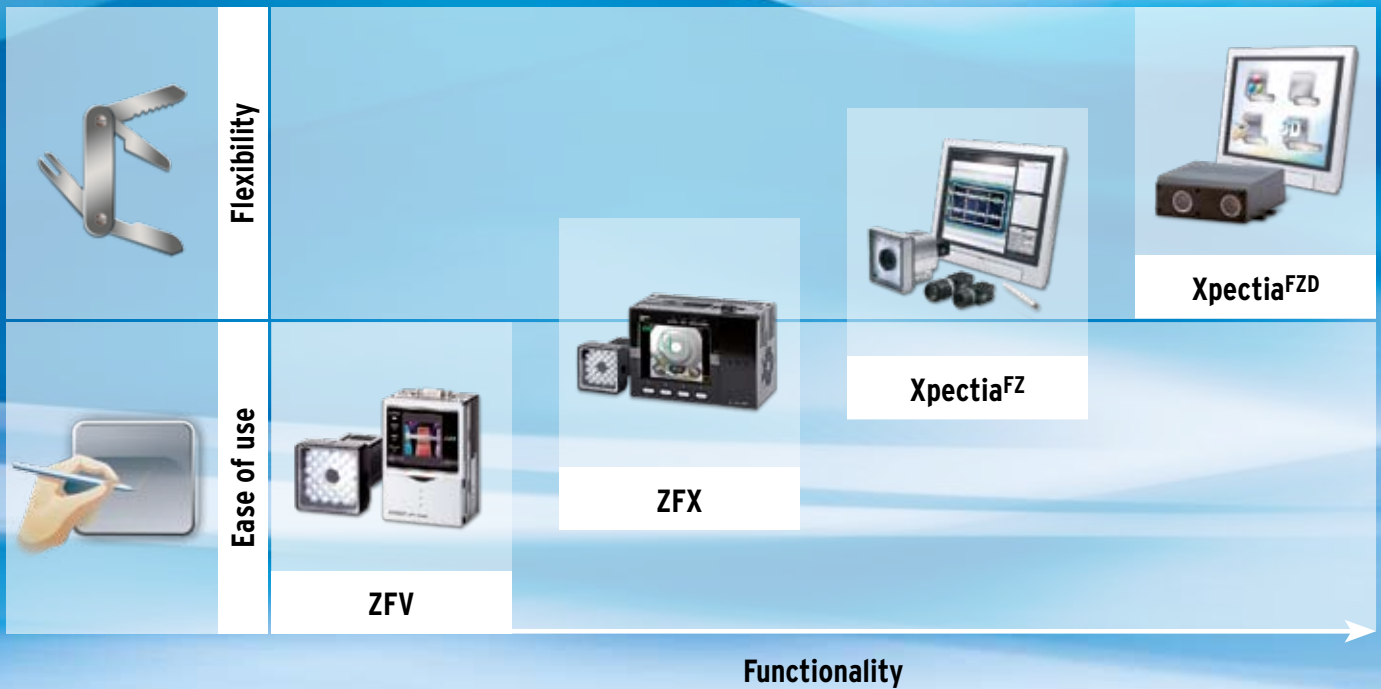
VISION SYSTEMS



User oriented vision

USER ORIENTED VISION
ANWENDERORIENTIERTE BILDVERARBEITUNG
VISIÓN ORIENTADA AL USUARIO
APPROCHE CENTRÉE SUR L'UTILISATEUR
ВЗГЛЯД С ПОЗИЦИИ ПОЛЬЗОВАТЕЛЯ
VISIONE ORIENTATA AGLI UTENTI
APPROCHE CENTRÉE SUR L'UTILISATEUR
ORIENTIERTE BILDVERARBEITUNG
USER ORIENTED VISION

VISION SYSTEMS



SIMPLICITY AND INTUITIVE USER GUIDANCE

The demand

The necessity for quality inspection and control in any production process is no longer a discussion point. The cost of non quality is much higher than the investment, which pays for itself within a short time. In order to further reduce the number and cost of defective goods, there is a clear trend from having just one inspection at the end of the process towards several quality checks within or even at the beginning of the process. The key technology that fills most inspection requirements is 'Machine Vision', but do all companies have the required know-how for vision applications in-house?

The approach

Omron offers a complete portfolio of vision products that solve this problem. Ranging from application-specific vision sensors up to PC-based vision systems, the portfolio has one common design rule: keep it simple. The built in monitors or touch screens are easy to use and avoid an additional PC for setting up while delivering immediate feedback on results. Moreover, users are shielded from the complexity of a vision application by intuitive user guidance that navigates them through the application without the need for expert knowledge on lighting, optics, filtering, etc..

CODE READERS



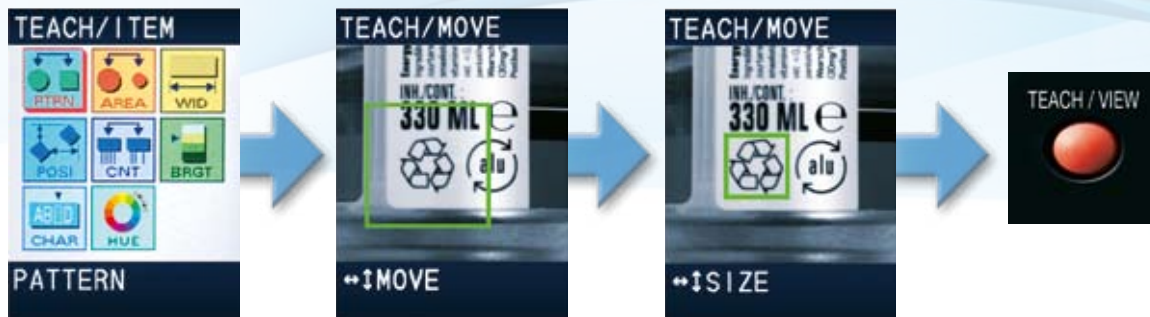
The solution

Furthermore, Omron's platform concept with controllers and cameras allows you to select the best configuration for your application in an easy and flexible way. Choose from the easy vision sensor ZFV, which offers an intuitive teach & go procedure. The new mid-range ZFX for advanced applications requiring features such as multiple inspections, position correction, intelligent image filtering and Ethernet communication. For even more challenging applications the high-end Xpectia combines the benefits of a compact system with the flexibility of a PC based platform. For code-reading look no further than the V400/V500.

Contents

- ▶ ZFV Vision Sensor 4
- ▶ ZFX Vision Sensor 6
- ▶ Xpectia Vision System 8
- ▶ Code Readers 10

1 Select your inspection tool > 2 Size and position inspection region > 3 Teach & Go



▲ Target - Teach - Go!

▲ Set-up in minutes

“EASY VISION – TEACH & GO”

YOUR BENEFITS

- Intuitive – „Teach & Go“ user interface
- Live – LCD display for setup and live feedback
- Versatile – 8 inspection tools (incl. search, char, edge, area, colour, etc.)
- Flexible – Adjustable working distance and area
- Fast – cycle time down to 4 ms
- Multiple – up to 8 simultaneous inspections

Set up in minutes

The ZFV is an innovative vision sensor to solve easy applications. It features a simple 3 step procedure to configure an inspection function, just Teach & Go.

The integrated LCD display provides a live image during set-up and operation, and gives an instant feedback during the inspection process. Moreover, a choice of controllers gives you the tools to perform everything from simple pattern recognition to complex inspection processes.

Colour and greyscale controllers and cameras are available. Using the colour version widens your choice of application and increases the stability of the inspection. The cameras have integrated lighting and lenses, which further increase the flexibility and simplicity to use the product.



- ▲ **Cap closure:**
The ZFV can inspect the gap between the cap and a certain position of the bottle, to verify it is properly closed.



- ▲ **Cap detection:**
The hue tool inspects colour differences in a plain colour work-piece. A false colour cap will be rejected.



- ▲ **Label inspection:**
The width tool can measure a label, to verify that it is not folded or cut.

YOUR BENEFITS

- Intuitive “Teach & Go” user interfaces
- Built-in LCD touch screen for easy setup and immediate feedback
- Remote setup and inspection via Ethernet
- Up to 20 image processing tools, 32 inspections per image
- Auto-adjustment functions for easy image setup
- 1 or 2 cameras, colour or monochrome
- Combination of code reading (barcode, datamatrix) and powerful inspection items



- ▲ Multiple inspections ensure the reliable identification of a brake system for assembly, e.g. detection of the correct model, presence of left and right parts, etc.



- ▲ Inspect the position of the cap and the correct label placement of perfumes.



- ▲ Ethernet communication for configuration and data export, e.g. images, results.

Optimize your set-up with a click

Auto selection of colour filter: Select the optimum colour filter.



Step 1

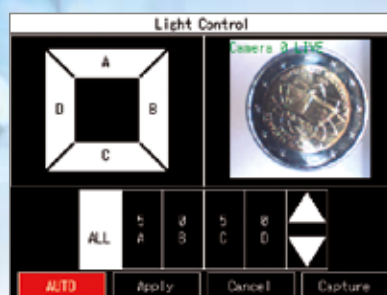
Just press AUTO to automatically improve the contrast.



Step 2

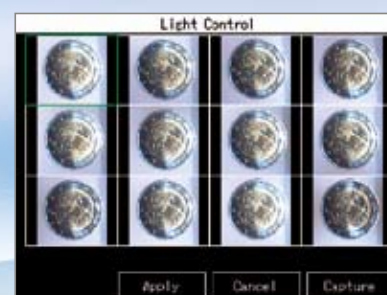
The optimum filter is automatically selected from seven colour filters.

Auto set-up for light control: Set the perfect lighting in no time at all.



Step 1

Just press AUTO to automatically obtain optimum lighting measurements.



Step 2

Choose the correct lighting with just one click.

HIGH PERFORMANCE WITH AN EASY TOUCH

Touch, Connect and Go

Omron's ZFX advanced vision sensor takes you into a new dimension of intuitive user guidance – Touch, Connect & Go. The built-in touch screen is easy to use and saves the user from getting involved with the complex technical details. It provides immediate feedback with live images and clear system messages during the entire setup and inspection cycle. The ZFX offers assistance for lighting, filtering and automatic setting of parameters, which navigate users through the vision application.

The ZFX vision sensor comes as a one or two camera system, offering monochrome or colour functionality.

One sensor fits all

Pick the camera and controller suitable for the job. This guarantees maximum flexibility and helps minimise your investments.

The range of cameras provides a field of view from 10 mm to 150 mm, which allows you to inspect even large workpieces that previously could not be handled. The ZFX features cameras with integrated lighting and a lens with adjustable focus. A c-mount camera, providing any lens/light combination, and a choice of controllers (with and without code reading) are also available. Depending on the connected camera, the controllers can work in monochrome or colour mode. The ZFX-C20/25 represents a two camera system for advanced applications.

YOUR BENEFITS

- True real colour system for stable inspection
- Works close to the human eye
- High resolution cameras (5 million pixels)
- 2D and 3D inspections
- Touch-screen for easy operation
- Industry grade PC platform
- Economic: simple set-up and maintenance
- Fit for purpose: the right hardware for the application
- Flexible: customizable to your needs
- Future-proof



▲ Standard colour system:

Low contrast → internal processing using a filtered monochrome image



▲ Xpectia:

High contrast → stable inspections using real-colour sensing

▲ High Dynamic Range Function

The surface of the workpiece is accurately reproduced and compensates over- and underexposure within the same image.



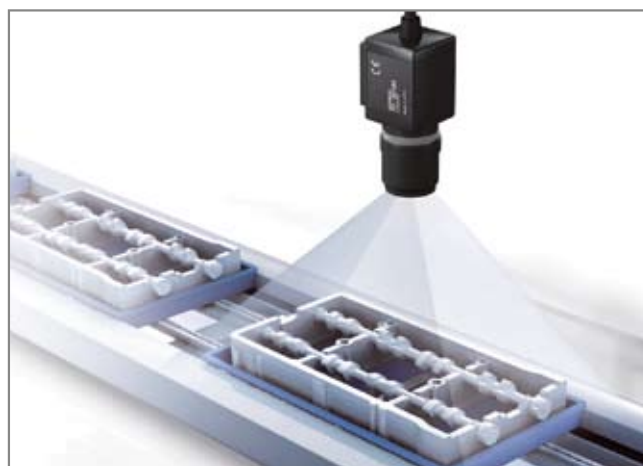
INSPECTION BEYOND EXPECTATION

Performance in touch with simplicity

Omron's Xpectia is defining a new class of vision systems: real colour sensing, high resolution, 3D functionality and intuitive user guidance combined, provides you pure simplicity, no matter how complex the inspection.

Like the human eye, Xpectia can identify any object with any colour mix, at any distance and any size. It features an easy-to-use touchscreen and "Auto" functions, making vision applications simple and straightforward. It is targeting high end vision applications.

Xpectia is available with a range of controllers with and without the touchscreen, and supports up to four cameras. By combining the benefits of compact system with the power and flexibility of an industrial PC platform, it is, quite simply, the best of both worlds.



▲ Precise inspection

The compact and fast 5 MPixel camera allows the inspection of large objects with high accuracy as well as small objects with ultra-high accuracy.

YOUR BENEFITS

- Easy adjustment of parameters
- Accurate reading of barcode and datamatrix
- Reads directly printed marks on any material
- Eliminate the effects of print quality and work piece changes



ONE TOUCH TO GET THE CODE

One-step code reading

Omron's V400 and V500 platforms combine accurate barcode/datamatrix reading with utmost simplicity. Just press a button and you automatically adjust the settings for light and filter. V400 can read any code, independent of the quality or changing environment. Various versions are available depending on the application.

- V400-F is a fixed datamatrix code reader targeting direct print marks, available as C-mount version or with integrated lens and lighting.

- V400-R is an ultra-small multi-code reader that reads barcode and datamatrix code targeting labels and paper in clocked processes.

- V400-H is a handheld datamatrix code reader for mobile use.

- V500 is a barcode reader targeting logistic applications.

As with all of Omron's vision products, the V400 and V500 series are designed around simplicity and ease of use.



- ▲ **High accuracy**
A high level of accuracy is achieved by combining the industry's most advanced reading algorithm with an optical system optimized for reading directly marked codes.



- ▲ **High stability**
Even codes printed onto materials with varying reflectivity, such as metals, printed wiring boards, and glass, can be read with excellent accuracy.

OMRON EUROPE B.V. Wegalaan 67-69, NL-2132 JD, Hoofddorp, The Netherlands. Tel: +31 (0) 23 568 13 00 Fax: +31 (0) 23 568 13 88 www.industrial.omron.eu

Austria

Tel: +43 (0) 2236 377 800
www.industrial.omron.at

Belgium

Tel: +32 (0) 2 466 24 80
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Tel: +33 (0) 1 56 63 70 00
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Tel: +49 (0) 2173 680 00
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Hungary

Tel: +36 1 399 30 50
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Tel: +31 (0) 23 568 11 00
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Norway

Tel: +47 (0) 22 65 75 00
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Poland

Tel: +48 (0) 22 645 78 60
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Tel: +351 21 942 94 00
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Russia

Tel: +7 495 648 94 50
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Sweden

Tel: +46 (0) 8 632 35 00
www.industrial.omron.se

Switzerland

Tel: +41 (0) 41 748 13 13
www.industrial.omron.ch

Turkey

Tel: +90 216 474 00 40
www.industrial.omron.com.tr

United Kingdom

Tel: +44 (0) 870 752 08 61
www.industrial.omron.co.uk

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