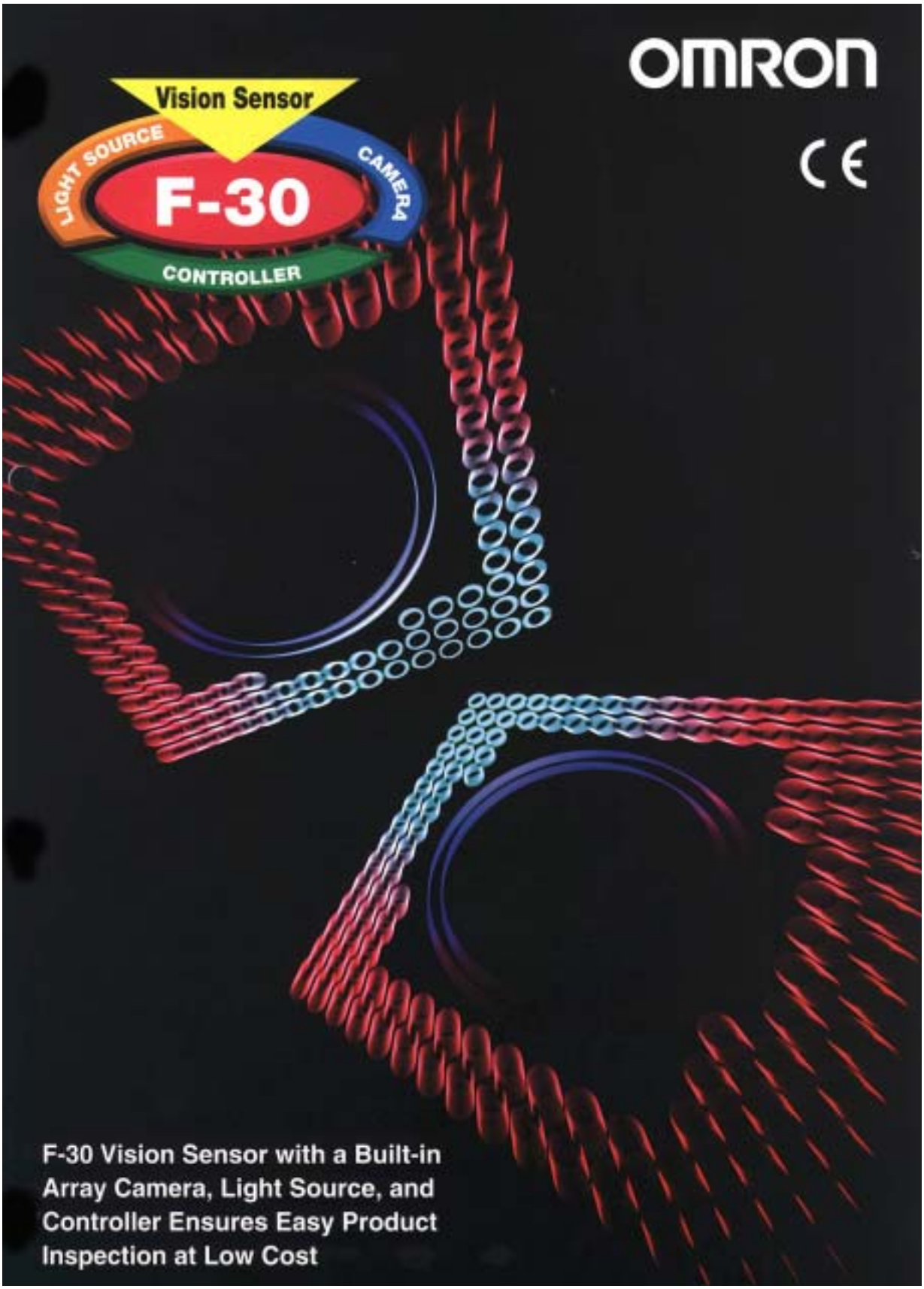

OMRON
CE
Vision Sensor
LIGHT SOURCE
CAMERA
F-30
CONTROLLER
F-30 Vision Sensor with a Built-in Array Camera, Light Source, and Controller Ensures Easy Product Inspection at Low Cost

LIGHTS, CAMERA, ACTION

A Complete Vision Sensor Now Self-contained Within a Camera

There have been increasing demands for a low-cost vision sensor. To meet the demands, OMRON has developed the industry's first vision sensor with a built-in array camera, light source, and controller nicely packaged together.

A conventional vision sensor requires separate components demanding professional knowledge of focal length, lighting requirements, and complicated function settings. The F-30 incorporates all the necessary components to perform automatic visual inspection allowing ease of installation and ease of setup. In addition, its physical size offers space savings.

Patent pending

Anyone Can Use the F-30 with its User-friendly Setup

Ease of installation

Ease of Setup

Space-saving

Vision Sensor with a Built-in Array Camera, Light Source, and Controller

A camera, light source, and controller are built into the F-30, making it possible to install the F-30 with ease and eliminating camera and light source adjustments.

Auto Teach

With the press of a button, the "Auto Teach" function memorizes the necessary image data and automatically sets the high/low limits. Furthermore, sensing conditions can be manually set individually.

Stable Sensing

OMRON's unique optical construction makes it possible for the F-30 to detect glossy objects. This is because the light source does not allow the glossy objects to cause irregular reflection, thus offering a wide range of applications.

Compact Size

The compact body (70 x 72 x 139 mm) saves space and wiring effort, and eliminates the requirement of an external controller.

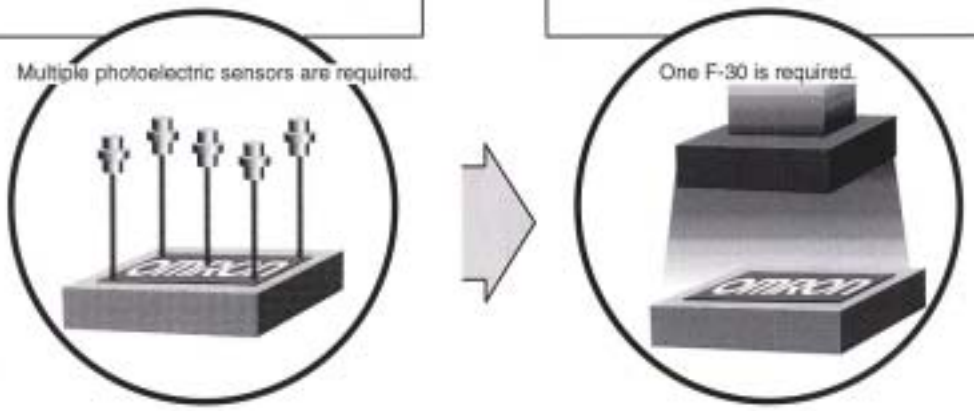
Advantages of Using an F-30 Over Photoelectric Sensors

Photoelectric Sensor

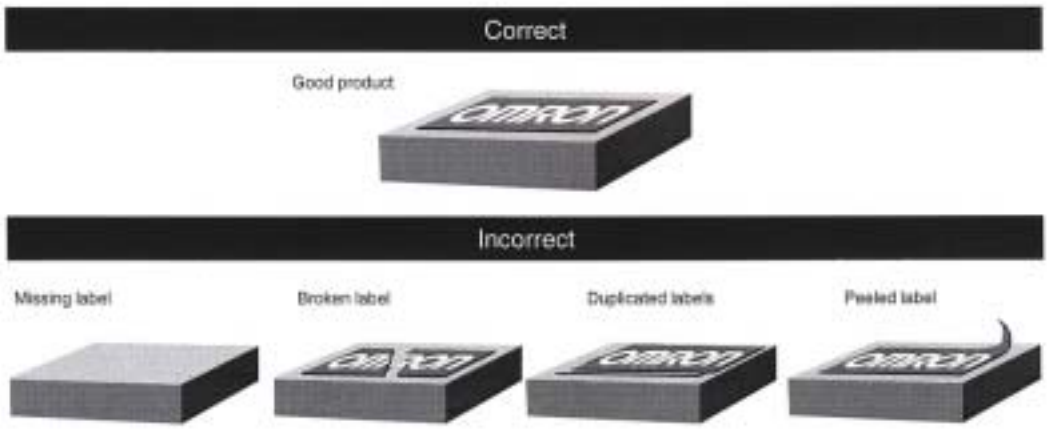
- Multiple sensors are required to solve most inspection applications.
- Sensors require high accuracy positioning for stable detection.
- Sensors require complex adjustments for each type of sensing object.

F-30 Solution

- Only an F-30 will perform multiple inspections within a specified field of view.
- The F-30 performs an inspection regardless of the orientation and placement of the part.
- The F-30 projects an image of the sensing area on a display monitor and is easily configured with a hand-held Teach Pendant.

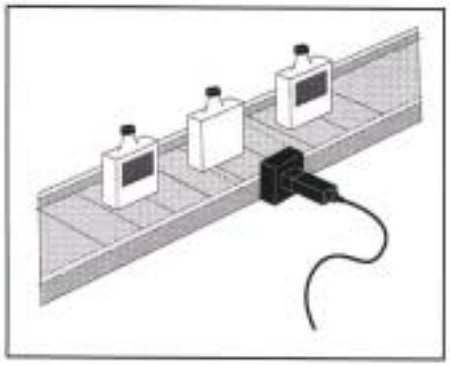


■ Example Application: Label Inspection

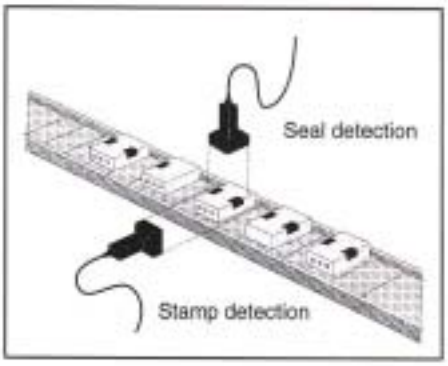


F-30 Application Examples

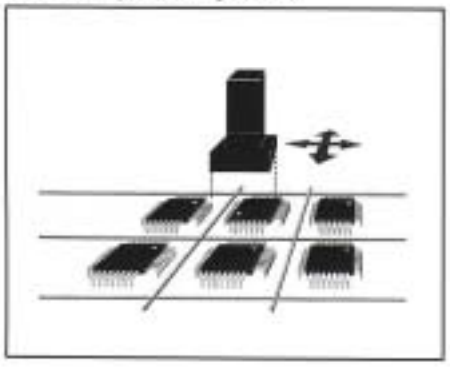
Label Detection



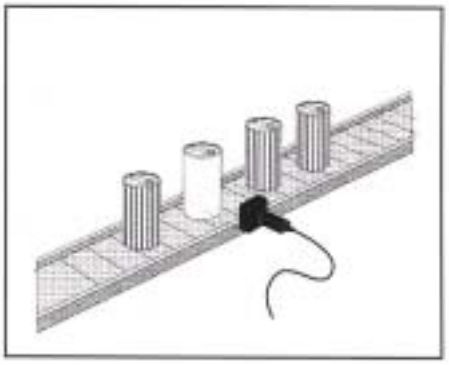
Seal Detection/Stamp Detection



Orientation Inspection by Detecting Polarity Mark

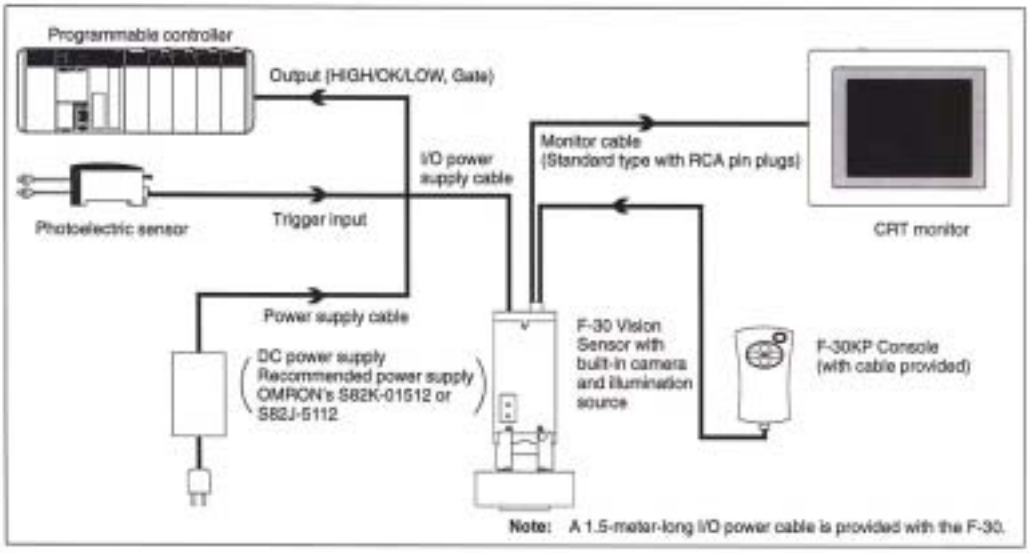


Sorting by Pattern

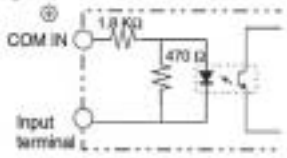
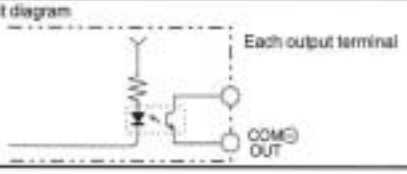


- Presence/Absence of mounted components
- Presence/Absence of IC laser marks
- Presence/Absence of flashing on injected molded parts
- Presence/Absence of components within a sub-assembly (i.e., gasket, clip, O-ring)
- Dimensional verification
- Discrimination of part direction in feeders
- Discrimination of foreign parts in feeders

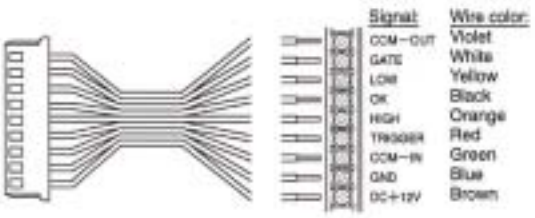
■ System Configuration



■ I/O Interface

Item		Specification
Input specification	Number of input points	1 (trigger input)
	Input voltage	12 to 24 VDC ±10%
	ON current	3 to 10 mA
	ON voltage	8.8 V
	OFF current	1 mA min.
	OFF voltage	4.5 V min.
	Internal circuit diagram	Internal circuit diagram 
Output specification	Number of output points	Discrimination output: 3 points (HIGH, OK, or LOW) Control output: 1 point (gate)
	Output voltage	12 to 24 VDC ±10%
	Load current	50 mA max.
	ON residual voltage	3 V max.
	OFF leakage current	0.4 mA max.
	Internal circuit diagram	Internal circuit diagram 

■ I/O Power Supply Cable Terminal Arrangement

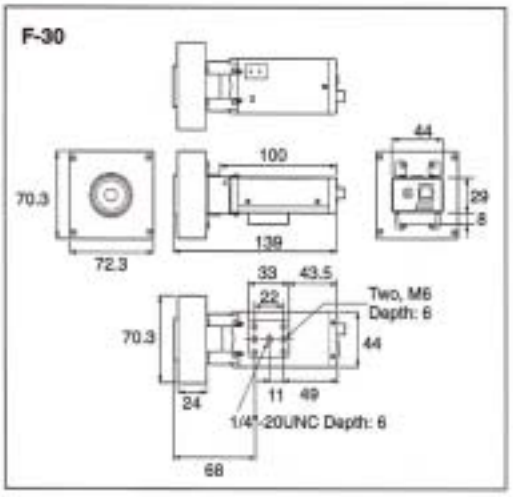


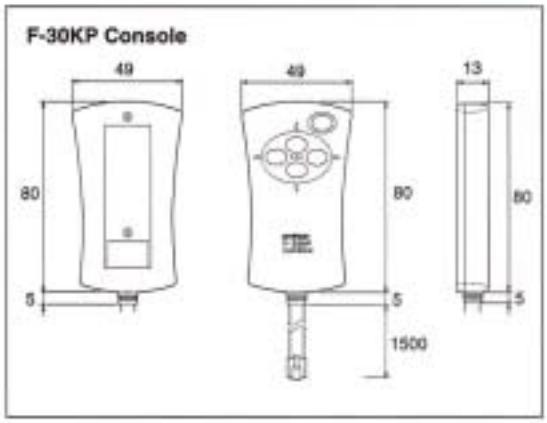
■ Specifications

Item	Specification
Criteria method	Binary image area measurement (256 levels)
Measurement surface	White or black (selectable)
Field of vision	50 x 50 mm (at working distance=115 mm; with an underscan monitor)
Camera setting distance	100 to 130 mm
Setting method	1. AUTO (easy setting) / 2. MANUAL (individual setting)
Operation method	Symbolic menu selection
Window	Single rectangular window
Binary level	256 levels
Processing speed	50 ms max. (at shutter speed=1/100 s max.)
Criteria result output	Three-level (HIGH, OK, or LOW) signal output and monitor display
Input interface	1 point (trigger), min. pulse width: 50 µs
Output interface	4 points (HIGH, OK, LOW, or gate)
Shutter timing	TRIGGER: External signal CONTINUE: Internal signal
Image element	CCD solid element (1/2-inch CCD)
Number of pixels used	510 (H) x 492 (V)
Processing pixels	407 (H) x 480 (V)
Lens mount	C mount
Scanning mode	2-to-1 interlace
Video output	EIA (RS-170 standard)
Image output	1.0 V (p-p) through 75-Ω pin jack
Setting memory	EEPROM (No. of write operations: 100,000)
Input power supply	+12 VDC ±10%
Power consumption	10 W max. (1.0 A max.)
Noise resistance	Normal mode: 400 V(p-p) Common mode: 1,500 V(p-p) Pulse width 1 µs: Leading edge of 1 ns
Operating temperature	0 to 40°C
Operating humidity	35% to 80% (with no condensation)
Operating environment	With no corrosive gas
Storage temperature	−20 to 60°C
Storage humidity	20% to 80% (with no condensation)
Vibration resistance	2G max., 10 to 150 Hz, 0.15-mm single amplitude
Shock resistance	200 m/s^2
Weight	Approx. 430 g

■ Dimensions

(Unit:mm)





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