ifm Vision Assistant Overview

The ifm Vision Assistant software is a free and highly versatile configuration tool that will help you get the most from your ifm vision system.

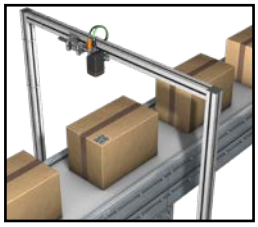
ifm Wizards simplify set-up

About 90% of applications that can be addressed with an ifm camera can be set up using the built-in wizards. These wizards walk the user through the necessary settings.

This step-by-step approach will minimize the learning curve for someone who is just getting into the vision world. For example, the wizard utilizes the system's autofocus capabilities to help determine exposure settings which optimize contrast.

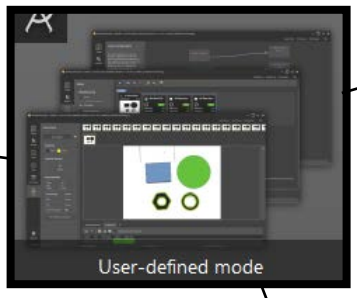
For more advanced users, ifm's Vision Assistant software also has an advanced user-defined mode designed to allow seasoned vision experts to get the very most from these systems.

O2I Wizards



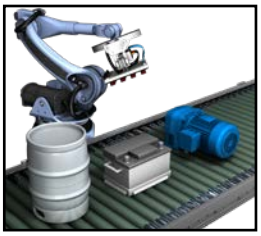
Logistics sorting
Single- or multi-code setup (can also provide barcode quality metrics)

Date code verification
Using built-in OCR (Object Character Recognition)



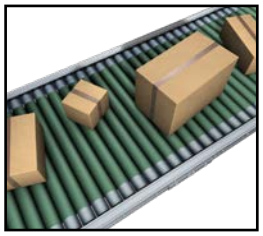
User-defined mode
Allows advanced users to develop custom rule-based applications

O3D Wizards



Robot pick and place
Detection of parts returns robotic coordinates

I the carton or case complete?
Color is irrelevant

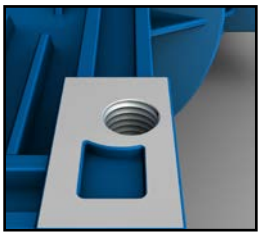


Dimensioning
Logistics – for sorting based on size

Level of solid products
Can determine percentage filled overall instead of just a single point

O2D Wizards

Detection of parts
Searches for a specific shape to see if the shape is in the image



Presence of threads
Searches the image to see if a BLOB is present

Rough or precise measuring

Object width/quality
By analyzing a BLOB

ifm Vision Assistant Overview

Added control

The software also controls things like focus, exposure time, gain, control of internal and external lighting and other settings.

For example, ifm's O2D and O2I cameras have four built-in lights (two polarized and two non-polarized), and with the O2D RGBW cameras you can test red, green, blue, white and even polarized lighting strategies to find the best fit for your application.

As seen by human eyes under white light

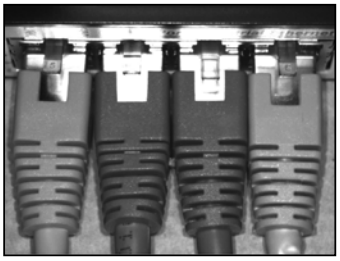
Objects may appear differently depending on the color of the light with which they're illuminated.

For example, here's how a set of differently colored plugs appears to human eyes when illuminated by white light.

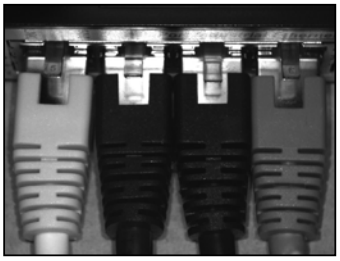
As seen by ifm Vision Assistant under white, red, green or blue light

The ifm Vision Assistant allows objects to be illuminated by white light as well as by monochromatic light. The choice of light color may aid in visualization of various elements of the object in question (for instance, a barcode printed on colored packaging).

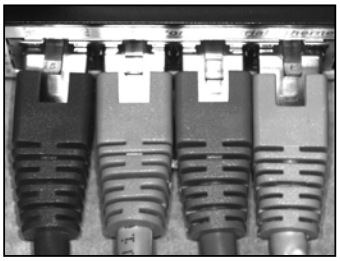
By way of illustration, here is how the same objects shown above might appear to the ifm Vision Assistant when illuminated under white, red, green or blue light. Note how the relative contrast between colors changes with different types of illumination.



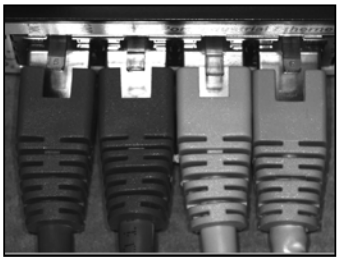
White light



Red light



Green light



Blue light

Simulation features

Additionally, Vision Assistant offers a simulator feature. To access the simulator, first open the software. Once on the home screen "Ctrl+M" will open the "manual connection" dialog box, where the user can select the type of device to test (for example "O2I5XX SimuLater"). This mode allows the user to explore the functions and tools that the software has to offer.

Please note that the simulator does not have the ability to upload an example image and build the rules from that image.

ifm efector
Machine Mount 1D/2D Barcode Scanner

O2I500

The ifm efector machine mount 1D/2D barcode scanner provides simple, capable, and reliable image-based barcode reading. The O2I barcode reader is fully self-contained, including the imager, evaluation unit, illumination, and outputs. The evaluation algorithm provides 4x higher resolution for reliable reading results, 10x faster evaluation for high-speed applications, and 10x faster setup to optimize production availability.

Features

- Convenient autofocus
- Alignment laser
- Four built-in lights (two non-polarized and two polarized)
- Two configurable outputs
- Onboard logic engine
- IP65
- Local device backup and cloning
- Optical Character Recognition (OCR)

Applications

- Barcode presence
- Barcode placement
- Barcode quality
- Identification and verification of text (via OCR)

ifm efector Machine Mount 1D/2D Barcode Scanner Selection Guide

Part Number	Price	Scanner Capability	Lens Type	Light Emission	Port Protocols	Lens Material	Dimensional Drawing
O2I500	$;00667x:	1D and 2D	Standard	Visible red	TCP/IP and EtherNet/IP	Gorilla glass	PDF
O2I501	$;00667y:			Infrared			PDF
O2I502	$;00667z:		Wide angle	Visible red			PDF
O2I503	$;;00667]:			Infrared			PDF

One-Button Teach Configuration

Simple applications for the O2I can be programmed by the single touch button located on the back of the O2I device.

Trigger and network settings are configured via a data matrix code generated by a smartphone app (iOS and Android).

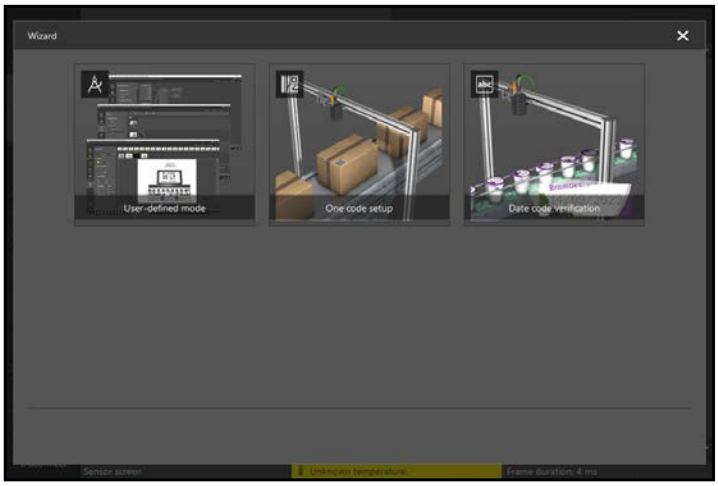
Android QR Code

iOS QR Code

O2I500 rear view showing touch button and LEDs.

Full-Featured Vision Assistant Configuration

ifm's free Vision Assistant configuration software has easy-to-use wizards to read a single code or to do date code verification via Optical Character Recognition (OCR). The software also allows the user to define the parameters for each specific application. The camera also has built-in logic to simplify the integration of the camera into the system.

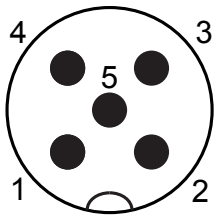


ifm efector
Machine Mount 1D/2D Barcode Scanner

ifm efector Machine Mount 1D/2D Barcode Scanners Technical Specifications					
Product Characteristics					
Image Resolution	(pixels)	1280 x 960			
Maximum Reading Rate	(Hz)	40			
Electrical Data					
Operating Voltage	(V)	18-30 VDC			
Current Consumption	(mA)	<400 @ 24VDC			
Reverse Polarity Protection		Yes			
Wavelength	(nm)	Red: 617 (O2I500 and O2I502) Infrared: 850 (O2I501 and O2I503)			
Image Sensor		CMOS image sensor (black/white)			
Inputs					
Trigger		External: 24V PNP/NPN (IEC 61131-2 Type 3) TCP/IP EtherNet/IP Continuous			
Outputs					
Number of Digital Outputs		2 (configurable)			
Output Function		24V PNP/NPN			
Maximum Current Load Per Output	(mA)	100			
Monitoring Range					
Field of View	(mm [in])	For Standard Lens (O2I500 and O2I501)		For Wide-Angle Lens (O2I502 and O2I503)	
		Operating Distance:	Field of View:	Operating Distance:	Field of View:
		85 [3.35]	28 x 21 [1.10 x 0.83]	35 [1.38]	25 x 19 [0.98 x 0.75]
		300 [11.81]	92 x 69 [3.62 x 2.72]	300 [11.81]	184 x 138 [7.24 x 5.43]
		500 [19.69]	152 x 114 [5.98 x 4.49]	500 [19.69]	304 x 228 [11.97 x 8.98]
		1000 [39.37]	302 x 227 [11.89 x 8.94]	1000 [39.37]	604 x 453 [23.78 x 17.83]
Operating Distance	(mm)	>85 [3.35]		>35 [1.38]	
Image Resolution	(pixels)	1280 x 960			
Autofocus Type		Mechanical autofocus			
Readable Codes		1D: Interleaved 2-of-5; Industrial 2-of-5; Code 39; Code 93; Code 128; Pharmacode; Codabar; EAN8; EAN8 Add-On 2; EAN8 Add-On 5; EAN13; EAN13 Add-On 2; EAN13 Add-On 5; UPC-A; UPC-A Add-On 2; UPC-A Add-On 5; UPC-E; UPC-E Add-On 2; UPC-E Add-On 5; GS1 DataBar Omnidirectional; GS1 DataBar Truncated 2D:GS1 DataBar Stacked; GS1 DataBar Stacked Omnidirectional; GS1 DataBar Limited; GS1 DataBar Expanded; GS1 DataBar Expanded Stacked; GS1-128; MSI Barcode; Datamatrix (ECC200); PDF-417; QR; Micro-QR; Aztec Code; GS1 ECC200; GS1 QR Code; GS1 Aztec Code			
Maximum Inclination to the Image Plane	(°)	45			
Interfaces					
Communication Interface		Ethernet			
Transmission Standard		10Base-T; 100Base-TX			
Transmission Rate		10 Mbps; 100 Mbps			
Protocol		TCP/IP; EtherNet/IP			
Factory Settings		IP address: 192.168.0.69 Subnet mask: 255.255.255.0 (Class C) Gateway IP address: 192.168.0.201			
Operating Conditions					
Ambient Temperature		-10 to 50°C [14 to 122°F]			
Storage Temperature		-40 to 70°C [-40 to 150°F]			
IP Rating		IP65			
Tests/Approvals					
Notes on Laser Protection		Caution: Laser light, laser class: 1			
Mechanical Data					
Weight	***(g [lb])***	601 [1.32]			
Material		Housing: Diecast zinc powder coated; Front lens: Gorillaglas; LED window: PC; Pushbuttons: POM			

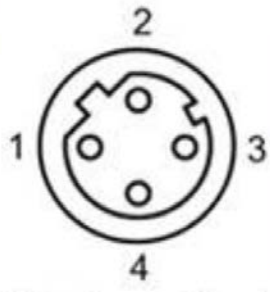
ifm efector
Machine Mount 1D/2D Barcode Scanner

Electrical Connections – Supply



M12 5-Pin Male Connector	
1	+24VDC
2	Trigger input+
3	0V-
4	Switching output 1, configurable
5	Switching output 2, configurable/ trigger output with external illumination

Electrical Connections – Ethernet



M12 4-Pin Male (D-coded Ethernet)	
1	TxD+, transmit data +
2	RxD+, receive data +
3	TxD-, transmit data –
4	RxD-, receive data –

Accessories

O2I Accessories Selection Guide			
Part Number	***Price***	***Description***	***Drawing***
E2D500	$667_:	Right-angle bracket for 12mm rod	PDF

E2D500

E21112

316L Stainless Steel Rod Selection Guide				
Part Number	***Price***	***Diameter (mm [in])***	***Length (mm [in])***	***Drawing***
E21112	$-66iq:	12 [0.5]	200 [7.9]	PDF
E21113	$-66is:	12 [0.5]	300 [11.8]	PDF