

iei®



Industrial Camera

# *Machine Vision*

[www.ieiworld.com](http://www.ieiworld.com)



# Industrial Camera & Barcode Reader

## IEI MV System Components

Machine vision system needs more than just a camera, lens and light source. A stable vision system also requires computers for handling data transfer and image processes. Our goal is to provide compatible and solidify vision system which can greatly reduce your development time.



### • Camera

The architecture of the IEI Camera is based on USB3 Vision and GenICam standard, which offers you compatible interface with name-brand machine vision software. The plug and play USB3 interface can easily reduce the complex of vision system.

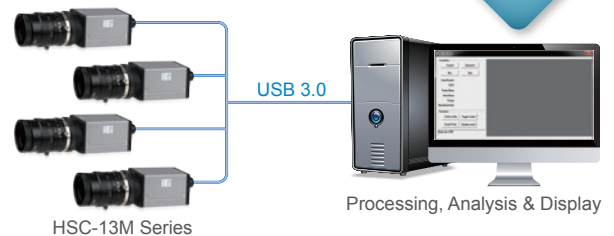
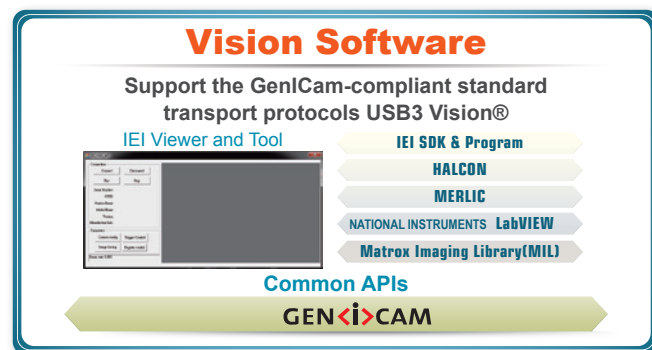
IEI has developed lots of customized optical imaging products and has lots of patents (barcode) in the image algorithm. IEI, now, has the ability to customize image preprocessing and camera design and manufacturing.

### • Industrial Computer

IEI offers high-quality and reliable industrial computers which are designed to against extreme environment to fulfill factory requirements. With high compatibility and performance, IEI industrial computers are suitable to be used with machine vision system. Additionally, the flexible expansion interface allows installation of add-on cards and peripheral devices such as PoE card, I/O board and motion board for different application environment.

### • Software

IEI offers viewer and tools for you to configure camera parameters to capture and display images, and to evaluate the camera. If your current inspection software does not support USB3 Vision, IEI also provides a powerful SDK for you to develop your software to access IEI cameras.



### MVS-100-Q170

- 6th Gen Intel® Core™ i7 / i5 processor platform with Intel® Q170 chipset and DDR4 memory
- 16-bit photocoupler-isolated digital I/O
- Great flexibility for hardware expansion
- 4 x Gigabit PoE (compliant with IEEE 1588/IEEE 802.3 af)
- Rich high-speed I/O interfaces on one side for easy installation
- 4 x USB3.0

*Preliminary*



### TANK-870-Q170

- 6th Gen Intel® Core™ i7 / i5 processor platform with Intel® Q170 chipset and DDR4 memory
- Triple independent display with high resolution support
- Rich high-speed I/O interfaces on one side for easy installation
- On-board power connector for providing power to add-on cards
- Great flexibility for hardware expansion
- 4 x USB 3.0





## TANK-870e-H110

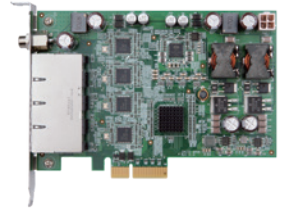
- 6th Gen Intel® Core™ i7 / i5 processor platform with Intel® H110 chipset and DDR4 memory
- Support dual display VGA+HDMI
- On-board internal power connector for providing power to add-on cards
- Great flexibility for hardware expansion
- 4 x USB 3.0



## IPCIE-4POE

### PoE Card

- PCI Express® x4 compliant
- Support for IEEE 802.3af for PoE (Power over Ethernet) with 15.4 watts per port
- Support link aggregation/jumbo frames (9 Kbyte)
- Supports 12V~24V AT/ATX DC input power



# Camera Applications

## • PCBA Production & Inspection

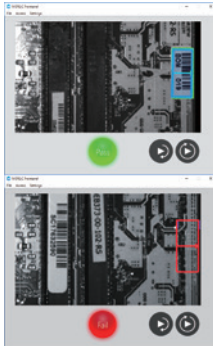
Industrial 4.0 is to implement a low volume and flexible manufacturing system. In electronics production lines, a variety of PCBAs can be produced, and a flexible inspection system for checking various PCBA components is the key to ensure the efficiency and effectiveness of mixing production.

Machine vision can bring great improvement on quality control of production lines. Almost all of the manufacturing processes need appearance inspection to check for defects, position, orientation...etc. to ensure devices such as motherboard, PCB have all components place on the accurate locations.



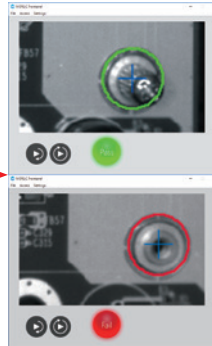
## • Motherboard Appearance Inspection

### Barcode Position



### Barcode Position

### Screw Positioning



### Screw Positioning

#### Functions:

- (1) BGA orientation
- (2) QFP shift
- (3) QFN missing
- (4) Screw missing
- (5) Label missing

#### Hardware Spec:

- 1 x HSC-13M3-O
- C-Mount 8mm lens
- TANK-870-Q170 i7 CPU IPC with I/O card

## • PCB Appearance Inspection

### Barcode Recognition



### Parts Absence

### Label Positioning



### OCR

#### Functions:

- (1) Pin missing
- (2) Barcode reading
- (3) Label missing
- (4) OCR
- (5) Part missing
- (6) Part shifting

#### Hardware Spec:

- 1 x HSC-13M3-O
- C-Mount 8mm lens
- TANK-870-Q170 i7 CPU IPC with I/O card

# Suggested IEI Products for Vision System

**USB  
VISION**



## • USB3 Vision Camera

Camera	Model Variants		Sensor Type	Sensor	Readout Method	Resolution [px]	Pixel Size [μm]	Full Frames [fps] Max.	Release Date
	Mono	Color							
HSC-03C3-O		v	1/4" CMOS	PYTHON 300	Global Shutter	640x480	4.8 μm	815FPS	Coming Soon
HSC-03M3-O	v								
HSC-05C3-O		v	1/3" CMOS	PYTHON 500	Global Shutter	800x600	4.8 μm	545FPS	Coming Soon
HSC-05M3-O	v								
HSC-13C3-O		v	1/2" CMOS	PYTHON 1300	Global Shutter	1280x1024	4.8 μm	140FPS	Coming Soon
HSC-13M3-O	v								Jan-31
HSC-13M4-E	v		1/1.8" CMOS	E2V EV76C560	Global Shutter	1280x1024	5.3 μm	60FPS	Jan-31

## • I/O cards

### TB-EM16

#### Remote I/O Card

- Adopt MODBUS/RTU communication protocol
- RS-485 communication interface, even parity check bit, 1 stop bit
- 115.2Kbps data transmission rate. Max. transmission distance: 1000 m
- Up to 16 series connection



### TB-EM32-LAN

#### Ethernet Remote I/O Card

- 32 photocoupler-isolated inputs
- 32 photocoupler-isolated Open Collector outputs
- Adopt MODBUS /TCP communication protocol
- Ethernet communication interface, 10/100Mbps data transmission rate



## • IoT 1D/2D Barcode Reader

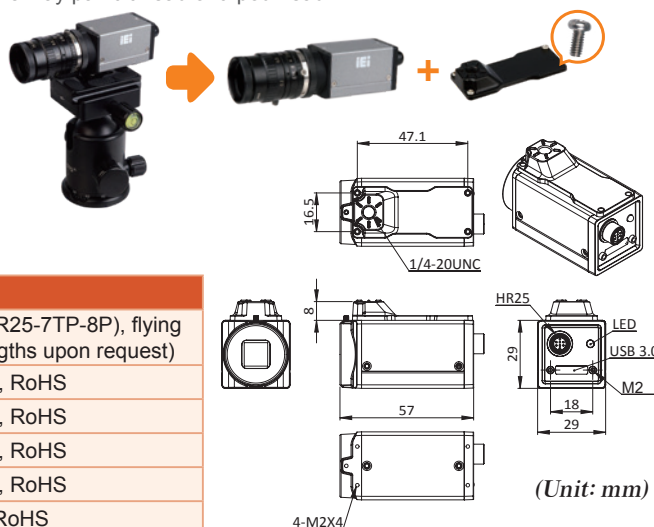
### ITDB-100 Series

- Connection I/O interface: USB, Ethernet TCP/IP
- Automatic or manual CMOS sensor configuration
- Region of Interest setting
- Support hardware and software trigger modes
- Support Android phones for remote monitoring and control



## • Dimensions & Flexible Design

Mounting bracket design allows it to be fixed on the ball head, 3-way pan/tilt head or tripod head.



# Ordering Information

Part No.	Description
32033-001000-100-RS	IO connecting cable with an 8 pin male connector (HR25-7TP-8P), flying leads in 3 meter lengths, 28AWG, RoHS (custom lengths upon request)
71003-M1620MPW2-RS	Camera lens, 2/3", focal length 16mm, F2.0 C-Mount, RoHS
71003-M3514MP-RS	Camera lens, 2/3", focal length 35mm, F1.4 C-Mount, RoHS
71003-SV1214V-RS	Camera lens, 1/2", focal length 12mm, F1.4 C-Mount, RoHS
71003-SV1614V-RS	Camera lens, 2/3", focal length 16mm, F1.4 C-Mount, RoHS
71003-SV2514V-RS	Camera lens, 1", focal length 25mm, F1.4 C-Mount, RoHS

#### Headquarters

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