

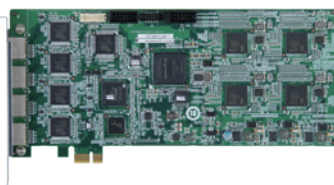
# Video Capture Solutions



IEI provides complete video/audio capture solutions to fulfill the demands of various applications. IEI video capture solution includes hardware compression video capture products and uncompressed video capture products. Hardware compression video capture products can encode full HD video in H.264 format or full HD/4K video in HEVC format in real time. Uncompressed video capture products can capture analog and digital video signal, and support resolution from SD to 4K video signal. These products include cards and boxes with a variety of interfaces such as PCIe, PCIe Mini and USB 3.1 Gen 1 (5Gb/s).

## Hardware Compression Video Capture Products

### ■ Full HD H.264 Compression Series



HDC-304E

## Uncompressed Video Capture Products

### ■ 4K



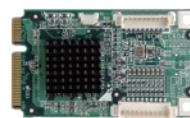
HSRC-301E

### ■ Full HD



HDB-301R

### ■ SD



IVCME-C604

## Video Capture Product Lines

Video Processing	Recording Format	Video Input Channel	Interface		
			PCIe	PCIe Mini	USB 3.1 Gen 1
Hardware Compression	H.264 1080p60	4ch HDMI	HDC-304E		
Software Compression	By software	4ch NTSC/PAL		IVCME-C604	
Uncompressed Video	By software	1ch HDMI	HSRC-301E		HDB-301R

# Hardware Compression Video Capture Solution

## ■ Low-power Consumption and High Video Quality

IEI hardware compression video capture cards offer an industry-leading low power consumption at full HD encoding with high picture quality. IEI HDC series products support frame processing of full HD video at 60p (1920x1080) to further improve picture quality and compress video in the H.264 format in real-time.

These products enable recording and streaming video with high quality in the application of video streaming, broadcasting, distance education, operating room and game recording.

## ■ Compatibility

IEI video capture products are compatible with most of the industrial motherboards and server motherboards. There are a lot of Linux versions in the world. IEI can help to provide correct drivers for you to use IEI video capture products. Furthermore, IEI can offer you the source code to develop your UI and application under specific agreement. IEI's video capture products are the perfect choice to build up your encoder system or solution.

## Applications: H.264 Video Encoder through HDC Capture Cards

### ■ Video on demand (VoD)

#### ◆ Distance Education/Training

An educational model is that the student and the teacher are in locations different from one another while the instruction is taking place. Ideal for this kind of education, the capture cards allow real-time capture or composition of two input sources, typically a live instruction with a powerpoint presentation.



#### ◆ Sport/Game Broadcasting

The broadcasting of sport/game events is the coverage of sports/ games as a television program. Spectators can engage in live conversations using broadcasting media. Through HD capture and broadcast, there is no virtually impact on the sport/game performance.

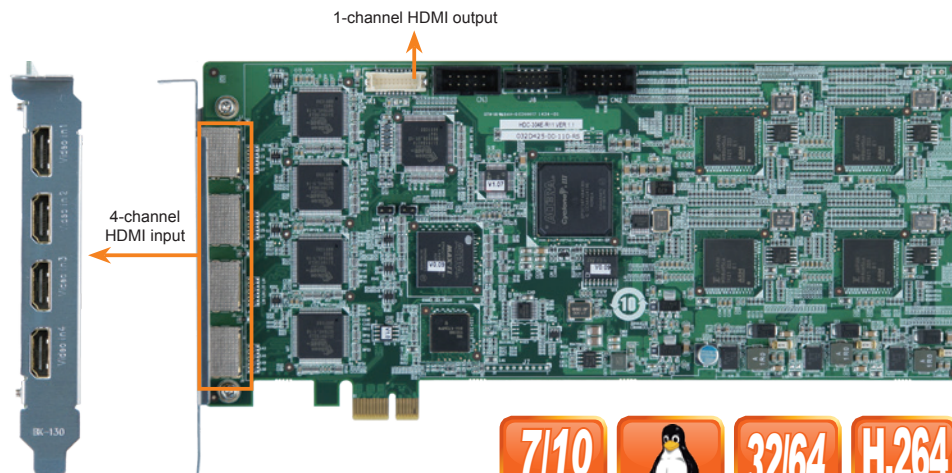
#### ◆ Traffic Broadcasting

The traffic systems now provide more informative and communicative broadcasting program that improve transport outcomes such as transport safety, transport productivity, travel reliability etc. Traffic media in vehicles or transportation is getting popular since wireless environment is getting mature.



# HDC-304E

PCI Express Video/Audio Capture Card with Four Channel HDMI Inputs and One Channel HDMI Output, 1920x1080@60p, and H.264 Hardware Codec



H.264 Hardware Codec



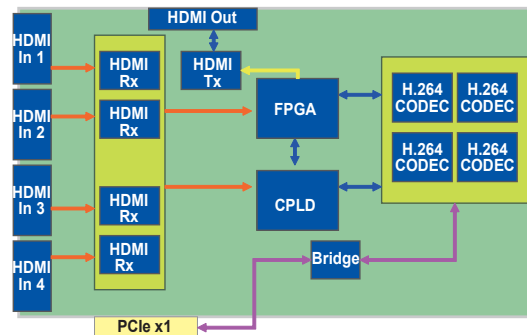
HDMI output cable



## Features

- 4-channel HDMI input with H.264 hardware compression and 1-channel HDMI output
- High quality video encoding or decoding up to 1080p60
- HDMI output port supports playback video file captured by HDC-30X series cards
- Enables the system to support up to 8-channel input by adding multiple video capture cards. The HDC-304E installed in IEI systems and backplanes could support over 8 channel inputs under Linux environment (supported capability may vary depending on customers' needs).
- Low power consumption
- SDK available for customer to create customized applications
- Windows/Linux OS supported

## System Block



## Specifications

### ◆ Interface

Video Input	4 channels
Video Input type	HDMI
Audio Input	4 channels
Audio Input Type	HDMI
Video Output	1 channel
Video Output Type	HDMI output cable kit
Audio Output	1 channel
Audio Output Type	HDMI output cable kit
Bus Interface	PCIe x1
Loop Through	1 channel

### ◆ Video Processing

Video Compression	H.264/AVC High Profile Level 4.2	
Input Resolution & Frame Rate	1920 x 1080 x 60p / 59.94p / 50p 1920 x 1080 x 60i / 59.94i / 50i 1280 x 720 x 60p / 59.94p / 50p	720 x 480 x 60i / 59.94i 720 x 576 x 50i
Record Resolution / Frame Rate / Bit Rate	1920 x 1080 x 60p / 59.94p / 50p, encoding video -bit rate from 6Mbps to 20Mbps 1920 x 1080 x 60i / 59.94i / 50i, encoding video -bit rate from 6Mbps to 20Mbps 1280 x 720 x 60p / 59.94p / 50p, encoding video -bit rate from 4Mbps to 20Mbps 720 x 480 x 60i / 59.94i, encoding video -bit rate from 2Mbps to 10Mbps 720 x 576 x 50i, encoding video -bit rate from 2Mbps to 10Mbps	

### ◆ Functionality

Multiple Card Support	2 cards, 8 channels
-----------------------	---------------------

### ◆ Audio Processing

Audio Compression	MPEG-1 Audio Layer 2
Bit Rate	256k

### ◆ System Requirement

System	x86 PC compatible computer, Intel® Pentium® 4 2.0GHz or above for video record Recommends using a DXVA or CUDA capable graphics card for real-time video playback
Memory	1GB or more

### ◆ Software Support

OS Support	Microsoft Windows 7/10 (32-bit & 64-bit) Linux: Ubuntu 16.04 (64-bit) Kernel version: 4.4.0-21 x64
SDK	Windows: Provides SDK and demo program with sample source code Linux: Provides SDK and demo program with sample source code

### ◆ Others

Dimensions	230 mm x 116 mm
Operating Temperature	0°C ~ 65°C, non-condensing
Power Consumption	12.7W (12V@0.61A, 3.3V@1.63A)

## Packing List

1 x HDC-304E capture card	
1 x HDMI output kit	1 x QIG

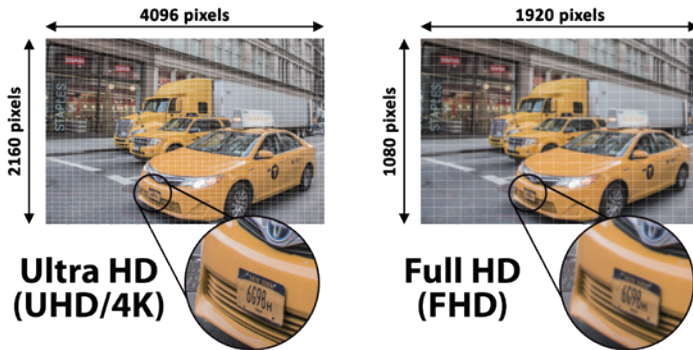
## Ordering Information

Part No.	Description
HDC-304E-R11	PCI Express video/audio capture card with four channel HDMI inputs and one channel HDMI output, 1920x1080@60p, and H.264 hardware codec

# Uncompressed 4K/HD/SD Video Capture Solution

4K is a new resolution standard designed for digital cinema and computer graphics. It has following advantages: higher image definition quality, more detailed picture, better fast-action and larger projection surface visibility. Recently, many camcorder manufacturers adopt 4K resolution to their recordings like Sony, Panasonic and so on.

IEI 4K uncompressed video capture card can import video from 4K camcorder into your media editing software on PC. It's the best and most efficient way to work 4K videos with your editing software.



Uncompressed 4K video capture card - HSRC-301E



Uncompressed Full HD video capture box - HDB-301R

## 4K Video Capture Application: Upgrade from SD to 4K Resolution

### ■ Post-production

IEI HSRC-301E is the 4K video capture and playback card, supporting editing and video software which is compatible with DirectShow. You can do the real-time workflows in editing software while connecting 4K camcorder to IEI 4k uncompressed video capture card. HSRC-301E is a perfect part of your workflow!



### ■ 4K Medical Video Identification

Medical devices, including microscopes, endoscopes, true HD cameras, vision microscopes etc, are all going in the direction of 4K Ultra HD resolution. IEI 4K uncompressed capture card will be the perfect choice of your 4K medical video systems.



### ■ 4K Video Surveillance

#### ◆ Improved quality of video surveillance

4K has several advantages in terms of video quality and resolution. More pixels added into the image allow the users to zoom into the picture without sacrificing image quality, therefore making this technology optimal for security. Covering a large warehouse or busy hallways would be easier with the added resolution. The IEI 4K uncompressed video capture card with smart surveillance software could be used in the applications like airports, shopping malls, mega stores and so on.

One 4K camera with IEI 4K uncompressed video capture card can help magnify and positively identify small details like a face, an unattended package or a car license plate.



# Uncompressed Video Capture Product Selection Guide



Products	HDB-301R	HSRC-301E
<b>◆ Input</b>		
Video Input Channel	1 channel	1 channel
Video Input Type	HDMI	HDMI 1.4a
Audio Input Channel	1 channel	1 channel
Audio Input Type	HDMI (stereo)	HDMI 1.4a (stereo)
<b>◆ No Delay Passthrough</b>		
Video Output Channel	1 channel	1 channel
Video Output Type	HDMI	HDMI 1.4a
Audio Output Channel	1 channel	1 channel
Audio Output Type	HDMI (stereo)	HDMI 1.4a (stereo)
<b>◆ PC Interface</b>		
Type	USB 3.1 Gen 1 (5Gb/s)	PCIe x4
<b>◆ Video Processing</b>		
Color Space	YUV 4:2:2	RGB / YUV
<b>◆ Video Input Resolution</b>		
Video Input Resolution	1920 x 1080 24p/25p/30p/50p/59.94p/60p 1680 x 1050 30p/60p 1440 x 900 30p/60p 1360 x 768 30p/60p 1280 x 1024 30p/60p 1280 x 800 30p/60p 1280 x 768 30p/60p	3840 x 2160 24p/25p/30p 1920 x 1080 24p/25p/30p/50p/60p 1920 x 1080 60i/59.94i/50i 1280 x 720 60p/50p
Video Preview	1920 x 1080 24p/25p/30p/50p/59.94p/60p 1680 x 1050 30p/60p 1440 x 900 30p/60p 1360 x 768 30p/60p 1280 x 1024 30p/60p 1280 x 800 30p/60p 1280 x 768 30p/60p	3840 x 2160 24p/25p/30p 1920 x 1080 24p/25p/30p/50p/60p 1920 x 1080 60i/59.94i/50i 1280 x 720 60p/50p
<b>◆ Audio Processing</b>		
Audio Sampling Frequencies	44.1k, 48k Hz	
<b>◆ Others</b>		
Dimensions	105 x 58 x 18 (mm)	155 x 111 (mm)
Operating Temperature	0°C - 60°C (32°F - 140°F), non-condensing	
Power Consumption	4W	15W
<b>◆ Software Support</b>		
OS Support	Microsoft Windows 7/8.1/10 (32-bit & 64-bit)	
	Linux: Ubuntu 14.04.2 (64-bit) (Kernel version: 3.16.0-30-generic)	Linux: Ubuntu 16.04 (64-bit) (Kernel version: 4.4.0-21-generic)
	Operating System that support UVC	N/A
SDK	Windows: Provides SDK and demo program with sample source code Linux: Provides SDK and demo program with sample source code	

# HDB-301R Capture Box



## HDB-301R USB 3.1 Gen 1 (5Gb/s) Capture Box

Plug & Play! Never Missing a Moment!

### 1080P60 High Resolution & Ultra-Low Latency

Every precious moment is captured by high definition 1080p resolution in 60 frames per second for you to enjoy high-speed and ultra-low latency video streaming.

The uncompressed video transferred from different HDMI devices (as consoles, camera...) could be real-time edited while maintaining the best possible quality and primitive color saturation. Get rid of unnatural, delay, cumbersome!



### Compatible Software Tool

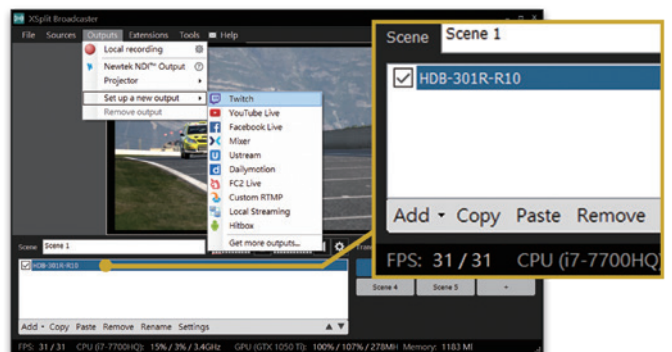
IEI HDB-301R is compatible with various live streaming software with DirectShow architecture, such as OBS, XSplit, PotPlayer, Wirecast, VLC media player, Skype, etc. You can use the software tools you are familiar with to play video games, watch HDMI while editing, recording, and streaming.



OBS



XSplit



### Continuous Video Streaming



#### Continuously Work

IEI HDB-301R housing is made by ruggedized aluminum with excellent hot dissipation! One of the youtubers has done an 8-hour continuous steaming and enjoyed ultra-low latency without stop!

## Best Applications



Game Streaming



Signage Streaming



Auction Streaming



Enterprise Training Streaming

## Perfect for Popular HDMI Video Devices



PC

Desktop PC or notebook,  
HDMI video output.



Game Consoles

PS4, Xbox One,  
Nintendo Switch.



Set-top Box

Apple TV, MOD, paid TV  
channels STB, satellite TV.



Player

DVD player, Blu-ray player  
or audio and video player,  
as Miracast wireless  
transmitter.



Photo Equipment

SLR Camera or Camera,  
as SONY.

*\* Please be noted: It can be set as  
HDMI 1080P output on the device.*

## HDB-301R Installation

### Installation 1: Capture Various HDMI Video Sources



### Installation 2: Capture Screen from HDMI Extended Desktop



**Requirement:**

1. Notebook with HDMI output
2. PC with dual display supported and at least one HDMI output

# HDB-301R

USB 3.1 Gen 1 (5Gb/s) Uncompressed Video/Audio Capture Box with One Channel HDMI Input and One Channel HDMI Bypass Output, 1920x1080@60p



## Features

- 1-channel HDMI input and 1-channel HDMI bypass output
- Capture High-Definition HDMI video to your PC
- Capture with USB 3.1 Gen 1 (5Gb/s) bandwidth, enabling you to capture 1080p video at 60fps
- Deliver uncompressed video to your PC with ultra-low latency
- Preview the video with its original color and high video quality
- For audio mastering 48kHz audio, provides the power you need to integrate into any audio environment
- Compatible with OBS, XSplit, PotPlayer
- Support Windows/Linux (Ubuntu)/MAC OS

## Specifications

### ◆ Interface

Input	Video input channel	1 channel
	Video input type	HDMI
	Audio input channel	1 channel
	Audio input type	HDMI (stereo)
No Delay Pass Through	Video output channel	1 channel
	Video output type	HDMI
	Audio output channel	1 channel
	Audio output type	HDMI (stereo)

### ◆ PC Interface

Type	USB 3.1 Gen 1 (5Gb/s)
------	-----------------------

### ◆ Video Processing

Color Space	YUV 4:2:2	
Video Input Resolution	1920 x 1080 24p/25p/30p/50p/59.94p/60p	1280 x 720 30p/50p/59.94p/60p
	1680 x 1050 30p/60p	1024 x 768 30p/60p
	1440 x 900 30p/60p	800 x 600 60p
	1360 x 768 30p/60p	720 x 576 50p
	1280 x 1024 30p/60p	720 x 480 59.94p/60p
	1280 x 800 30p/60p	640 x 480 60p
	1280 x 768 30p/60p	
	1280 x 768 30p/60p	
Video Preview	1920 x 1080 24p/25p/30p/50p/59.94p/60p	1280 x 720 30p/50p/59.94p/60p
	1680 x 1050 30p/60p	1024 x 768 30p/60p
	1440 x 900 30p/60p	800 x 600 60p
	1360 x 768 30p/60p	720 x 576 50p
	1280 x 1024 30p/60p	720 x 480 59.94p/60p
	1280 x 800 30p/60p	640 x 480 60p
	1280 x 768 30p/60p	
	1280 x 768 30p/60p	

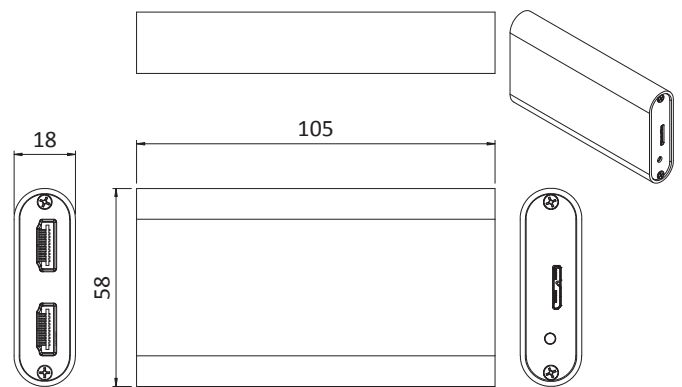
### ◆ Audio Processing

Audio Sampling Frequencies	44.1k, 48k Hz
----------------------------	---------------

## Machine Vision/Broadcast & Post Production



## Dimensions (Unit: mm)



### ◆ Preview System Requirement

System	Intel® Core™ i5-3400 or above
Memory	4GB or more

### ◆ Software Support

OS Support	Microsoft windows 7/ 8.1/10 (32-bit & 64-bit) Linux: Ubuntu 14.04.2 (64-bit) (Kernel version: 3.16.0-30-generic) macOS High Sierra (version 10.13) Operating System that support UVC
SDK	Windows: Provides SDK and demo program with sample source code Linux: Provides SDK and demo program with sample source code

### ◆ Others

Dimensions	105 mm x 58 mm x 18 mm
Operating Temperature	0°C ~ 60°C (32° ~ 140°F), non-condensing
Power Consumption	4W
Weight	112g

## Packing List

1 x HDB-301R	
1 x USB 3.1 Gen 1 (5Gb/s) cable	1 x QIG

## Ordering Information

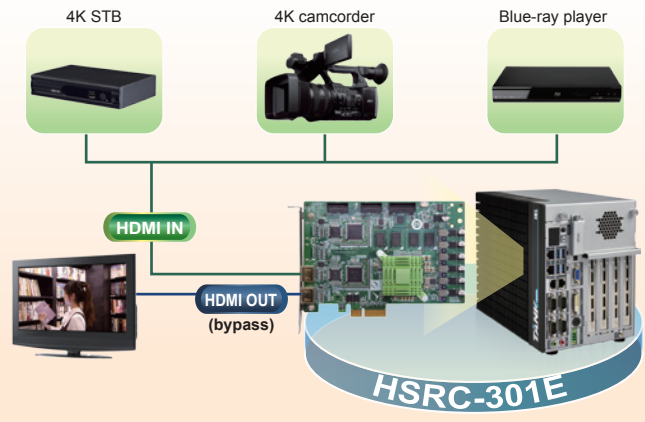
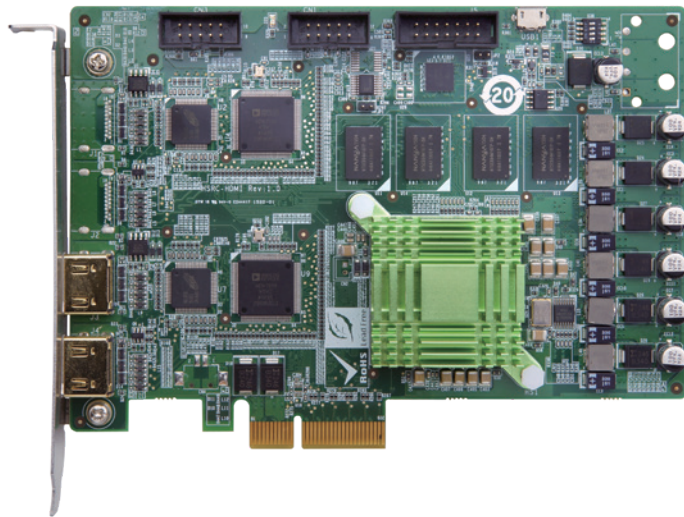
Part No.	Description
HDB-301R-R10	USB 3.1 Gen 1 (5Gb/s) Uncompressed video/audio capture box with one channel HDMI input and one channel HDMI bypass output, 1920x1080@60p



# HSRC-301E

PCI Express Uncompressed Video/Audio Capture Card with One Channel HDMI Input and One Channel HDMI Bypass Output, 4K@30p, 1920x1080@60p

## Machine Vision/Broadcast & Post Production



### Features

- 1-channel HDMI input and 1-channel HDMI bypass output
- Either one HDMI input supports 4K video signal
- Supports for 4:2:2 color spaces to provide the highest quality for your images
- HDMI bypass output supports low-delay video pass through up to 4K@30, so you can watch original video while doing video processing
- Designed for professional video, machine vision, broadcast & post production industries
- For multi-channel audio mastering, 24-bit 48kHz audio provides the power you need to integrate into any audio environment
- Windows/Linux OS supported

### Specifications

#### ◆ Interface

Input	Video input channel	1 channel
	Video input type	HDMI 1.4a
	Audio input channel	1 channel
	Audio input type	HDMI 1.4a (stereo)
No Delay Pass Through	Video output channel	1 channel
	Video output type	HDMI 1.4a
	Audio output channel	1 channel
	Audio output type	HDMI 1.4a (stereo)

#### ◆ PC Interface

Type	PCIe x4
------	---------

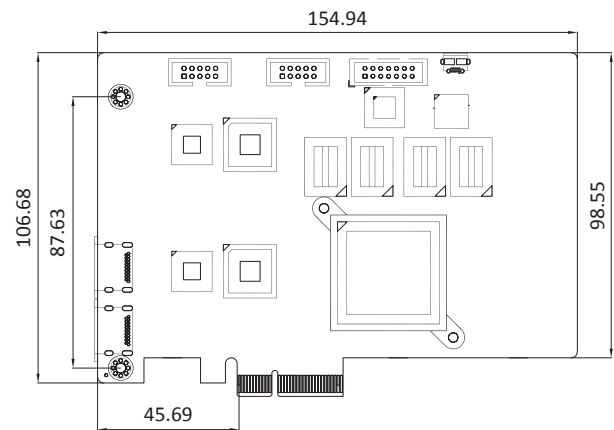
#### ◆ Video Processing

Color Space	RGB / YUV
Video Input Resolution	3840 x 2160 24p/25p/30p 1920 x 1080 24p/25p/30p/50p/60p 1280 x 720 60p/50p
Video Preview	3840x2160 24p/25p/30p 1920 x 1080 24p/25p/30p/50p/60p 1280 x 720 60p/50p

#### ◆ Audio Processing

Audio Sampling Frequencies	44.1k, 48k Hz
----------------------------	---------------

### Dimensions (Unit: mm)



#### ◆ System Requirement

System	Intel® Core™ i7-4790 or above
Memory	DDR3-2600 8G or more

#### ◆ Software Support

OS Support	Microsoft Windows 7/8.1/10 32-bit / 64-bit Linux: Ubuntu 16.04 (64-bit) (Kernel version: 4.4.0-21-generic)
SDK	Windows: Provides SDK and demo program with sample source code Linux: Provides SDK and demo program with sample source code

#### ◆ Others

Dimensions	155 mm x 111 mm
Operating Temperature	0°C ~ 60°C, non-condensing
Power Consumption	15W

### Packing List

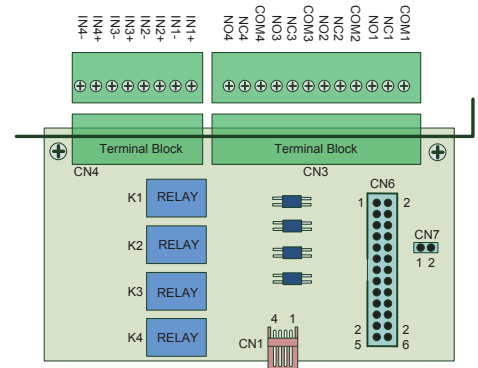
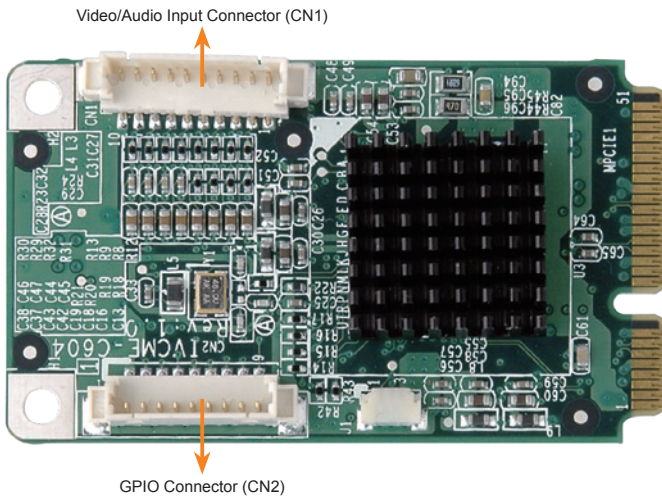
1 x HSRC-301E	1 x QIG
---------------	---------

### Ordering Information

Part No.	Description
HSRC-301E-R10	PCI Express uncompressed video/audio capture card with one channel HDMI input and one channel HDMI output, 4K@30p, 1920x1080@60p

# IVCME-C604

PCIe Mini Video/ Audio Capture Card with 4-Channel Video/ Audio Input, Total 120fps@D1 for 4 Channels (NTSC)



## Features

- Single card 4-channel composite video (NTSC/PAL) solution
- PCIe Mini card interface supported
- Compatible with Linux, Windows XP and Windows 7 (32-bit and 64-bit)
- Total 120fps @ D1 for 4 channels (NTSC)
- External GPIO daughter board with 4 inputs and 4 outputs (optional)
- SDK available for customer to create customized applications

## Specifications

### Interface

Video Input	4-channel composite video NTSC/PAL auto sensing
Video Input Type	BNC (BNC to DB-9 cable included)
Audio Input	4-channel analog
Audio Input Type	RCA (RCA to DB-9 cable included)
Bus Interface	PCIe Mini
Alarm IO	Yes

### Video Processing

Video Compression	Software compression	
Video Engine	1 x Conaxant CX25854	
Resolution	NTSC: 720 x 576	PAL: 720 x 576
	720 x 480	720 x 480
	720 x 288	720 x 288
	720 x 240	720 x 248
	352 x 240	
Frame Rate	NTSC: Total 120fps @ D1 for 4 channels PAL: Total 100fps @ D1 for 4 channels	

### Audio Processing

Audio Compression	Software compression
Sampling Rate	8kHz, 16kHz, 32kHz, 44.1kHz and 48kHz
Quantization	16-bit

### System Requirement

Platform	x86 PC compatible computer
Memory	512MB or above

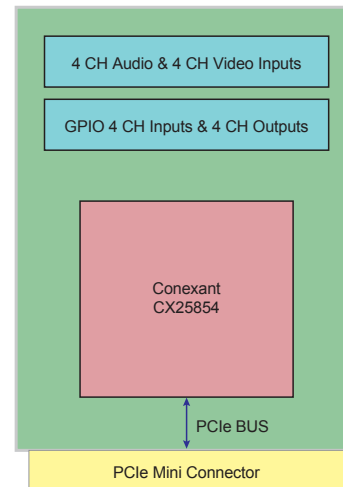
### Software Support

OS Support	Microsoft Windows 7 (32-bit & 64-bit) Linux: Ubuntu 14.04 (64-bit) Kernel version: 3.13.0-32-generic
------------	---

### Others

Dimensions	51 mm x 30 mm
Operating Temperature	0°C ~ 60°C, non-condensing
Power Consumption	1.65W (3.3V@0.5A)

## System Block



### Video/Audio Input Connector (CN1)

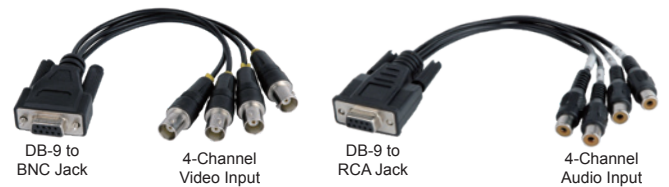
Pin No.	Signal
1	GND
2	Video In CH1
3	Video In CH2
4	Video In CH3
5	Video In CH4
6	Audio In CH1
7	Audio In CH2
8	Audio In CH3
9	Audio In CH4
10	GND

### GPIO Connector (CN2)

Pin No.	Signal
1	GND
2	DI1
3	DI2
4	DI3
5	DI4
6	DO1
7	DO2
8	DO3
9	DO4

## Packing List

- 1 x IVCME-C604 capture card
- 1 x BNC to DB-9 cable
- 1 x RCA to DB-9 cable
- 1 x Video/Audio input cable kit
- 1 x QIG



## Ordering Information

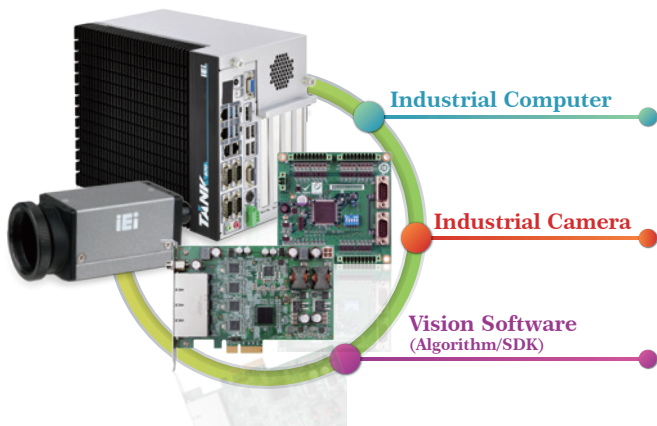
Part No.	Description
IVCME-C604-R10	PCIe Mini video/audio capture card with 4-channel video/ audio input, total 120fps@D1 for 4 channels (NTSC)
VIOCARD-GPIO-RS-R10	8 GPIO channels (4 digital inputs and 4 relay outputs)
32031-000100-100-RS	GPIO card to IVCME capture card connection cable

# Machine Vision Solution

## 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.

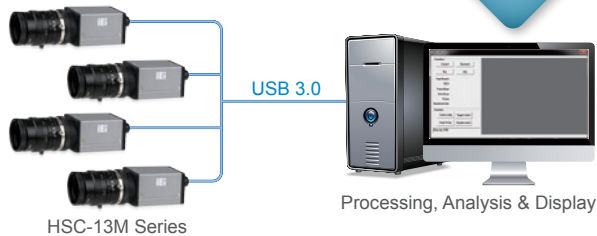
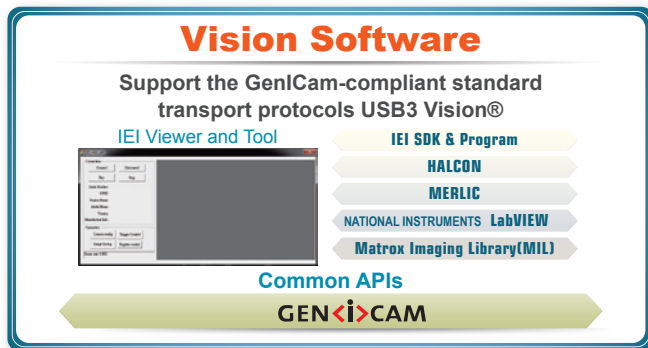
IEI has developed lots of customized optical imaging products and has lots of patents (barcode) in the image algorithm. IEI, now, has the ability to customize image preprocessing and camera design and manufacturing.

#### ■ 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.



### 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 3.1 Gen 1 (5Gb/s)



### 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 3.1 Gen 1 (5Gb/s)



### ITDB-100 Series

- Connection I/O interface: USB, Ethernet TCP/IP
- Support hardware and software trigger modes, both with one shot, series shot, batch and presentation options
- Automatic or manual CMOS sensor configuration: exposure, gain and brightness options supported
- LED: External / Internal
- Region of Interest setting



### 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

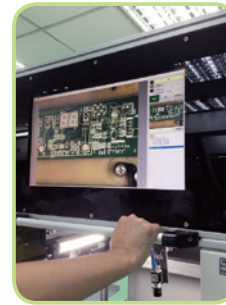


## Camera Applications

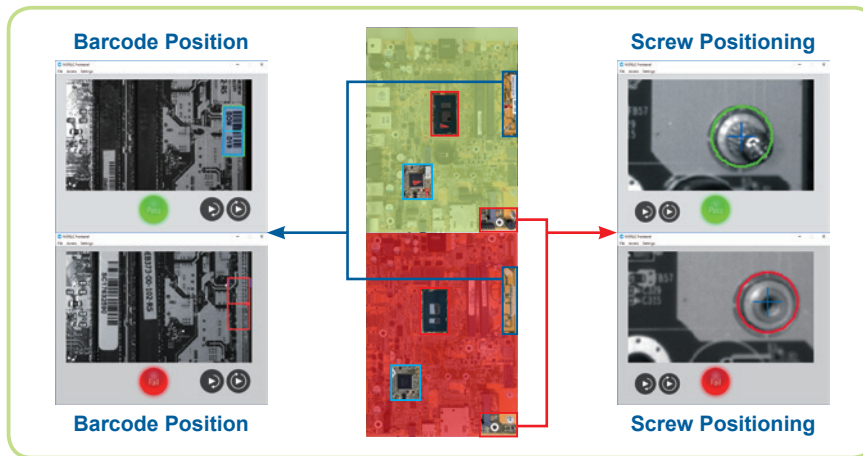
### ■ PCBA Production & Inspection

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



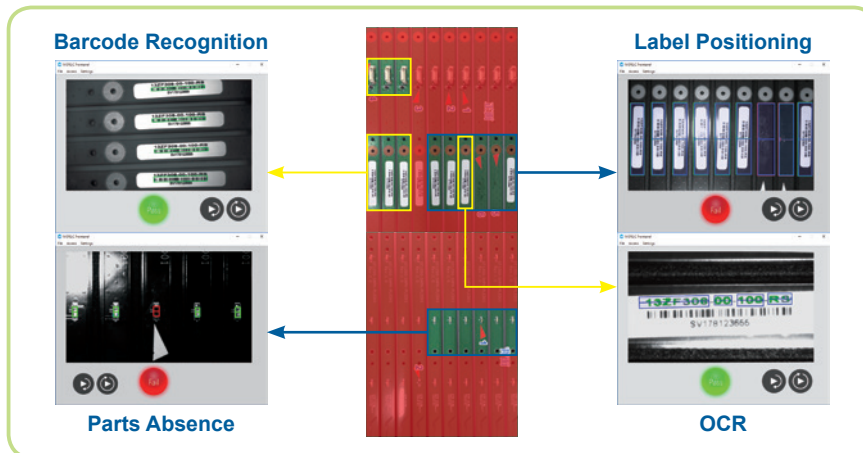
#### Functions:

- (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



#### 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

# HSC-13M3-O

USB 3.1 Gen 1 (5Gb/s) Monochrome Camera & Opto-isolated I/O, 1/2" On-semi CMOS, Global Shutter, 1280x1024 Pixels, without Lens, RoHS



## Features

- Compact 1/2" On-Semi CMOS sensor
- Large pixel: 4.8 μm
- Resolution: 1280 x 1024 (1.3-megapixel)
- Frame rates up to 140FPS with 1280 x 1024 resolution
- Global shutter
- USB3 Vision V1.0

## Specifications

### ◆ Camera

Resolution	1280 x 1024
Frame Rate (fps)	140FPS (Max)
Megapixels	1.3-megapixel
Chrome	Mono
Sensor Name	On-Semi PYTHON 1300
Sensor Type	CMOS
Readout Method	Global shutter
Sensor Size (inch)	1/2"
Pixel Size (μm)	4.8μm
Lens Mount	CS-mount
A/D Bits (ADC)	8-bit/10-bit
Acquisition Modes	Continuous, Single Frame, Multi Frame
Partial Image Modes	Pixel binning, decimation, ROI
Opto-isolated I/O Ports	1 input, 1 output
Non-isolated I/O Ports	1 RS-232
Auxiliary Output	5V, 100 mA max
Interface	USB 3.1 Gen 1 (5Gb/s)
Machine Vision Standard	USB3 Vision v1.0
Compliance	CE, FCC

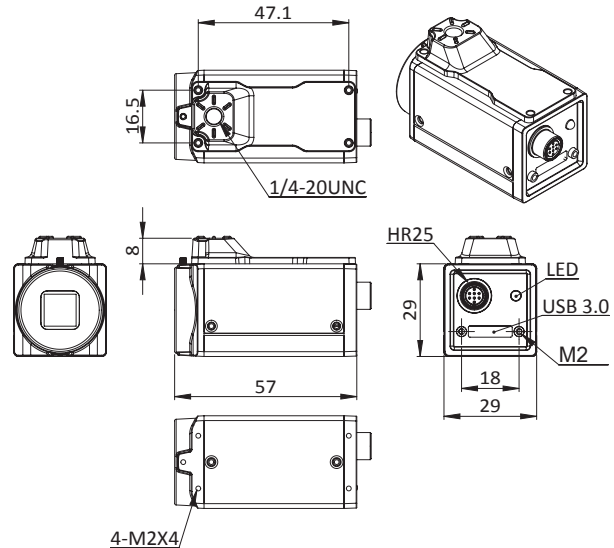
### ◆ Software Support

OS Support	Microsoft Windows 7/8.1/10 (32-bit & 64-bit)
SDK	Windows: Provides SDK and demo program with sample source code

### ◆ Others

Dimensions (mm)	29 mm x 29 mm x 57 mm
Weight (grams)	85g
Operating Temperature	0° ~ 50°C
Storage Temperature	-30° ~ 60°C
Operating Humidity	20% ~ 80%
Storage Humidity	30% ~ 95%
Power Requirements	5V via USB 3.1 Gen 1 (5Gb/s) or 6-18V via Opto-isolated input

## Dimensions (Unit: mm)



## Packing List

1 x HSC-13M3-O	1 x Mounting bracket
1 x CS to C mount adapter	1 x QIG

## Ordering Information

Part No.	Description
HSC-13M3-O-R10	USB 3.1 Gen 1 (5Gb/s) monochrome camera & opto-isolated I/O, 1/2" on-semi CMOS, global shutter, 1280x1024 pixels, without lens, RoHS
32001-019800-100-RS	USB 3.1 Gen 1 (5Gb/s) cable, 1800mm, USB 3.1 Gen 1 (5Gb/s) A type male and micro USB 3.1 Gen 1 (5Gb/s) B type male+screw, RoHS
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

# HSC-13M4-E

USB 3.1 Gen 1 (5Gb/s) Monochrome Camera & Opto-isolated I/O, 1/1.8" E2V CMOS, Global Shutter, 1280x1024 Pixels, without Lens, RoHS

**New**



7/8, 1/10  
Windows

32/64  
Bit

USB 3.1



## Features

- Compact 1/1.8" E2V CMOS sensor
- Large pixel: 5.3  $\mu\text{m}$
- Resolution: 1280 x 1024 (1.3-megapixel)
- Frame rates up to 60FPS with 1280 x 1024 resolution
- Global shutter
- USB3 Vision V1.0 & GenICam standard
- IEI SDK

## Specifications

### ◆ Camera

Resolution	1280 x 1024
Frame Rate (fps)	60FPS (Max)
Megapixels	1.3-megapixel
Chrome	Mono
Sensor Name	E2V EV76C560
Sensor Type	CMOS
Readout Method	Global shutter
Sensor Size (inch)	1/1.8"
Pixel Size ( $\mu\text{m}$ )	5.3 $\mu\text{m}$
Lens Mount	CS-mount
A/D Bits (ADC)	8-bit/10-bit
Acquisition Modes	Continuous, Single Frame, Multi Frame
Partial Image Modes	Pixel binning, decimation, ROI
Opto-isolated I/O Ports	1 input, 1 output
Non-isolated I/O Ports	1 RS-232
Auxiliary Output	5V, 100 mA max
Interface	USB 3.1 Gen 1 (5Gb/s)
Machine Vision Standard	USB3 Vision v1.0
Compliance	CE, FCC

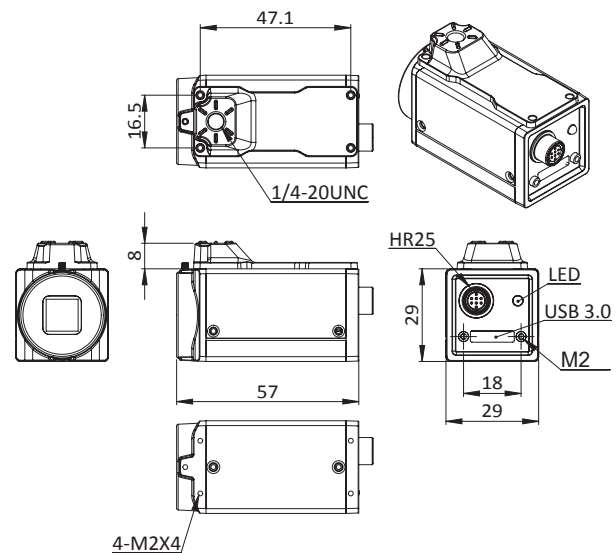
### ◆ Software Support

OS Support	Microsoft Windows 7/8.1/10 (32-bit & 64-bit)
SDK	Windows: Provides SDK and demo program with sample source code

### ◆ Others

Dimensions (mm)	29 mm x 29 mm x 57 mm
Weight (grams)	85g
Operating Temperature	0° ~ 50°C
Storage Temperature	-30° ~ 60°C
Operating Humidity	20% ~ 80%
Storage Humidity	30% ~ 95%
Power Requirements	5V via USB 3.1 Gen 1 (5Gb/s) or 6-18V via Opto-isolated input

## Dimensions (Unit: mm)



## Packing List

1 x HSC-13M4-E	1 x Mounting bracket
1 x CS to C mount adapter	1 x QIG

## Ordering Information

Part No.	Description
HSC-13M4-E-R10	USB 3.1 Gen 1 (5Gb/s) monochrome camera & opto-isolated I/O, 1/1.8" E2V CMOS, global shutter, 1280x1024 pixels, without lens, RoHS
32001-019800-100-RS	USB 3.1 Gen 1 (5Gb/s) cable, 1800mm, USB 3.1 Gen 1 (5Gb/s) A type male and micro USB 3.1 Gen 1 (5Gb/s) B type male+screw, RoHS
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

# HTDB-100F/FM

Handheld 1D/2D Barcode Reader, 1280x1024,  
10 ~ 270 mm Reading Distance, USB Interface



## Features

- Read 1D, 2D barcodes on paper and mobile phones
- Strong ability to read barcodes and to fast decode broken, curved and blurry printed barcode
- Read multiple barcodes by holding the trigger
- IP41 rating against dust and moisture
- Rugged design, 1.8 m/5.9 ft. drop to concrete
- Ergonomic and beautiful design for long time usage, suitable for left- and right-handed users
- Medical Grade Design: Anti-bacterial surface (HTDB-100FM)

## Specifications

### ◆ Electrical

Interface	RJ-45 to USB 2.0
Input Voltage	5 V
Operating Power	2 W ~ 3 W

### ◆ Mechanical

Dimensions (HxWxD)	17.5 cm x 5.9 cm x 11.2 cm
Weight	120 g

### ◆ Environmental

Drop	Designed to withstand 20 times of 1.8 m drops to concrete on each of the faces
Sealing	IP 41
Operating Temperature	0°C to 55°C (32°F to 131°F)
Storage Temperature	-10°C to 65°C (13°F to 149°F)
Humidity	0 to 95% relative humidity, non-condensing
Light Levels	0 to 100,000 lux (9,290 foot-candles)

### ◆ Light Source

Aiming Pattern	Green LED
Illumination	660 nm LED

### ◆ System Requirement

IEI HTDB Utility	Microsoft Windows 7/8.1/10 (32-bit & 64-bit)
SDK	Windows: Provides SDK and demo program with sample source code Linux: Provides SDK and demo program with sample source code (Ubuntu 16.04 LTS)

### ◆ Scan Performance

Scan Pattern	Area image (1280 x 1024 pixel array, 1.3-megapixel)
Motion Tolerance	Up to 350 cm/s for 13 mil UPC at optimal focus
Depth of Field	10 mm ~ 270 mm
FOV	Horizontal: 42.4° Vertical: 34.4° Diagonal: 53°
Print Contrast	20% minimum reflectance difference
MTF	100 lp/mm (>10%)

### ◆ Symbolologies

1D	UPC/EAN, UPC/EAN with supplementals, Bookland EAN, ISSN, UCC Coupon Extended Code, Code 128, GS1-128, ISBT 128, Code 39, Code 39 Full ASCII, Code 93, Interleaved 2 of 5, Codabar, MSI
2D	MicroPDF417, PDF417, Data Matrix, QR Code, Micro QR Code

### ◆ Certification

Electrical Safety	UL60950-1 2nd ed, CSA C22.2 No. 60950-1 2nd ed, EN60950-1/IEC60950-1 2nd ed
LED Safety	IEC/EN62471
EMI/RFI	FCC Part 15 Class B, EN55032 Class B, EN55024, Medical Electrical Equipment:EN60601-1-2, FCC Part 18

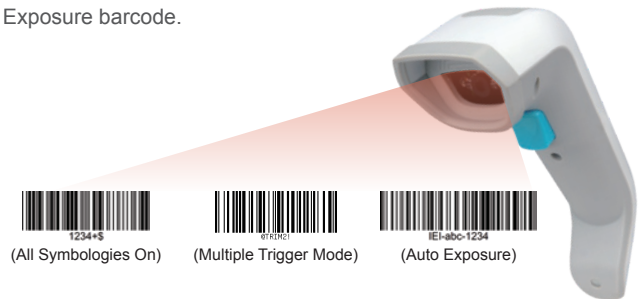
### ◆ Other

Green Compliant	Yes
Green Compliant Certificate/Authority	WEEE, RoHS



## Easy Setting for Barcode Preference or Symbology

To configure the barcode reader, simply scan the corresponding barcode symbols listed in the user manual. For example, if the user needs to set the exposure mode to automatic, just scan the Auto Exposure barcode.



## External Overview



## Applications



### Medical

The HTDB-100F/FM can be used with medication cart or in operating room/ pharmacy/emergency room.



### Industry

The HTDB-100F/FM can be used in production lines or warehouses.



### Food

The HTDB-100F/FM can be used in discount stores or supermarkets.







### Read Multiple Barcodes

IEI handheld barcode reader has the capability to read multiple barcodes printed on one label. When you need to read multiple barcodes, just scan "Enabling to read multiple barcode" in the barcode preference of the user manual. Then, scan and read the barcodes one by one by continually holding the trigger button.

With this feature, you can not only reduce the frequency of button usage, but also increase efficiency. IEI barcode reader can block duplicate data from being sent. Therefore, lots of works for data comparison and information processing can be reduced in the application system.

## HTDB-100F/FM Decode Range

Barcode Type	code39	code128	UPCE
Symbol Density	7.5mil	7.5mil	13mil
Type	 *C39042368*	 C1281903625	 0 425261 4
Working Ranges	30mm - 145mm	35mm - 145mm	20mm - 250mm

Barcode Type	Data Matrix		QR code	
Symbol Density	10mil	20mil	10mil	20mil
Type				
Working Ranges	35mm - 170mm	15mm - 270mm	35mm - 180mm	10mm - 270mm

### Packing List

1 x HDTB-100F/FM handheld 1D/2D barcode reader

1 x RJ-45 to USB cable

1 x QIG



### Ordering Information

Part No.	Description
HTDB-100FM-R10	Handheld 1D/2D Barcode Reader, 1280x1024, 10 ~ 270 mm reading distance, anti-bacterial surface, USB interface, RoHS
HTDB-100F-R10	Handheld 1D/2D Barcode Reader, 1280x1024, 10 ~ 270 mm reading distance, USB interface, RoHS



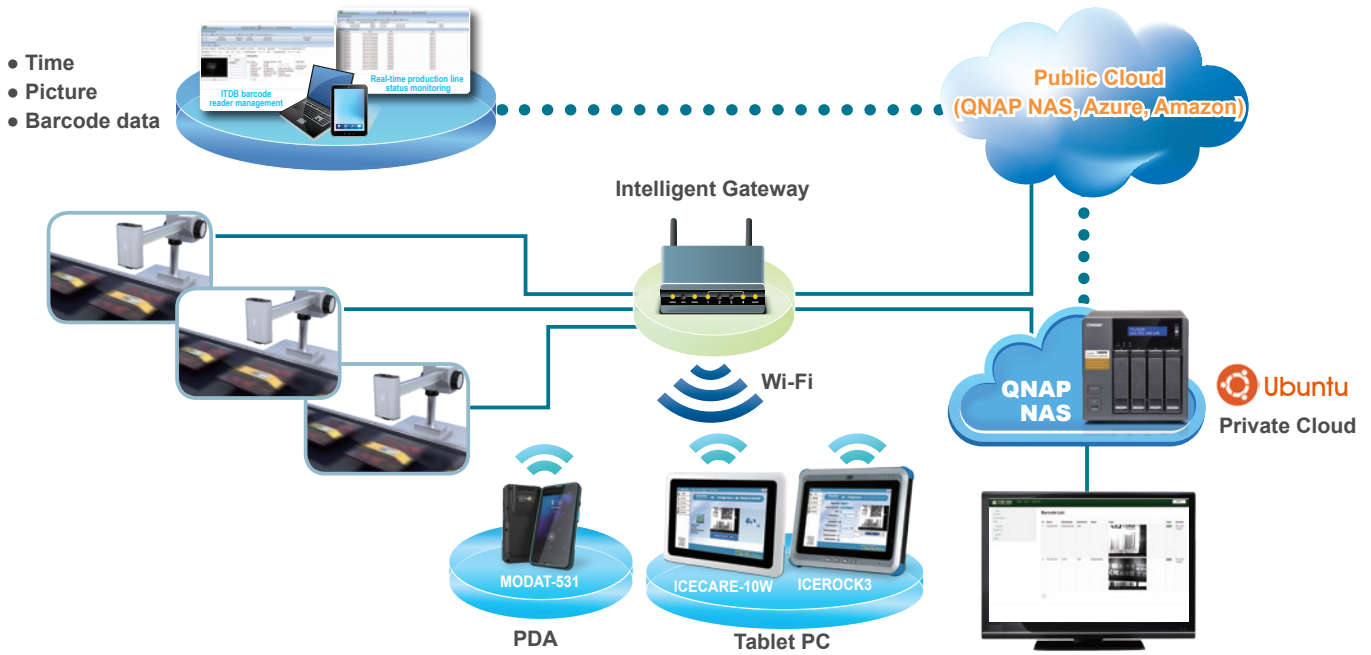
# ITDB-100 Series IoT High Speed 2D Barcode Reader



## Features

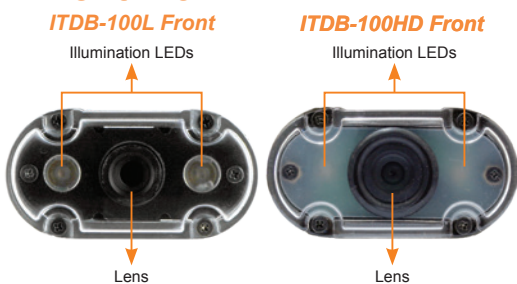
- Support remote monitoring and control via Android phones and tablets
- Connection I/O interface: USB, Ethernet TCP/IP
- Support hardware and software trigger modes, both with one shot, series shot, batch and presentation options
- Automatic or manual CMOS sensor configuration: exposure, gain and brightness options supported
- LED: External / Internal
- Image: Capture
- Image Format: BMP
- Region of Interest setting
- Firmware upgradable via USB / Ethernet
- Other Configurations:
  - » Decode Timeout / Decode Interval

Installing ITDB Series barcode reader with QNAP NAS system allows you to manage your production lines in a more efficient way. An ITDB system that runs over an IP network infrastructure enables the decoded images and results to be distributed to any number of sites (e.g. QNAP NAS, Android tablet or phone and Windows PC), within the constraints of available bandwidth. With the TCP interface supported by the ITDB Series, the information can be instantly transmitted to the NAS system making real-time production line monitoring more efficient.

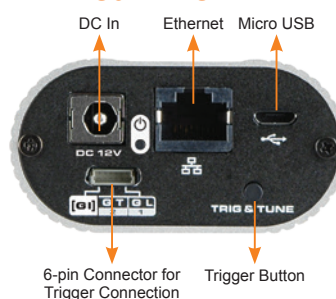


## Fully Integrated I/O

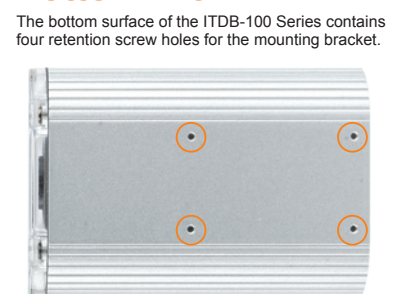
### Front View



### Rear View



### Bottom View



## Successful Product Features

### Ease of Connectivity

Popular interfaces are on board:  
USB, Ethernet TCP/IP

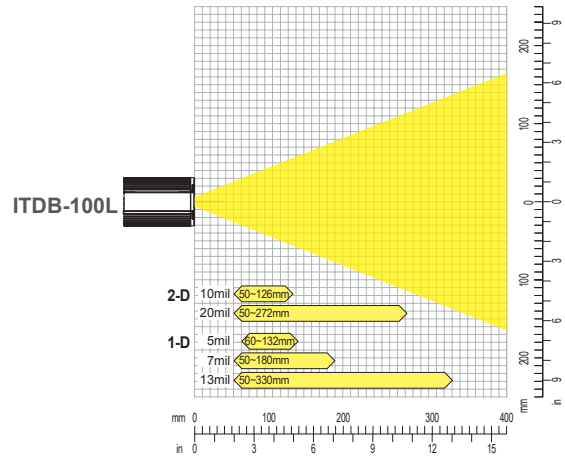


### Easy to Read

Multiple focal options provide application-specific scanning, leading to improved productivity

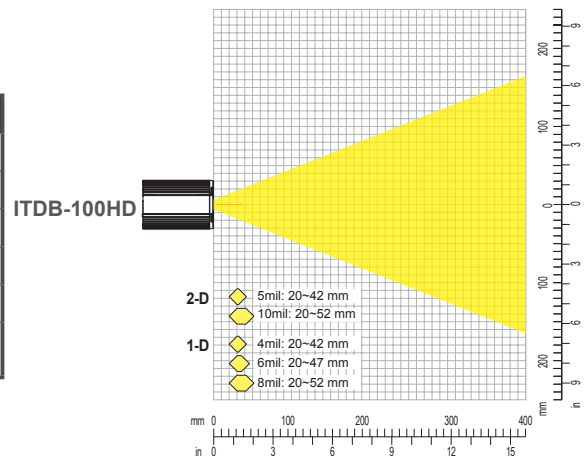
### ITDB-100L Decode Range

Typical Performance*	ITDB-100L-R10
5 mil Code 39	60 mm - 132 mm
7 mil Code 39	50 mm - 180 mm
13 mil UPC	50 mm - 330 mm
10 mil Data Matrix	50 mm - 126 mm
20 mil QR	50 mm - 272 mm
* Performance may be impacted by barcode quality and environmental conditions	



### ITDB-100HD Decode Range

Typical Performance*	ITDB-100HD-R10
4 mil Code 39	20 mm - 42 mm
6 mil Code 39	20 mm - 47 mm
8 mil Code 39	20 mm - 52 mm
5 mil Data Matrix	20 mm - 42 mm
10 mil Data Matrix	20 mm - 52 mm
* Performance may be impacted by barcode quality and environmental conditions	



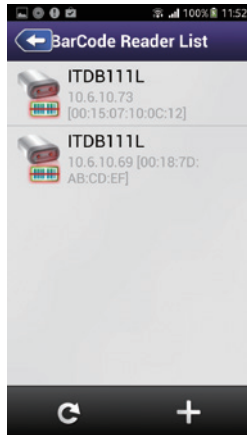
### Supported Barcode Types

Linear					
Codabar (NW7)		Code 128		Code 39	
Code 93 and 93i		Interleaved 2 of 5		MSI (1/2 CRC check)	
UPC		ISBN		EAN	
Stacked					
PDF417		MicroPDF417			
Matrix					
Data Matrix		QR Code		Micro QR code	

\* Besides the above barcode types, IEI has the ability to develop an algorithm for any barcode type upon customers' requests.

# IEI Barcode Solution

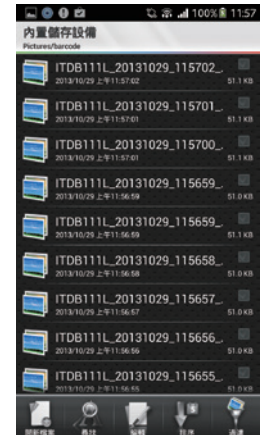
IEI barcode quick-setup solution allows you to easily and quickly setup your ITDB Series barcode reader through an Android phone or tablet that has IEI barcode reader APK installed.



Select an ITDB device



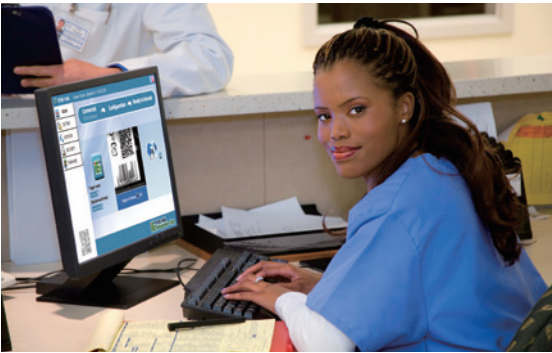
Quick setup & ready to decode



Can't decode? Report IEI with the saved image

Scan this code with your phone to go to the Android Market and download the app for **FREE**.

IEI offers a barcode verifier software for Windows systems which is used to guarantee that the barcodes you print are 100% compliant to the ITDB barcode reader. Verification is akin to insurance: you hope you'll never need it but it's risky to function without it.



Barcode verification



Barcode reader configuration

## Applications



### Packaging

The ITDB-100 Series 2D barcode readers are ideally suited for a wide range of packaging applications.



### Document Handling and Sorting

The ITDB-100 Series 2D barcode readers are perfect for sorting documents, envelopes, and more.



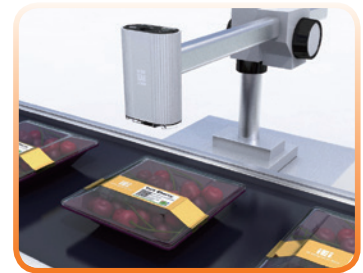
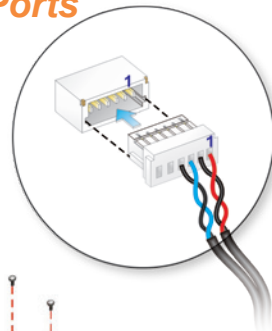
### Pharmaceuticals

The ITDB-100 Series 2D barcode readers provide accurate reading of multiple code formats in a single view.

## Abundant Trigger Connection Ports

### Support up to 2 Trigger Connection Ports

Group	Pin	Description
1	1	Output of LED Flash Trigger
	2	Ground for the Output LED Flash Trigger
2	3	Input of Interrupt Trigger
	4	Ground for the Input of Interrupt Trigger



Applications for Logistics Schematic Diagram

### Mounting Way



Mounting bracket size (50x31x8 mm)

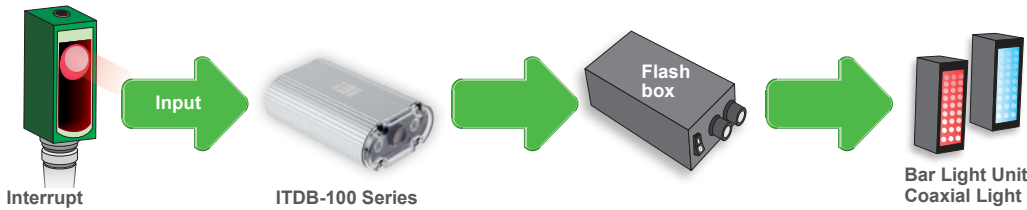


Mounting bracket screw size: M2



## Digital Input and Output Connection

The ITDB digital input and output ports enable connection to external devices, such as detectors (e.g. proximity and photoelectric sensors), flash power controller box and lights (e.g. bar and coaxial light). When input and output mechanisms are connected, you can manually or automatically request through the ITDB management software either from a remote PC, android phone or tablet, QNAP NAS or using the ITDB's built-in logic.

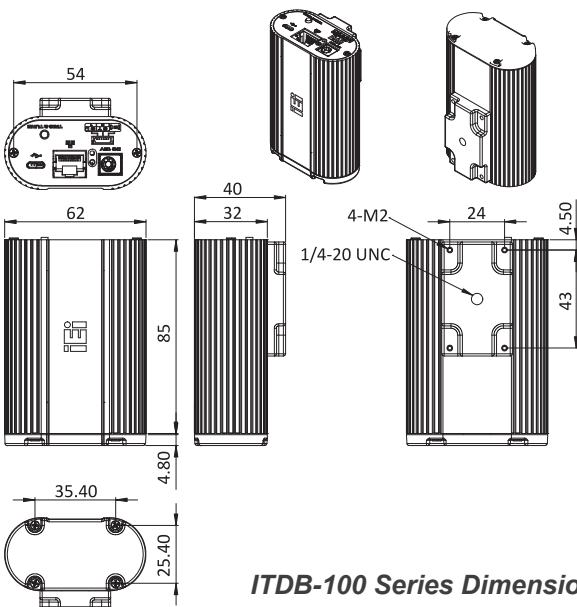


\* I/O usage example: An ITDB attached to a photoelectric sensor and to a flash power controller system.

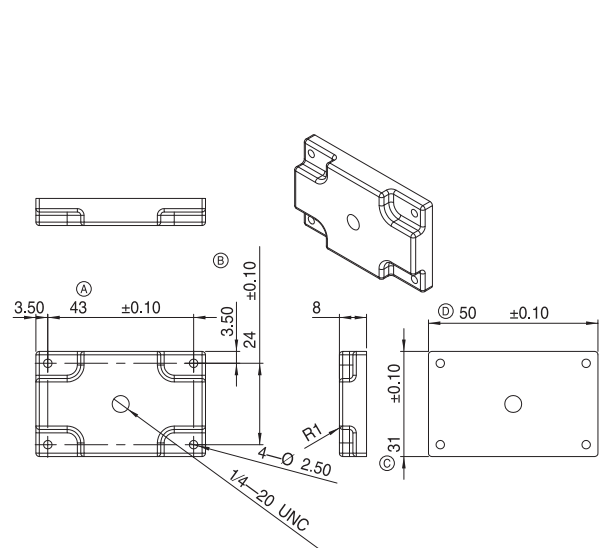
### Accessories

- External Lighting
  - » Bar Light Unit
  - » Coaxial Light
- Power Controller Box
- Trigger Sensors
  - » Proximity sensor
  - » Photoelectric sensor

## Dimensions (Unit: mm)



ITDB-100 Series Dimensions



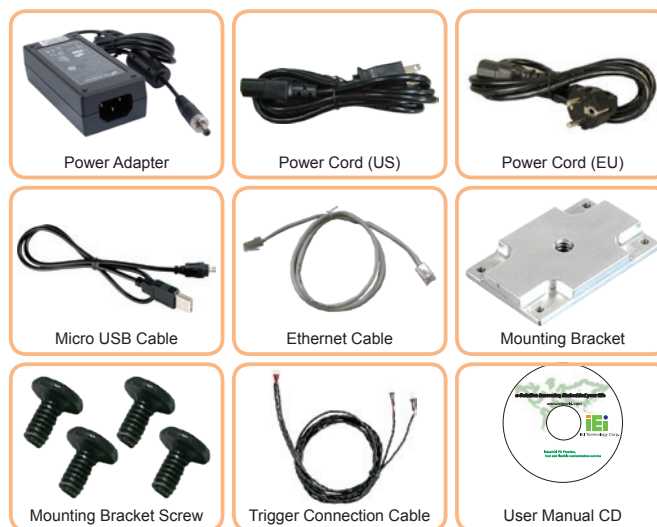
Mounting Bracket Dimensions

## Specifications

<b>Supported 1D Symbologies</b>	Code 39, code 93, interleaved 2 of 5, UPC/EAN (ISBN, UPCA, UPCE, EAN13, EAN8) EAN 128, code 128, MSI, codabar	<b>Operating Limits of the 6-pin Connector for Trigger Connection</b>	Output of LED Flash Trigger Current: 8mA Voltage: 3.3VDC Input of Interrupt Trigger Current: 1.4mA@5VDC, 4mA@12VDC, 6.2mA@18VDC Recommended operating voltage: 5VDC ~ 18VDC Absolute voltage limits: 4.5VDC ~ 24VDC
<b>Supported 2D Symbologies</b>	PDF-417, Micro PDF-417, QR Code/microQR Code, Data Matrix	<b>OS Support</b>	Microsoft Windows 7/8.1 (32-bit & 64-bit) Microsoft Windows 10 (32-bit & 64-bit) via network connection
<b>Sensor Major Specifications</b>	Sensor: 1/3 inch CMOS with global shutter Resolution: 752 x 480 Acquisition: Max. rate 60fps	<b>SDK</b>	Windows: Provides SDK and demo program with sample source code
<b>Lens Major Specifications</b>	Focus: Fixed <b>ITDB-100L</b> Code resolution: $\geq 0.33$ mm Reading distance (at code resolution): 50 mm ~ 330 mm <b>ITDB-100HD</b> Code resolution: $\geq 0.2$ mm Reading distance (at code resolution): 20 mm ~ 52 mm	<b>Software</b>	AP (without source code): Provide software installer to use directly
<b>Illumination Element (nm)</b>	2 x Red LEDs Visible red light ( $\lambda = 650$ nm ~ 660 nm)	<b>Mechanical Specifications</b>	Housing: Die-casting aluminum Housing color: Silver Front cover: Transparent plastic Weight: 290 g (without mounting bracket) Dimensions (LxWxH): 89.8 mm x 62 mm x 32 mm
<b>I/O Interfaces</b>	1 x Micro USB port (USB 2.0 data transmission rate: 480 M-bit/s) 1 x Ethernet port (Ethernet data transmission rate: 10/100 M-bit/s) 1 x DC in jack ( $\Phi 2.5/\Phi 5.5$ ) 1 x 6-pin connector for trigger connection 1 x Trigger and tuning control button 1 x power indicator Acoustic indicators: Beeper	<b>Environment</b>	RoHS compliant Operating temperature: 0°C ~ 50°C Storage temperature: -10°C ~ 60°C Permissible relative humidity: 90% (non-condensing) Ambient light safety: 2,000 lx, on code
<b>Power Supply</b>	Operating voltage: 12V/3.3A Power consumption: Power on = 7.7 W Max. PD = 9.9 W	<b>Shock Resistance</b>	EN 60068-2-27 (2009-05)
		<b>Vibration</b>	MIL-STD-810F 514.5C-1 and IEC-60068-2-06

## Packing List

Item	Part No.	Q'ty
ITDB-100 Series	ITDB-100L-R10/ ITDB-100HD-R10	1
Power Adapter	63000-FSP040DGAA1106-RS	1
Power Cord (US)	32701-000700-100-RS	1
Power Cord (EU)	32702-000200-100-RS	1
Micro USB Cable	32001-016100-100-RS	1
Ethernet Cable	32000-113100-RS	1
Mounting Bracket	42010-0172E4-00-RS-N	1
Mounting Bracket Screw	44045-020061-RS	4
Trigger Connection Cable	32125-008200-100-RS	1



## Ordering Information

Part No.	Description
ITDB-100L-R10	Image-based code reader system with 1D, 2D decoding code types, 752x480, 2 x LEDs, Reading distance (at code resolution): 50mm ~ 330mm, 12V DC Input, RoHS, I/O interface with 1 x USB 2.0, 1 x DC jack ( $\Phi 2.5 \times \Phi 6.3$ ), 1 x ethernet, 1x6-pin trigger port, 1 x trigger button
ITDB-100HD-R10	Image-based code reader system with 1D, 2D decoding code types, 752x480, 2 x LEDs, Reading distance (at code resolution): 20mm ~ 52mm, 12V DC Input, RoHS, I/O interface with 1 x USB 2.0, 1 x DC jack ( $\Phi 2.5 \times \Phi 6.3$ ), 1 x ethernet, 1x6-pin trigger port, 1 x trigger button