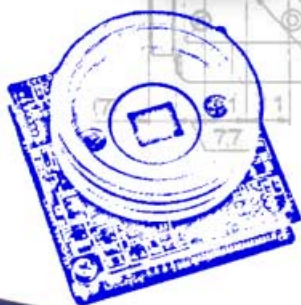
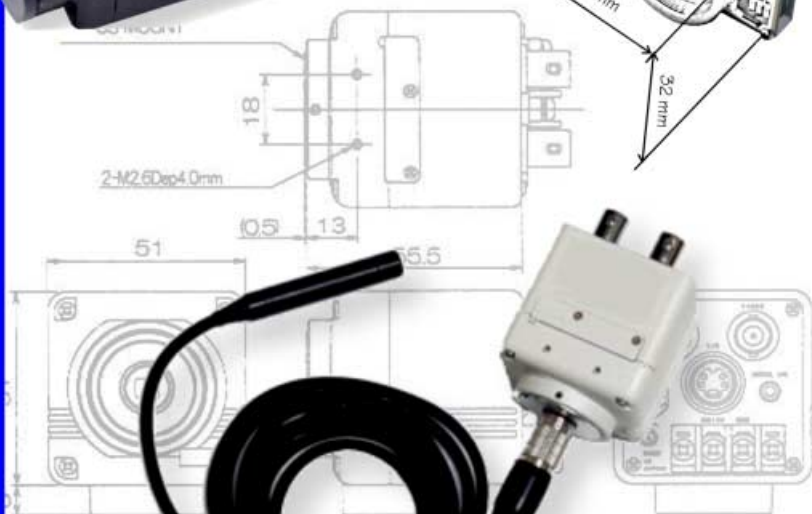
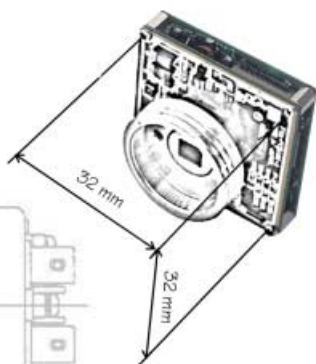


SENTECH

2003 OEM/Industrial Camera Catalog

Building OEM Cameras for the Future



SENTECH

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Camera Product Key



Standard Resolution (Monochrome)



Standard Resolution (Color)



Machine Vision/High Resolution (Monochrome)



High Resolution (Color)



OEM Camera Module (Color)

NOTE: All specifications, descriptions, information, etc. contained herein are subject to change without prior notice. While we strive to make sure the information in this catalog is as accurate as possible, Sensor Technologies America, Inc. cannot be held responsible for any printing, typing, or copy errors.



To Our Customers

Dear Sentech Customers,

Thank you very much for your continued support and use of Sentech CCD camera products last year. Due to your patronage, Sentech America had its fourth consecutive year of very strong growth.

At Sentech, we truly strive to provide our customers with the best products, most aggressive pricing, strong administrative support, and the best technical support in the market. Your continued patronage, and the fact that even in a tough year like 2002 we enjoyed such strong growth, indicates to us that you think we are on the right track. We pledge to you to continue our efforts to provide you and your company with the best support, service, and products on the market today and tomorrow.

In 2002, we added more sales staff to better support our customer base. We also added more engineering personnel both in our US office and in our factories in Japan. In the US, our engineering staff is chartered to continue assisting our customers with application and specialized support. In Japan, we will be aggressively developing the next generations of imaging technology.

Thanks to you, as other industrial camera manufacturers are cutting their sales forces, reducing their manufacturing and even withdrawing from the market, Sentech is growing. We truly appreciate your support and take our responsibility of serving you very seriously.

Again, thank you for making Sentech the success it is and we look forward to working with you on another mutually prosperous year.

Sincerely,

M. Kawakami

M. Kawakami
President
Sensor Technologies America, Inc.



SENTECH

Who is Sentech?

In 2002 Sensor Technologies America Inc. enjoyed significant growth despite the severe downturn in the economy, worldwide. The reason for this is simple — Sentech sells better cameras with lower prices than our competitors. We are trying to set a new standard in the market with our customer service and support. Based on our growth, it seems that our customer base agrees with these actions.



Sentech Japan...

Sensor Technology Co., Ltd., the parent company of Sentech America, was established in Japan in 1987. This year we will have designed and built over 93,000 industrial video cameras. Of these, approximately 48% were designed and built under contract for OEM's or other Japanese electronics and/or camera manufacturers. If you think about it, the fact that these giant, well known companies are comfortable enough with our design capability and product quality to put their name on Sentech built products and sell them in the market as their own, really speaks highly of Sentech.

Sentech America...

In January of 1999, Sentech America was established. The US Industrial camera market has responded exceptionally well to our services and products. Due to our ability to customize our standard cameras and/or build custom products, we have been able to help our customers reduce their product / engineering costs and be more competitive in their markets.



The standard off-the-shelf Sentech cameras are exceptional in performance and price. In the last four years, we have enjoyed such an influx of customers that believe it or not, we have been visited by four of our major competitors. They wanted to come to our office in

Dallas, Texas to see what we were doing and why their customers were switching to Sentech. It is simple; again, we are providing better products, better pricing, better support, and better service.

Our Focus, Cameras...

We are frequently asked, "If the Sentech products are so good, compared to those of the brand I am currently using, why are your prices so low?" The simple fact is that we are an industrial camera company. We design and build industrial cameras, we do not build television sets, we do not build commercial camcorders, we do not build radios, televisions, appliances, and such, we build industrial cameras. As we are specialized and focused, we do not have the overhead that our giant competitors have. In addition, our corporate culture is based in the OEM world and our pricing structure is designed as such.

Building OEM Cameras for the Future...

As for the future, we are focused solely on the latest technologies to enhance our product offerings. We spend countless engineering resources on identifying these technologies and integrating them into our next generation of camera products.

If your organization/system/product could benefit by having a better camera, better engineering support, and better pricing, please call us. If your company wishes to align with a camera manufacturer who not only believes we have a responsibility for today's product set but also for tomorrow's, please give us a call.



SENTECH

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SENTECH

To Our Future Customers

To those who will become our customers:

If you do not know who and what Sentech is, let us briefly introduce ourselves. We are a Japanese industrial camera manufacturer, established in 1987. We specialize in and solely focus on industrial video cameras. Sentech opened operations in the USA in 1999 and in Germany in 2002.

Do not let our prices fool you. Many companies have initially thought that based on our prices, our quality was lower than the cameras they were currently using. However, a low cost on a camera will not offset poor quality and the problems that follow. The fact of the matter is, that our cameras are probably much better than the brand you are currently using.

Our customer base is comprised of some of the biggest names, and most reputable companies utilizing video cameras in their systems. Sentech's product quality is second to none and better than most, the low pricing is just an additional benefit for you.

We are striving to and succeeding in setting a new standard of excellence in customer support. This includes both administrative and technical. Moreover, as you can see on the previous page, we are making additional investments to further enhance and improve our support for our customers by adding sales support and technical staff. Our customers have told us the support from Sentech helped shorten product development cycles, allowing their product to reach the market faster and with less investment. Supporting our customers like this is very important to Sentech.

Finally, our ability to customize our existing products and/or build specialized custom cameras has proven to be very valuable to some of our customers. We have actually helped customers eliminate processing downstream from the camera by building that processing function into the camera.

I personally invite you to contact Sentech today to see for yourself our product quality and second-to-none support.

Sincerely,

Tom Campbell

Thomas J. Campbell

Vice President of Sales and Marketing
Sensor Technologies America, Inc.



SENTECH

Sentech Markets

Sentech offers a variety of cameras for many applications and vision markets. Should you have a specific need or any questions regarding our off-the-shelf or customized OEM camera products, please feel free to contact us. Below is a quick guide to some Sentech products and the markets they serve.

<u>Dental Vision</u>	<u>Page</u>	<u>Medical Vision</u>	<u>Page</u>
<ul style="list-style-type: none">• STC-R640 Board Camera Series• STC-R640 Cased Camera Series• EGC/EGD Board Cameras• Specialized OEM Versions	27 27 29 7	<ul style="list-style-type: none">• STC-R640 Board Camera Series• STC-R640 Cased Camera Series• EGC/EGD Board Cameras• Specialized OEM Versions• STC-600 Series• STC-H600 Series• STC-N63 / P63 Series	27 27 29 7 25 31 23
<u>Industrial Vision</u>	<u>Page</u>	<u>Microscopy</u>	<u>Page</u>
<ul style="list-style-type: none">• STC-600 Series• STC-N63 / P63 Series• STC-R640 Board Camera Series• STC-R640 Cased Camera Series• STC-160 Series• STC-170 Series• "H" Series, Low Light	25 23 27 27 9 9 31	<ul style="list-style-type: none">• STC-160 Series• STC-400 Series• STC-500 Series• STC-600 Series• STC-R640 Cased Camera Series• "H" Series, Low Light	9 11 25 25 27 31
<u>Machine Vision</u>	<u>Page</u>	<u>Mobile Vision</u>	<u>Page</u>
<ul style="list-style-type: none">• STC-160 Series• STC-170 Series• STC-400 Series• STC-700 Series• STC-820• STC-R920M• STC-1000 Series• STC-1100 Series• STC-2048UFD• STC-5150UFD• STC-7450UFD	9 9 11 13 17 17 15 15 19 19 19	<ul style="list-style-type: none">• STC-160 Series• STC-500 Series• STC-600 Series• STC-H500 Series• STC-H600 Series• STC-R640 Series• Specialized OEM Versions	9 21 21 31 31 27 7



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)

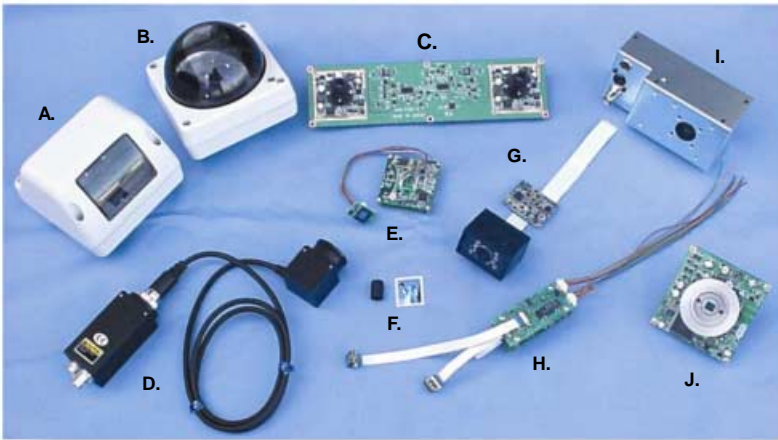


OEM Camera Module
(Color)

SENTECH

Custom Cameras

Does your application require a custom-designed camera? If so, please give Sentech a call and we will see if we can help. In 1987 Sentech started by developing custom cameras in Japan for some of the giant Japanese electronics manufacturers. In the picture below are a few examples of custom cameras we have built - everything from custom lenses to 2D Matrix scanners to special machine vision cameras. Due to NDAs, some of the descriptions below are limited.



- A. **Public Transportation:** Ruggedized Color Camera with special DSP profile, custom power board and customer specified external sync capabilities. Housing is a wedge configuration.
- B. **Public Transportation:** Ruggedized Color Camera with special DSP profile, custom power board and customer specified external sync capabilities. Housing is a mini-dome configuration.
- C. **Stereo Camera:** Due to NDA, a description of this product is not available.
- D. **Machine Vision:** STC-SS400 base camera with customer specified modifications.
- E. **Machine Vision:** STC-R170 Remote CCD camera. Please see page 12.
- F. **Dental:** Custom Super Micro Lens (postage stamp not included).
- G. **2D Matrix Scanning:** Monochrome, customer specified digital output, white LED's, image targeting, built in lens.
- H. **Industrial Inspection:** Two head EGC color camera. Please see page 19.
- I. **Metrology:** Monochrome and Color. Special housing, special DSP profile, special shielding.
- J. **Medical:** Restricted Data, YUV, RGB, NTSC, very special DSP with custom PLD.

New Products

MV



STC-820 / R920M Monochrome DSP CCD Cameras

Yet another innovation by Sentech; the first fully programmable Digital Signal Processing (DSP) monochrome CCD camera. These cameras allow users to program and set the camera's digital processing profile for operation. Several profiles can be programmed and used during operation. This high resolution machine vision camera provides integrators and users more options when developing a vision system. The STC-820 is the cased version and the STC-R920M is the board-level camera.

More information on the STC-820/R920M cameras begin on Page 15.

HR



Remote Head Color Cased CCD Cameras

Developed on our popular small cased Color CCD camera products, the STC-R640AS, R640CC, and R640CT microhead cameras offer crisp, high resolution color video images. These cameras offer a micro-packaged 1/4-inch color CCD in a variety of cable lengths and head orientations. Best of all, Sentech's remote head cameras are only a fraction of what conventional remote head cameras cost.

More information on the remote head cameras begin on Page 25.

OEM



Auto Focus Color CCD Camera Module

Based on Sentech's popular high-resolution color CCD board cameras, Sentech is designing a new family of Auto-Focus cameras. This will provide our customers with a truly cost effective, high performance solution for their auto-focus camera needs.

Contact Sentech for more information on our auto focus and OEM camera products.

(Camera pictured is a custom, proprietary configuration and is not available for general sales)



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

SENTECH

Sentech Monochrome Board CCD Cameras



ST



STC-130 Series Monochrome CCD Cameras

The STC-130 series is an inexpensive, compact camera that can adapt to almost any application. This 1/3-inch standard resolution monochrome camera series comes in board-level and cased version cameras.

MV



STC-160 Series Monochrome CCD Cameras

The STC-160 series is a 1/3-inch high-resolution CCD machine vision camera in a single board. Small in size, this camera series offers many features and functions not found on most board-level cameras. Like most Sentech cameras, the STC-160 series comes in board-level and cased version cameras.

MV



STC-170 Series Monochrome CCD Cameras

Like the STC-160 series, the STC-170 series cameras are a 1/3-inch high resolution CCD machine vision grade product. The STC-170 offers an integration HOLD feature for special applications. Also, the STC-170 offers frame/field integration and non-interlace synchronization.

MV



STC-R170 Series Monochrome CCD Cameras

The STC-R170 camera has the same features and functionality of the STC-170 but with the CCD remote head version (wiring harness can be up to 8 inches away from main camera board).

All cameras on this page are available in EIA and CCIR formats

ST

Standard Resolution
(Monochrome)

MV

High Resolution
(Monochrome)

ST

Standard Resolution
(Color)

HR

High Resolution
(Color)

OEM

OEM Camera Module
(Color)

SENTECH

Sentech Monochrome Board CCD Cameras



STC-130 Series Cameras

- B/W 1/3" 510 (H) x 492 (V) IT CCD
- Available in EIA & CCIR Formats
- 380 TV Lines Horizontal Resolution
- Gamma 0.45
- AGC: On (0 – 20dB)
- Minimum Illumination 0.03 Lux @ F1.2, 50 IRE
- Electronic Shutter (Auto Iris)
1/60 (1/50) to 1/100,000 second
- >48dB S/N Ratio (AGC Off)
- Seven lens Options available, including CS/C Mount
- Dimensions: 35 (W) x 35 (H) x variable (D)
- Includes all wire harnesses
- 12V DC Power

STC-160 Series Cameras

- B/W 1/3" 768 (H) x 494 (V) IT CCD
- Available in EIA & CCIR Formats
- 570 TV Lines Horizontal Res.
- Gamma 1.0 or 0.45
- External Sync (HD / VD Input)
- Field Integration
- AGC: On/Off (0 – 20dB)
- Minimum Illumination 0.1 Lux @ F1.2, 50 IRE
- Electronic Shutter 1/60 (1/50) to 1/100,000 second
- >56dB S/N Ratio (AGC Off)
- Seven lens Options available
- Dimensions: 45(W) x 45(H) x variable (D) mm
- Includes all wire harnesses
- 12V DC Power

STC-170 Series Cameras

- B/W 1/3" 768 (H) x 494 (V) IT CCD
- Available in EIA & CCIR Formats
- 570 TV Lines Horizontal Res.
- Gamma 1.0
- External Sync (HD / VD Input)
- Field / Frame Integration
- Integration HOLD
- AGC: On/Off (0 – 20dB)
- Minimum Illumination 0.12 Lux @ F1.2, 50 IRE
- Electronic Shutter 1/60 (1/50) to 1/10,000 second
- >56dB S/N Ratio (AGC Off)
- Seven lens Options available,
- Dimensions: 45(W) x 45(H) x variable (D) mm
- Includes all wire harnesses
- 12V DC Power

STC-R170 Series Cameras

Same SPECS as STC-170 except: This camera features a remote CCD for super tight space requirements.

- B/W 1/3" 768 (H) x 494 (V) IT CCD
- Available in EIA & CCIR Formats
- 570 TV Lines Horizontal Res.
- CCD board size: 25 mm (H) x 15 mm (W)

Lenses for Monochrome Board Cameras

The following lenses are available for all monochrome board cameras. Custom Lenses can also be built.

Model No.	Focal Length (F-Stop)
LEN-B2.5	2.5 mm (F2.0)
LEN-B3.6	3.6 mm (F5.0)
LEN-B6	6.0 mm (F3.5)
LEN-B8	8.0 mm (F3.5)
LEN-B16	16 mm (F1.8)

All board cameras are also available with CS or C-Mounts.

Cable Harness for Board Cameras

Cable harnesses for power and other input and output signals are provided with each Sentech board camera.



SENTECH

Sentech Monochrome Cased CCD Cameras The STC-130 / 160 / 400 Series

ST



STC-130 Series Cameras

Like the board version, STC-130 cased series is a inexpensive, compact camera that can adapt to almost any application. The 130 camera comes with a CS-Mount (C-Mount with an adapter) and a composite video output.

STC-131 Series Cameras

The STC-131 Series is electronically and functionally the same as the STC-130 except in an even more compact case.

MV



STC-160 Series Cameras

The STC-160 series is a low-cost, high resolution machine vision camera. The STC-160 series offers users a high-resolution 1/3-inch CCD, fixed shutter speeds from 1/60th. to 1/10,000th. of a second, external sync (HD/VD), and much more.

MV



STC-400 Series Cameras

The STC-400 series is a collection of products to fit a wide variety of applications. The STC-400 comes in 1/3 and 1/2-inch CCD formats and in compact, remote head, and "L" shaped camera housings. With selectable shutter speeds from 1/60th. to 1/10,000th of a second, the STC-400 can capture scenes and virtually any speed crisply and clearly.

All cameras on this page are available in EIA and CCIR formats



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

SENTECH

Sentech Monochrome Cased CCD Cameras The STC-130 / 160 / 400 Series

STC-130 Series Cameras

- B/W 1/3" 510 (H) x 492 (V) IT CCD
- Available in EIA & CCIR Formats
- 380 TV Lines Horizontal Resolution
- Gamma 0.45
- AGC: On (0 – 20dB)
- Minimum Illumination 0.03 Lux @ F1.2, 50 IRE
- Electronic Shutter (Auto Iris)
1/60 (1/50) to 1/100,000 second
- >48dB S/N Ratio (AGC Off)
- CS-Mount Lens Mount (C-Mount with adapter)
- Dimensions: 51 (W) x 51 (H) x 55.5 (D)
- 12V DC Power

STC-131 Series Cameras

- B/W 1/3" 510 (H) x 492 (V) IT CCD
- Available in EIA & CCIR Formats
- Same basic features and specification as STC-130 Series
- C-Mount Lens Mount
- Dimensions: 40 (W) x 40 (H) x 45 (D)

STC-160 Series Cameras

- B/W 1/3" 768 (H) x 494 (V) IT CCD
- Available in EIA & CCIR Formats
- 570 TV Lines Horizontal Res.
- Gamma 0.45 or 1.0
- Sync: Int. or Ext. (HD / VD)
- Field Integration
- Gain: AGC / Manual (0 – 20dB)
- >56dB S/N Ratio (Gain OFF)
- 12 Pin Hirose & BNC (Cased Version)
- Minimum Illumination 0.1 Lux @ F1.2, 50 IRE
- Electronic Shutter 1/60 to 1/100,000 sec
- Fixed Shutter (9 steps) 1/60 (1/50) to 1/100,000 sec
- CS-Mount Lens Mount (C-Mount with adapter)
- Case Dimensions: 51 (W) x 51 (H) x 55.5 (D) mm
- 12V DC Power

STC-400 Series Cameras

STC-400 Series

- STC-400 is 1/2", STC-410 is 1/3"
- B/W 768 (H) x 494 (V) IT CCD
- Available in EIA & CCIR Formats
- 570 TV Lines Horizontal Res.
- 2:1 Interlace / Non-Interlace
- Field / Frame Integration
- Sync: Internal / External
- Gamma 0.45, 1.0 switchable
- Pixel Clock Out
- Gain: Fixed / Manual (0 – 25dB)
- >56 dB S/N Ratio (Gain Off)
- Fixed Shutter (8 steps) 1/60 (1/50) to 1/10,000 sec
- Minimum Illumination 0.1 Lux @ F1.2, Gain ON, 50 IRE
- Available w/ or w/o I/R Filter
- C-Mount Lens Mount
- Dimensions: 31 (W) x 29 (H) x 73 (D) mm
- 12V DC Power

STC-400L Series

- STC-400L is 1/2", STC-410L is 1/3"
- Same basic features and specification as STC-400 Series
- C-Mount Lens Mount
- Dimensions: 31 (W) x 45(H) x 73 (D) mm

STC-SS400 Series

- STC-SS400 is 1/2", STC-SS410 is 1/3"
- Same basic features and specification as STC-400 Series
- C-Mount Lens Mount
- Head Dimensions: 31 (W) x 29 (H) x 38 (D) mm



The STC-400 Series is offered in many configurations and CCD formats

SENTECH

Sentech Monochrome Cased CCD Cameras The STC-700 Series



STC-700 Series Cameras

The real workhorse of the area scan CCD machine vision cameras is the STC-700 series. The STC-700 is a compact, full-featured CCD camera that comes in 2/3, 1/2, and 1/3-inch CCD formats. Offered with all possible random trigger functionality, the STC-700 series can complement any machine vision or factory automation application.

Models Available:

STC-700: 2/3-inch CCD, 570 TVL, 768 (H) x 494 (V) pixels

STC-720: 1/2-inch CCD, 570 TVL, 768 (H) x 494 (V) pixels

STC-730: 1/3-inch CCD, 570 TVL, 768 (H) x 494 (V) pixels

All cameras on this page are available in EIA and CCIR formats



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

SENTECH

Sentech Monochrome Cased CCD Cameras *The STC-700 Series General Specifications*

- STC-700 is 2/3", STC-720 is 1/2", STC-730 is 1/3"
- B/W 768 (H) x 494 (V) IT CCD
- Available in EIA & CCIR Formats
- 570 TV Lines Horizontal Resolution
- External Trigger Type:
 - Switch Setting Random Shutter Trigger
 - Variable Integration Random Trigger Single or Dual Pulse
- External Trigger Mode: Non-Reset / Reset Mode
- Reset / Restart: Integration time Is controlled by Ext. VD
- WEN (Write Enable): Active High, H Level = 3-5V, L Level = 0-0.6V
- 2:1 Interlace / Non-Interlace
- Field / Frame Integration
- Sync: Internal / External
- Gamma 0.45, 1.0 switchable
- Gain: AGC (0-20dB) / Manual (0-20dB) / Fixed 13dB
- >56 dB S/N Ratio (Gain Off)
- Fixed Shutter (8 steps) 1/60 (1/50) to 1/10,000 sec
- Minimum Illumination
 - STC-700: 0.25 Lux @ F1.2, Gain ON, 50 IRE
 - STC-720: 0.07 Lux @ F1.2, Gain ON, 50 IRE
 - STC-730: 0.08 Lux @ F1.2, Gain ON, 50 IRE
- C-Mount Lens Mount
- Dimensions: 44 (W) x 29 (H) x 60 (D) mm
- Weight: 97g (3.4oz)
- 12V DC Power



STC-700 Series Rear Panel



(Shown approximate size)



SENTECH

Sentech Progressive Scan CCD Cameras



STC-1000 Progressive Scan Series CCD Cameras

Switch Setting (Integration) Random Shutter Trigger

The STC-1000 series progressive scan CCD cameras come in two basic models, the STC-1000 and STC-1001. These full-featured, double-speed progressive scan cameras offer exceptional value for excellent quality. These may be the most inexpensive feature rich double speed progressive scan cameras on the market today. These cameras feature double speed or standard scanning rates, single or dual pulse variable integration trigger, random shutter trigger, vertical drive reset, and field or frame integration.

- **STC-1000** Random shutter trigger with WEN output (write inhibit)
- **STC-1001** Random shutter trigger with HD Sync, No WEN output



STC-1100 Progressive Scan Series CCD Cameras

Variable Integration, Random Shutter Trigger

The STC-1000 was so popular with our customers, we expanded the series into another set of product offerings. Utilizing the basic features and functions of the STC-1000 series, Sentech developed the STC-1100 series cameras. The STC-1100 series cameras come in four different versions to fit a wide variety of progressive scan applications. Below are brief descriptions of the main functions and features of each model.

- **STC-1100A** Single or double pulse variable integration shutter trigger, new standard for pin assignment (M-trig: Pin#11)
- **STC-1100B** Single or double pulse variable integration shutter trigger, traditional standard for pin assignment (M-trig: Pin#7)
- **STC-1100C** Single pulse variable integration shutter trigger (positive "+" polarity input) - (M-trig: Pin#9)
- **STC-1100D** Single pulse variable integration shutter trigger (negative "-" polarity input) - (M-trig: Pin#9)



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

Sentech Progressive Scan CCD Cameras

STC-1000 / STC-1100 Series General Specifications:

Image Sensor:	1/3" 649 (H) x 494 (V) Progressive Scan CCD (Square Pixels)
Formats:	VGA Progressive / EIA 2:1 Interlace
Optical Black	H = 33 pixels, V = 10 pixels
CCD V Drive Frequency:	Double Speed = 31.468 KHz, Normal = 15.734 KHz
CCD H Drive Frequency:	Double Speed = 24.5454 MHz, Normal = 12.2727 MHz
Horizontal Resolution:	495 TV Lines
Vertical Resolution:	495 TV Lines
Scanning System:	2:1 Interlace or Progressive Scan
Normal Speed Scan Modes:	2:1 Interlace & Progressive Scan
Double Speed Scan Modes:	2:1 Interlace & Progressive Scan
Sync:	Internal / External (HD / VD)
S/N:	>56dB S/N Ratio (Gain Off)
Gain:	AGC / Fixed / Manual (0 – 25dB)
Min. Illumination:	STC-1000 Series: Normal Speed: 0.3 Lux @ F1.2, Gain ON, 50 IRE Double Speed: 0.8 Lux @ F1.2, Gain ON, 50 IRE STC-1100 Series: Normal Speed: 0.4 Lux @ F1.2, Gain ON, 50 IRE Double Speed: 1.0 Lux @ F1.2, Gain ON, 50 IRE
Gamma:	1.0 or 0.45
Gain:	Manual / Fixed / Auto Gain (Switchable)
Shutter Speed:	Normal Speed: (8 steps) 1/60 to 1/10,000 sec. Double Speed: (8 steps) 1/120 to 1/20,000 sec.
Trigger Modes:	One Pulse Variable Integration Shutter Trigger (1100 series) Two Pulse Variable Integration Shutter Trigger (1100 series) Vertical Drive Reset Dip Switch Based Random Shutter Trigger (1000 series)
Video Output:	VS 1.0Vp-p, 75 ohms
Power:	12V DC (10V to 14V)
Power Consumption:	Normal Speed: 180mA, Double Speed: 210mA
Dimensions:	31 (H) x 29 (W) x 73 (D) mm (1.24" x 1.16" x 2.92")
Weight:	85g (3 ounces)



Sentech's progressive scan cameras are available in straight and "L" shaped cases.



SENTECH

Sentech Monochrome DSP CCD Cameras Programmable/Controllable Digital Signal Processing



MV



Remote Controllable

STC-820 Monochrome DSP CCD Cased Camera

The STC-820 is a first-of-its-kind digital signal processing (DSP) monochrome CCD camera. Based on Sentech's vast experience in developing color DSP CCD cameras, this powerful technology has been adapted to expand the capabilities and functionality of machine vision monochrome CCD cameras. Machine vision, factory automation, and other critical inspection markets will realize more dynamic control of the camera's setup and functionality. Best of all, the STC-820 offers remote control of the cameras set up and operation allowing users to adjust the camera on the fly.

MV



STC-R920M Monochrome DSP CCD Board-Level Camera

Like the cased version (STC-820), the STC-R920M has 10-Bit DSP programmability and control. The STC-R920M is contained within a single, compact board with a remote head CCD. The CCD board only measures 25 (W) x 20 (H) mm.



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

Sentech Monochrome DSP CCD Cameras Programmable/Controllable Digital Signal Processing



STC-820 / R920M General Specifications:

Image Sensor	1/2-Inch CCD
Signal Format	EIA (Also available in CCIR)
Effective Pickup Area	768 (H) x 494 (V)
CCD Size	7.40 (H) x 5.95 (V) mm
Pixel Cell Size	8.4 (H) x 9.8 (V) mm
Scanning Area	6.45 (H) x 4.84 (V) mm
Pixel Clock Frequency	14.318 MHz
Horizontal Sync Frequency	15.734 KHz
Vertical Sync Frequency	59.94 Hz
Horizontal Resolution	570 TV Lines
Vertical Resolution	350 TV Lines (Field Integration) / 485 TV Lines (Frame Integration)
Lens Mount	C-Mount
Scanning Systems	2:1 Interlace
Video Output	1.05 Vp-p ± 0.1 Vp-p, 75 Ohm
Sync System	Internal / External (HD and VD)
	Switchable: External Sync Signals : HD/VD 3-5 Vp-p
	Internal Sync Signals : HD/VD 2-5 Vp-pHD : 15.734 KHz +/- 1.0% (EIA)
	Sync Signal Impedance: 75 Ohm
	Switchable on Rear Panel (Selects either Internal or External):
	Internal Position: Will not accept HD/VD Input Signals – Outputs HD/VD Signals
	If in External Mode and no input signal (HD/VD) is detected, camera automatically re-returns to Internal sync mode
Setup Level	7.5 IRE ± 3 IRE
White Clip Level	110 IRE ± 7 IRE
Sync Level	- 40 IRE ± 5 IRE
S/N Ratio	55 dB (Gain Minimum)
Gamma	Selectable: 0.45, 0.6, and 1.0 or S-Curve DSP Selectable
Integration Mode	Field or Frame Accumulation DSP Selectable
Additional Functions	Mirror Image
(All Functions DSP Selectable)	Aperture Control (Horizontal and Vertical)
	Analog Gain Control (AGC) 8 – 22 dB
	Digital Gain Control (DGC) 0-14 dB
	AGC / Fixed Gain (Selectable)
	Video Setup Level
	Video White Clip Level
Shutter Speeds	1/60 (EIA), 1/50 (CCIR), 1/100 (EIA), 1/120 (CCIR), 1/250, 1/500, 1/1000, 1/2000, 1/5000, 1/10000 (9 Steps) - DSP Selectable
Gain	AGC ON (8-22 dB), DGC (0-14 dB) - DSP Selectable
Minimum Illumination	0.1 Lux @ F1.2, AGC, DGC=Maximum (50 IRE)
Operating Voltage	DC +12 Volts ± 10%
Power Consumption	180 mA
Operating Temperature	0 – +40° C
Storage Temperature	-10° – +60° C
Dimensions	
- Cased Camera	31.0 (W) x 29.0 (H) x 72.7 (D) - Not Including Connectors
- Board Version	Main Board: 50 (W) x 11.2 (H) x 75 (D) mm / CCD Board: 25 (W) x 20 (H) x 9 (D) mm
Weight	90 Grams (Cased Camera)
Connections (Cased Camera)	BNC (Video)
	12-Pin Hirose (Power, Sync, Video)*
	3-Pin (Serial I/O - RS-232C for DSP)
	*Mates with Hirose HR10A-10P-12S (Cable Connector)



Sentech Line Scan Cameras



Sentech has designed and manufactured line scan cameras on an OEM basis since 1988. Last year, we introduced our products under our own name for the first time. Our product offerings include state-of-the-art 2K, 5K, and 7K line scan cameras, which feature both analog and digital outputs. Sentech offers three models:



STL-7450UFD 7K Line Scan Camera

The STL-7450UFD is the highest resolution of the three Sentech line scan cameras. It offers two output signals – a 10-Bit digital and an analog. The STL-7450UFD utilizes a 7450 pixel, 40 MHz linear sensor. It also has a RS-644 input connection for driving clock and line transfer pulse signals.



STL-5150UFD 5K Line Scan Camera

The STL-5150UFD is Sentech's 5K high resolution, digital output line scan camera. Like the STL-7450UFD, it offers two output signals – a 10-Bit digital and an analog and a RS-644 input connection for driving clock and line transfer pulse. The STL-5150UFD has a 5150 element, 40 MHz linear sensor. It also has a RS-644 input connection for driving clock and line transfer pulse signals.



STL-2048UFD 2K Line Scan Camera

When less elements are needed, the STL-2048UFD often fits the bill. The STL-2048UFD, like the Sentech 5K and 7K line scan cameras, offers two output signals – a 10-Bit digital and an analog. The STL-2048UFD utilizes a 2048 pixel, 20 MHz linear sensor. It also has a RS-644 input connection for driving clock and line transfer pulse signals.



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)

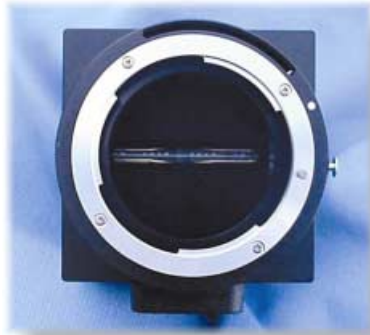


High Resolution
(Color)



OEM Camera Module
(Color)

Sentech Line Scan Cameras



Model Number	STL-2048UFD	STL-5150UFD	STL-7450UFD
Number of Pixels	2048	5150	7450
Pixel Pitch x aperture	14µm x 14µm	7µm x 7µm	4.7µm x 4.7µm
Length, Light Receiving Element	28.67mm	36.05mm	35mm
Video Rate	10~20MHz	10~40MHz	10~40MHz
Scanning Rate (scan/sec.)	Max. 9,300 times (At 20MHz)	Max. 100-5000 times	Max. 100-7540 times
External Clock to Video	2:1	1:1	1:1
Driving Clock Input	Max. 40MHz, RS644 100O terminal built in	10~40MHz, RS644 100O terminal built in	10~40MHz, RS644 100O terminal built in
Data Clock Output	Max. 20MHz, RS422/644	10~40MHz, RS644	10~40MHz, RS644
Line Transfer Pulse Input	0.265~10msec, RS644, 100O terminal built in	0.133~10msec, RS644, 100O terminal built in	0.2~10msec, RS644, 100O terminal built in
Line Transfer Pulse Output	0.265~10msec, RS422/644	0.133~10msec, RS644	0.2~10msec, RS644
Video Output - Analog	0~2.5V 75Ω at terminal	0~2.5V 75Ω at terminal	0~2.5V 75Ω at terminal
Video Output - Digital	RS422 / 644 Standard Based, (D0~D9+, D0~D9-)	RS644 Standard Based, (D0~D9+, D0~D9-)	RS644 Standard Based, (D0~D9+, D0~D9-)
Sensitivity V/Lux sec	100	50	50
Saturation Exposure lx.sec	0.06	0.125	0.08
Dynamic Range	2000 (Standard)	5000 (Standard)	1300 (Standard)
Output Uniformity	Max. 10% At 50% of Saturation Output	Max. 10% At 50% of Saturation Output	Max. 10% At 50% of Saturation Output
Power Capacity	+12V +/- 0.5V, (450mA Output at No Load)	+12V +/- 0.5V, (450mA Output at No Load)	+12V +/- 0.5V, (450mA Output at No Load)
Operation Temperature Range	0~40°C	0~40°C	0~40°C
Operation Humidity Range	85% Max.	85% Max.	85% Max.
Storage Temp Range	-10~65°C	-10~65°C	-10~65°C
Weight	450g	450g	450g
Dimensions	64 x 64 x 136 mm	64 x 64 x 148 mm	64 x 64 x 148 mm
Lens Mount	Nikon	Nikon	Nikon



SENTECH

Sentech Color Board CCD Cameras



STC-N63 / P63 Series Color CCD Cameras

The STC-N63 (NTSC version) / P63 (PAL version) series offers high-resolution, 1/3-inch color CCD (480 TV lines) in a very compact board configuration (32 x 32 mm). These low-cost cameras offer, as a option, user-programmable DSP and setup.



STC-500 Series Color CCD Cameras

The STC-500 series board-level cameras offer two standard resolution CCD options: 1/4 and 1/3-inch. These DSP cameras are available with micro lenses or CS lens mount (C-mount with an adapter).

STC-530 Series: 1/3-inch CCD, 330 TVL, 510 (H) x 494 (V) pixels

STC-540 Series: 1/4-inch CCD, 330 TVL, 510 (H) x 494 (V) pixels



STC-600 Series Color CCD Cameras

Sentech's most popular cased cameras are also available in board-level in the STC-600 series CCD cameras. Available in high-resolution 1/4, 1/3, and 1/2-inch CCD, these DSP cameras offer complete user programmability.

STC-620 Series: 1/2-inch CCD, 480 TVL, 768 (H) x 494 (V) pixels

STC-630 Series: 1/3-inch CCD, 480 TVL, 768 (H) x 494 (V) pixels

STC-640 Series: 1/4-inch CCD, 480 TVL, 768 (H) x 494 (V) pixels



STC-R640 Series Color Micro Head CCD Cameras

The STC-R640 series is based on Sentech's popular STC-600 series cameras utilizing a 1/4-inch, micro package, high resolution CCD. The CCD can be remoted away from the camera unit by 2, 3, 5, or 10 meters.

More information on this product is available starting on page 25.

All cameras on this page are available in NTSC and PAL formats.



Standard Resolution (Monochrome)



High Resolution (Monochrome)



Standard Resolution (Color)



High Resolution (Color)



OEM Camera Module (Color)

Sentech Color Board CCD Cameras

STC-N63 / P63 Series Cameras

- Color 1/3" 768 (H) x 494 (V) IT CCD
- Available in NTSC & PAL Formats
- 480 TV Lines Horizontal Resolution
- 10-Bit digital signal processing
- Gamma 0.45
- AGC: On
- Minimum Illumination 0.5 Lux @ F1.2, 50 IRE
- Electronic Shutter 1/60 NTSC (1/50 PAL) to 1/100,000 sec.
- >48dB S/N Ratio (AGC Off)
- Seven lens Options available
- Dimensions: 32 (W) x 32 (H) x variable (D) mm
- Includes all wire harnesses
- 12V DC Power

STC-500 Series Cameras

- Color 1/4 or 1/3-inch 510 (H) x 494 (V) IT CCD
- Available in NTSC & PAL Formats
- 330 TV Lines Horizontal Resolution
- 10 bit DSP, 3rd Generation, User Accessible
- Gamma 0.45, 1.0 or other values via DSP Adjustments
- Sync Internal
- Y/C out available
- Gain: Manual / AGC (0 – 20dB)
- Negative / Positive Image
- Minimum Illumination
 - 530 Series: 0.2 Lux @ F1.2, Gain ON, 50 IRE
 - 540 Series: 0.3 Lux @ F1.2, Gain ON, 50 IRE
- White Balance - Auto or Manual
- >48 dB S/N Ratio (AGC Off)
- Electronic Shutter (Auto Iris) 1/60 to 1/10,000 sec
- Low Speed Shutter Integration, 2 – 16 fields
- Seven lens Options available
- Dimensions: 45 (W) x 45 (H) x variable (D) mm
- Includes all wire harnesses
- 12V DC Power

STC-600 Series Cameras

- Color 1/4, 1/3, or 1/2-inch 768 (H) x 494 (V) IT CCD
- Available in NTSC & PAL Formats
- 480 TV Lines Horizontal Resolution
- 10 bit DSP, 3rd Generation, User Accessible
- Gamma 0.45, 1.0 or other values via DSP Adjustments
- Sync Internal
- Y/C out available
- Gain: Manual / AGC (0 – 20dB)
- Negative / Positive Image
- Minimum Illumination:
 - 620 Series: 0.3 Lux @ F1.2, Gain ON, 50 IRE
 - 630 Series: 0.4 Lux @ F1.2, Gain ON, 50 IRE
 - 640 Series: 0.8 Lux @ F1.2, Gain ON, 50 IRE
- White Balance - Auto or Manual
- >48 dB S/N Ratio (AGC Off)
- Electronic Shutter (Auto Iris) 1/60 to 1/10,000 sec
- Low Speed Shutter Integration, 2 – 16 fields
- Seven lens Options available
- Dimensions: 45(W) x 45(H) x variable (D) mm
- Includes all wire harnesses
- 12V DC Power

STC-R640 Series Micro Head Cameras

The STC-R640 series is the same electronics as the STC-600 series with the following exceptions:

- Color 1/4" 768 (H) x 494 (V) IT Micro Package CCD
- Available in NTSC & PAL Formats
- 480 TV Lines Horizontal Resolution
- Minimum Illumination 1.2 Lux @ F1.2, 50 IRE
- Cable length from CCU to CCD board - 2, 3, 5, and 20 meter options
- Main Board Dimensions: 45 (W) x 45 (H)
- CCD Board Dimensions: 8 mm Diameter (length and orientation are variable - see page 28 for options)

Lenses for Color Board Cameras

The following lenses are available for the color board cameras. Custom Lenses can also be built. All board cameras (except R640) are also available with CS or C-Mounts.

Micro Lenses:

LEN-C2.3 = 2.3 mm	LEN-C6 = 6.0 mm
LEN-C2.7 = 2.7 mm	LEN-C8 = 8.0 mm
LEN-C4 = 4.0 mm	

Pinhole Lenses:

LEN-PL3.2 = 3.2 mm	LEN-PL3.7 = 3.7 mm
--------------------	--------------------

R640 Lenses:

LEN-R640L2.7 = 2.7 mm	LEN-R640L4 = 4.0 mm
LEN-R640L8 = 8.0 mm	LEN-R640LC = C-Mt Adapter
LEN-PT47M1 = 4.7 mm	(w/ manual iris)

Cable Harness for Board Cameras

Cable harnesses for power and other input and output signals are provided with each Sentech board camera.



STC-N63/P63 series with a micro lens
(Shown approximate size)



SENTECH

Sentech Color Cased CCD Cameras

STC-N63 / P63 Series - Low Cost Industrial Color CCD Cameras



STC-N63 / P63 Series Cameras

In a very compact housing, the STC-N63 / P63 cameras employ a high-resolution, 1/3-inch color CCD that produces 480 television lines of horizontal resolution. The STC-N63 / P63 series cameras are available in cased (with the option of four back panels - BJ, BT, CJ, or CT) and board level.

STC-N63 / P63 Basic Specifications

- Color 1/3" - 768 (H) x 494 (V) IT CCD (NTSC) / 752 (H) x 582 (V) IT CCD (PAL)
- Available in Four Different Back Panels (see below)
- 480 TV Lines Horizontal Resolution
- Composite Video and Y/C Video Out (on select models)
- 10-Bit Digital Signal Processing
- RS-232C Serial I/O Port (on select models)
- Gamma 0.45
- AGC: On
- Minimum Illumination 0.5 Lux @ F1.2, 50 IRE
- Electronic Shutter 1/60 (NTSC) / 1/50 (PAL) to 1/100,000 second
- >48dB S/N Ratio (AGC Off)
- CS Lens Mount (C-Mount with an adapter)
- Dimensions: 36 (W) x 36 (H) x 37.35 (D) mm
- 12V DC Power



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

Sentech Color Cased CCD Cameras

STC-N63 / P63 Series Back Panel Options



		SENTECH
<p>CJ Model</p> <ul style="list-style-type: none"> - Power Jack for Power In - BNC Connector (Video Out) - Y/C Connector (Y/C Video Out) - Push-to-Set / Auto White Balance - RS-232C Serial I/O for User DSP Programming 	<p>CT Model</p> <ul style="list-style-type: none"> - Terminal Block (Spring Loaded) for Power In - BNC Connector (Video Out) - Y/C Connector (Y/C Video Out) - Push-to-Set / Auto White Balance - RS-232C Serial I/O for User DSP Programming 	
<p>BJ Model</p> <ul style="list-style-type: none"> - Power Jack for Power In - BNC Connector (Video Out) - Auto Iris Lens Connection (DC Driven) - Auto Iris Level Adjustment 	<p>BT Model</p> <ul style="list-style-type: none"> - Terminal Block (Spring Loaded) for Power In - BNC Connector (Video Out) - Auto Iris Lens Connection (DC Driven) - Auto Iris Level Adjustment 	

STC-N63 / STC-P63 Back Panels

All cameras on this page are available in NTSC (N63) and PAL (P63) formats.



SENTECH

Sentech Color Cased CCD Cameras STC-500 / STC-600 Series



Sentech color cameras feature programmable 10 bit digital signal processing (DSP) for camera setup and configuration. These products offer excellent color reproduction, crisp video images, and are housed in a very compact case. Whether your needs are for a standard resolution or high resolution camera, Sentech has a product to fit your needs at a very economical price.



High Resolution Models:

- STC-620 Series: 1/2-inch CCD, 480 TVL, 768 (H) x 494 (V) pixels
- STC-630 Series: 1/3-inch CCD, 480 TVL, 768 (H) x 494 (V) pixels
- STC-640 Series: 1/4-inch CCD, 480 TVL, 768 (H) x 494 (V) pixels



Standard Resolution Models:

- STC-530 Series: 1/3-inch CCD, 330 TVL, 510 (H) x 494 (V) pixels
- STC-540 Series: 1/4-inch CCD, 330 TVL, 510 (H) x 494 (V) pixels

Color Camera General Specifications:

Image Sensor:	Interline Transfer CCD
Signal Format:	NTSC or PAL Available
Processing:	10 bit DSP (user programmable)
Horizontal Frequency:	15.734kHz
Vertical Frequency:	59.94 Hz
Sync System:	Internal or External (model dependent)
Minimum Illumination:	- STC-530 Series: 0.2 Lux at F1.2 (AGC-ON) (50 IRE) - STC-540 Series: 0.3 Lux at F1.2 (AGC-ON) (50 IRE) - STC-620 Series: 0.3 Lux at F1.2 (AGC-ON) (50 IRE) - STC-630 Series: 0.4 Lux at F1.2 (AGC-ON) (50 IRE) - STC-640 Series: 0.8 Lux at F1.2 (AGC-ON) (50 IRE)
S/N Ratio:	More than 48dB (AGC-OFF)
Gamma:	0.45 or 1.0 (DSP Adjustable)
White Balance:	ATW / Manual
AGC:	ON / OFF Selectable, 0dB to 12dB Range
Electronic Shutter:	Electronic Shutter: 1/60 - 1/10,000 (except A & AS models)
Fixed Shutter:	Low Speed Shutter: 2FLD - 16FLD (8 steps)
High Speed Shutter:	1/60 - 1/10,000 (8 steps)
Video Out:	1.0Vp-p 75 ohms
Y/C Out:	Y/C Output 0.7Vp-p 75 ohms (on select models)
Back Light:	Back Light Compensation at Electronic Shutter
Negative / Positive:	Selectable
Power Supply:	DC12V
Power Consumption:	250mA
Operating Temp.:	-10° C to +40° C (14° F to 104° F)
Dimensions (mm):	51 (W) x 51 (H) x 55.5 (D) mm
Weight:	205 grams

All Sentech cameras are:

- Available in NTSC or PAL
- CE Certified
- FCC Compliant
- ISO & JIS Compliant



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

Sentech Color Cased CCD Cameras STC-500 / STC-600 Series Back Panel Options

The Sentech high resolution 600 series, as well as the standard resolution series of the 500 series color cameras, are all available in the following six standard configurations. To order the 620 series with the CC configuration, the model name would be STC-620CC.



CC Model

- 12 Pin Hirose
 - Power
 - Y/C Out
 - HD/VD In
- BNC Connector
 - Video Out
- Y/C Connector
 - Y/C Out
- RS-232 Mini Jack
 - DSP Set Up
 - Camera Control



CT Model

- Power Terminal
- BNC Connector
 - Video Out
- Y/C Connector
 - Y/C Out
- RS-232 Mini Jack
 - DSP Set Up
 - Camera Control
- DC Auto Iris Lens Connector
- Auto Iris Level Control



AS Model

- 12 Pin Hirose
 - Power
 - Y/C Out
- BNC Connector
 - Video Out
- Manual Controls
 - Color
 - Brightness
 - Sharpness
 - Gamma



A Model *

- Power Jack
- RCA Connector
 - Video Out
- Manual Controls
 - Color
 - Brightness
 - Sharpness
 - Gamma



BJ Model *

- Power Jack
- BNC Connector
 - Video Out
- DC Auto Iris Lens Connector



BT Model

- Power Terminal
- BNC Connector
 - Video Out
- Auto Iris Level Control
- DC Auto Iris Lens Connector

All cameras on this page are available in NTSC and PAL formats.

* STC-620 camera not available with this back panel.



SENTECH

Sentech Remote Micro Head Color CCD Cameras

Proven Technology, New Package...

Developed on our popular small cased Color CCD camera products, the STC-R640AS, R640CC, and R640CT microhead cameras offer crisp, high resolution color video images. These cameras offer a micro-packaged 1/4-inch color CCD in a variety of cable lengths and head orientations. Best of all, Sentech's remote head cameras are only a fraction of what conventional remote head cameras cost.

Don't need the case? Offered in OEM modules too...

Sentech also offers the STC-R640 series cameras in two different OEM modules – the STC-R640C (with an attached cable) and the STC-R640 (without a cable). These options allow you to make your own camera with your own housing.



STC-R640 OEM Module (without cable)

The STC-R640 is the base module for the STC-R640 series cameras. The camera control unit (CCU) is a compact 45 (W) x 45 (H) x 14 (D) mm whereas the CCD board is 22 (L) x 8 (Dia) mm. The STC-R640 is offered without a mating cable between the CCU and CCD board.



STC-R640C OEM Module

The STC-R640C is the same as the STC-R640 except it is offered with a cable between the CCU and CCD board. The cable length can be 2, 3, 5, or 10 meters and there are a variety of head configurations available.



STC-R640AS Cased Camera

The STC-R640AS offers users analog control knobs on the rear panel to control the DSP settings of the gain and color balance, BNC connector for composite video out, and a connection for Y/C video out. There is a 12-pin connection for a convenient single connection point for power input and Y/C video out.

STC-R640CC Cased Camera

The R640CC has a push-to-set switch auto white balance, a RS-232C Serial I/O port for DSP programming, 12-pin connector (for power in, Y/C out, HD/VD inputs, and more), Y/C connector (Y/C video out), and BNC connector for composite video out.

STC-R640CT Cased Camera

The R640CT offers a terminal strip for secure power connection, Y/C connector (for Y/C video out), BNC connector for composite video out, a push-to-set switch auto white balance, a BNC connector for VBS sync, and much more.

All cameras on this page are available in NTSC and PAL formats.



Standard Resolution (Monochrome)



High Resolution (Monochrome)



Standard Resolution (Color)



High Resolution (Color)



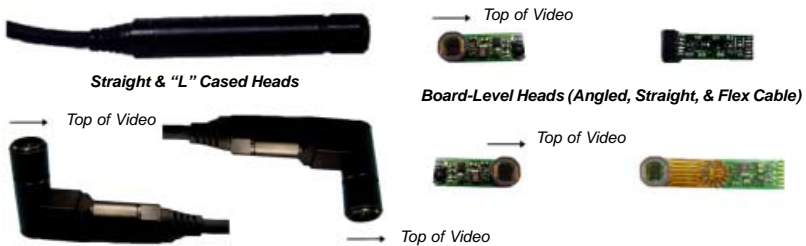
OEM Camera Module (Color)

Sentech Remote Micro Head Color CCD Cameras

Basic STC-R640 Series Camera Specifications:

Image Sensor	1/4-Inch Color CCD
Signal Format	NTSC (Also available in PAL)
Effective Pickup Area (H x V)	768 x 494 (NTSC) / 752 x 582 (PAL)
Horizontal Sync Frequency	15.734 KHz (NTSC) / 15.625 KHz (PAL)
Vertical Sync Frequency	59.94 Hz (NTSC) / 50.00 Hz (PAL)
Horizontal Resolution	480 TV Lines
Lens Mount	Micro and C-Mount (with adapter)
Scanning Systems	2:1 Interlace
Video Output(s)	Composite and Y/C (available on select models)
Video Output Level	1.0 Vp-p, 75 Ohm
Y/C Video Output Level	0.7 Vp-p, 75 Ohm
Sync System	Internal/External VBS (CT model) / HD/VD (CC model)
S/N Ratio	>48 dB, AGC Off
DSP	10-Bit, User Programmable
Gamma	0.45 (default), DSP Adjustable (32 steps)
Shutter Speeds	- 1/60 ~ 1/10,000 Auto/Fixed (NTSC) - 1/50 ~ 1/10,000 Auto/Fixed (PAL)
Minimum Illumination	1.2 Lux @ F1.2, 50 IRE
White Balance	Manual / Full Auto / Push-to-Set (CC and CT models only)
Serial I/O	RS-232C Controllable (for DSP)
Operating Voltage	DC +12 Volts ± 10%
Power Consumption	220 mA
Operating Temperature	-10° C ~ +40° C
Dimensions	
- Cased Camera CCU	51 (W) x 51 (H) x 55.5 (D) mm
- Board Version CCU	45 (W) x 45 (H) x 14 (D) mm
Weight	
- Cased Camera CCU	274 Grams
- Board Version CCU	22 Grams
Lenses/Adapters	LEN-R640L2.7 (2.7 mm, micro package) LEN-R640L4 (4.0 mm, micro package) LEN-R640L8 (8.0 mm, micro package) LEN-PT47M1 (4.7 mm, micro package, manual iris - for R640 or R640C cameras) LEN-R640LC (C-Mount Adapter)

STC-R640 Series Camera Heads:



STC-R640 Series Cased Camera Back Panels:





SENTECH

Sentech OEM Color CCD Cameras

For many applications, what our customers really want, is the CCD and processing module of the camera. This makes it easier for them to put the camera inside of their system or to build a speciality camera for their specific application. In order to support this, Sentech provides the following OEM color cameras. These are high performance Digital Signal Processing (DSP) color cameras. They are able to be programmed to process the video signal specifically to your lighting, lensing, and application requirements. These cameras are currently being used for intraoral dental cameras, embedded inside of ophthalmic microscopes, underwater policing devices, endoscopic instrumentation, industrial inspection, sports coverage cameras, and much more.



EGC Series:

The EGC series is based on high-resolution 1/4 and 1/2-inch color CCDs. With a flexible printed circuit cable (FPC) connecting the main camera boards and the CCD board, the EGC offers very flexible integration to almost any application. Sentech also offers a two-headed camera for very special applications.



EGD Series:

The EGD series offers the same board configurations and compact size but with a wiring harness between the main camera boards and the CCD board. This manufacturing method provides better reliability in applications where the head will be flexed or repositioned often.



STC-R640 Series:

The STC-R640 series is our newest and fastest growing line of OEM products. From dental to medical to industrial applications, the STC-R640 series offers a variety of cable lengths and head configurations. If needed, this product set is also available in cased versions.

All cameras on this page are available in NTSC and PAL formats



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

Sentech OEM Color CCD Cameras

Basic Camera Specifications

EGC Series Cameras

- Image Sensor: Color 1/4" 768 (H) x 494 (V) IT CCD
- Connection to CCU: Flexible printed circuit cable (length can vary)
- Special Configuration: Available in a two-headed CCD configuration
- Signal Formats: Available in NTSC & PAL formats
- Horizontal Resolution: 480 TV Lines
- Horizontal Frequency: 15.734 KHz
- Vertical Frequency: 59.94 Hz
- Gamma: 0.45
- AGC: On/Off (0 to 18 dB)
- Minimum Illumination: 1 Lux @ F1.2
- Video Out: 1.0 Vp-p, 75 Ohms
- Y/C Out: 1.0 Vp-p, 75 Ohms
- Sync System: Internal
- White Balance: ATW / Manual / Push-to-Set
- Aperture Gain: Off / On (On has two levels - user definable) 2-Bit - status output
- Electronic Shutter: 1/60 to 1/10,000 second
- Fixed Shutter: Low Speed: 2FLD to 16 FLD (8 Steps)
High Speed: 1/60 to 1/10,000 (8 Steps)
Better than 48dB (AGC Off)
- S/N Ratio: Selectable
- Negative Positive: Back light compensation at electronic shutter
- Back Light: 26 (W) x 19 (H) x 60 (L) mm
- CCU Dimensions: 12 (W) x 12 (H) mm
- CCD Head Dimensions: 35 grams
- Weight: 6 to 8 VDC
- Power Required: 270 mA
- Power Consumption:



EGD Series Micro Head Cameras

The EGD is very similar to the EGC series with the following basic exceptions:

- Connection to CCU: Wiring harness (length can vary - 1 to 8 inches)
- CCU Dimensions: 26 (W) x 23 (H) x 60 (L) mm
- CCD Head Dimensions: 8 mm diameter



STC-R640 Series Micro Head Cameras

- Image Sensor: 1/4-Inch Color CCD
- Signal Formats: Available in NTSC & PAL formats
- Connection to CCU: Cable assembly - available in 2, 3, 5, and 10 meter lengths
- Effective Pickup Area (H x V): 768 x 494 (NTSC) / 752 x 582 (PAL)
- Horizontal Sync Frequency: 15.734 KHz (NTSC) / 15.625 KHz (PAL)
- Vertical Sync Frequency: 59.94 Hz (NTSC) / 50.00 Hz (PAL)
- Horizontal Resolution: 480 TV Lines
- Lens Mount: User, micro, and C-mount (with adapter)
- Scanning Systems: 2:1 Interlace
- Video Output(s): Composite and Y/C (available on select models)
- Video Output Level: 1.0 Vp-p, 75 Ohm
- Y/C Video Output Level: 0.7 Vp-p, 75 Ohm
- Sync System: Internal/External
- S/N Ratio: Better than 48dB, AGC Off
- Gamma: 0.45 (default), DSP Adjustable (32 steps)
- Shutter Speeds:
 - 1/60 ~ 1/10,000 Auto/Fixed (NTSC)
 - 1/50 ~ 1/10,000 Auto/Fixed (PAL)
- Minimum Illumination: 1.2 Lux @ F1.2, 50 IRE
- White Balance: Manual / Full Auto / Push-to-Set
- Operating Voltage: DC +12 Volts ± 10%
- Power Consumption: 220 mA
- Operating Temperature: -10° C ~ +40° C
- CCU Dimensions: 45 (W) x 45 (H) x 14 (D) mm
- Weight: 22 Grams





Sentech High-Sensitivity, Low Light CCD Cameras

Sentech has introduced a new series of High Sensitivity cameras. If your application or system could benefit by having an excellent image quality with significantly less light, this product set will be interesting to you. The board-level products are available with a micro, CS, or C lens mount. Cased cameras are available in CS or C-Mount (adapter may be required).

High-Sensitivity Board-Level, Monochrome CCD Cameras (available in EIA or CCIR)



STC-H130

- 1/3" B/W CCD (510 x 492)
- 380 TVL
- 0.01 Lux F1.2, Gain On, 50 IRE
- 35 (W) x 35 (H) mm Board



STC-H160

- 1/3" B/W CCD (768 x 494)
- 570 TVL
- 0.04 Lux, F1.2, Gain On, 50 IRE
- 45 (W) x 45 (H) mm Board



STC-H170

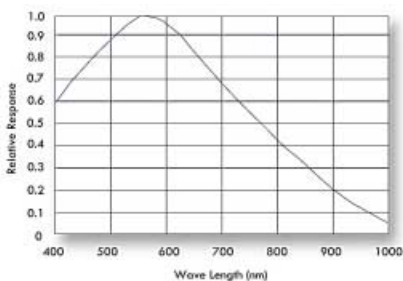
- 1/3" B/W CCD (768 x 494)
- 570 TVL
- 0.05 Lux, F1.2, Gain On, 50 IRE
- 45 (W) x 45 (H) mm Board



STC-HR170

- 1/3" B/W CCD (768 x 494)
- 570 TVL
- 0.05 Lux, F1.2, Gain On, 50 IRE
- 45 (W) x 45 (H) mm Main Board
- 15 (W) x 25 (H) mm CCD Board

Spectral Response of STC-H160 Camera



High-Sensitivity, Board-Level Color CCD Cameras (available in NTSC or PAL)



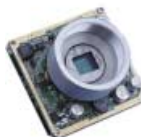
STC-H530

- 1/3" Color CCD (510 x 494)
- 330 TVL
- 0.10 Lux, F1.2, Gain On, 50 IRE
- 45 (W) x 45 (H) mm Board



STC-H630

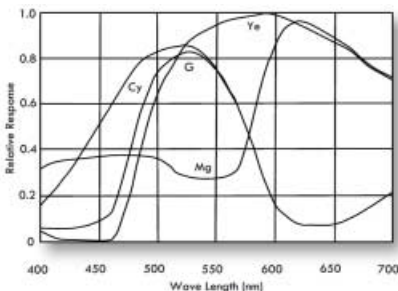
- 1/3" Color CCD (768 x 494)
- 480 TVL
- 0.30 Lux, F1.2, Gain On, 50 IRE
- 45 (W) x 45 (H) mm Board



STC-H620

- 1/2" Color CCD (768 x 494)
- 480 TVL
- 0.25 Lux, F1.2, Gain On, 50 IRE
- 45 (W) x 45 (H) mm Board

Spectral Response of STC-H630 Camera



All Sentech "H" version cameras incorporate Sony EXview HAD CCD (TM) sensors. EXview HAD CCD is a trademark of Sony Corporation.



Standard Resolution (Monochrome)



High Resolution (Monochrome)



Standard Resolution (Color)



High Resolution (Color)



OEM Camera Module (Color)



Sentech High-Sensitivity, Low Light CCD Cameras

High-Sensitivity, Cased Monochrome CCD Cameras

ST



STC-H130BT

- 1/3" B/W CCD (510 x 492)
- 380 TVL
- 0.01 Lux F1.2, Gain On, 50 IRE

MV



STC-H160BC

- 1/3" B/W CCD (768 x 494)
- 570 TVL
- 0.04 Lux, F1.2, Gain On, 50 IRE

MV



STC-H400 Series (H400 / H400L / HSS400)

- 1/2" B/W CCD (768 x 494)
- 570 TVL
- 0.05 Lux F1.2, Gain On, 50 IRE

MV



STC-H720

- 1/2" B/W CCD (768 x 494)
- 570 TVL
- 0.02 Lux, F1.2, Gain On, 50 IRE

STC-H730

- 1/2" B/W CCD (768 x 494)
- 570 TVL
- 0.05 Lux, F1.2, Gain On, 50 IRE

High-Sensitivity, Cased Color CCD Cameras

ST



STC-H530

- 1/3" Color CCD (510 x 494)
- 430 TVL
- 0.10 Lux F1.2, Gain On, 50 IRE

HR



STC-H630

- 1/3" Color CCD (768 x 494)
- 480 TVL
- 0.30 Lux F1.2, Gain On, 50 IRE

STC-H620

- 1/2" Color CCD (768 x 494)
- 480 TVL
- 0.25 Lux F1.2, Gain On, 50 IRE

How minimum illumination specs are determined and reported...

Sentech measures its products' performance carefully in order to provide real and practical information. We are careful not to publish unrealistic or theoretical specifications. Sentech measures Minimum Illumination with the camera's Gain set to factory (or standard) setting. The light is reduced until the camera produces a 50 IRE video level at our published Signal-to-Noise (S/N) ratio. The measurement of light at this level is used as our Minimum Illumination spec. Of course, by measuring the light at a 20-IRE level for example, the "published" specification for Minimum Illumination would be greatly improved on paper (e.g., exaggerated), but the actual performance of the camera will be the same. An exaggerated spec can also be achieved by boosting the gain level, but then the Signal-to-Noise spec will no longer be valid. Therefore, when you read Sentech's Minimum Illumination spec, these specifications are the actual level of performance that is achieved, while maintaining the integrity of all the other critical performance specifications of the product.

SENTECH

Sentech Security CCD Cameras 24V AC / 12V DC Line Locked Color CCD Cameras

Sentech often offers variations of our cameras for specific target markets or needs. These cameras operate on either 12 volt DC or 24 volt AC power allowing more versatility in a variety of applications.



STC-630ACS / STC-640ACS

- 1/3" or 1/4" CCD 768 (H) x 494 (V)
- 480 TV Lines Horizontal Resolution
- Line Locked Sync
- DC Driven Auto Iris Lens Connection
- 24V AC or 12V DC Power
- DC ALC Control
- Electronic Shutter up to 1/100,000
- CS or C-Mount (with an adapter)
- 45 (W) x 45 (H) mm



STC-640ACVL

- 1/4" CCD 768 (H) x 494 (V)
- 480 TV Lines Horizontal Resolution
- Line Locked Sync
- Vari-Focal Lens (f2.8~5.8 mm)
- 24V AC or 12V DC Power
- DC ALC Control
- 45 (W) x 45 (H) mm



All cameras on this page are available in NTSC and PAL formats.



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

SENTECH

Sentech Security CCD Cameras **24V AC Color Security**

Sentech has been developing and delivering specialty cameras since our inception in 1987. While not the main focus of product sets, Sentech does offer security cameras for those customers needing high-quality, industrial video.



(Lens sold separately)

STC-540AC

- 1/4" CCD 510 (H) x 494 (V)
- 330 TV Line Horizontal Resolution
- 24V AC or 20V DC Power
- DC ALC Control
- S/N Ratio Better than 48 dB (AGC Off)
- Gamma = 0.45
- CS or C Mount (with an adapter)
- Back Light Compensation
- Minimum Illumination 2 Lux at F1.2
- Sync - Line Lock or Internal (selectable)
- Full Auto White Balance
- Auto Iris - Luminance or DC (selectable)
- 64 (W) x 54 (H) x 104 (D) mm

The STC-540AC camera is available in NTSC format only.

Sentech Shielded CCD Board Cameras **For Monochrome and Color CCD Board Level Cameras**



Sentech Shielded Cameras

Sentech offers its board-level cameras in a special shielded configuration. This special housing allows users to integrate the camera in almost any application and protect it from interference of such items as motors, high voltage noise, or other machinery. For lensing, Sentech offers a full range of micro lenses for monochrome or color CCD cameras. Also, CS and C-Mount are available in the shielded housing configuration.

Ask you authorized Sentech sales representative for more information on Sentech's entire line of shielded cameras.

Shielded cameras are available in EIA, CCIR, NTSC and PAL formats.

SENTECH

Sentech Camera Accessories



Camera Cables:

12W-2P	Power cable with a 12 pin Hirose and +/- power spades
12W-3.6PS	Power cable with 12 pin Hirose, Y/C, and +/- power spades
12W-02	2 meter cable with 12 pin Hirose connectors on each end
12W-05	5 meter cable with 12 pin Hirose connectors on each end
12W-0.45	18 inch cable with 12 pin Hirose connectors on each end
CAB-3BNC	3 foot BNC to BNC, shielded
CAB-6BNC	6 foot BNC to BNC, shielded
CAB-6Y/C	6 foot Y/C to Y/C (S-Video), shielded

Custom Cables Available - Contact Sentech America for more details.

Connectors:



COM-HR10A-10P-12S	12-pin Hirose connector, cable
COM-HR10-10R-12P	12-Pin Hirose connector, panel mount



Digital Signal Processing (DSP) Communication Accessories:

3SCom-6	DSP RS-232 Cable with a mini jack connector
CAB-RS-232C	DSP cable to connector JIG-630 to a computer
JIG-630	DSP Communications Interface Box



Power Supplies:



45-752	Regulated 12 Volt DC, 1 Amp
45-752A	Regulated 12 Volt DC, 1 Amp with Jack Connector

Tripod Mount:



TP-300	Tripod Mount for 300, 400, 1000, and 1100 Series Cameras
TP-700	Tripod Mount for 700 Series Cameras



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)

Sentech Camera Accessories



Monochrome Board-Level and Shielded Camera Micro Lenses:

LEN-B2.3	2.3 mm Focal Length
LEN-B2.5	2.5 mm Focal Length
LEN-B3.6	3.6 mm Focal Length
LEN-B6	6.0 mm Focal Length
LEN-B8	8.0 mm Focal Length
LEN-B16	16.0 mm Focal Length
Pinhole	Various Focal Lengths



Color Board-Level and Shielded Camera Micro Lenses:

LEN-C2.3	2.3 mm Focal Length
LEN-C2.7	2.7 mm Focal Length
LEN-C4	4 mm Focal Length
LEN-C8	8 mm Focal Length
Pinhole	Various Focal Lengths



Color Remote Micro Head Camera Micro Lenses:

LEN-R640-L2.7	2.7 mm Focal Length
LEN-R640-L4	4.0 mm Focal Length
LEN-R640-L8	8.0 mm Focal Length

Speciality Remote Micro Head OEM Micro Lenses:

LEN-PT47M1	F2.3, 4.7mm super micro lens with manual iris*
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*Custom OEM Micro Lenses Available - Contact Sentech America for more details. * For STC-R640 and STC-R640C cameras.*



Lens Adapters:

C-ADPTR	C-Mount adapter ring for CS-mount cameras (5 mm)
LEN-R640-LC	C-Mount adapter for R640 series micro lens mounts

SENTECH

Glossary of Terms

C-Mount	A lens mount with a flange back of 17.526mm, 1 inch in diameter, 32 threads per inch
CS-Mount	A lens mount with a flange back of 12.5mm, 1 inch in diameter, 32 threads per inch (CS-Mounts can be converted to C-Mount with a 5mm adapter ring.)
Gamma	A numeric value, or the degree of contrast in a video image. Standard video accessories, (monitors, VCRs, consumer frame grabbers, etc.) are usually set for a gamma value of 0.45. Machine Vision applications and industrial level frame grabbers usually require a gamma value of 1.0.
Lens Mount	The two styles (sizes) of lens mount that are most common for commercial / industrial applications are C-mount and CS-mount (see above).
Minimum Illumination	The measurement of the camera's capability to generate a useful image in low light conditions. Sentech's method of determining the minimum illumination is to measure the level of light when the camera has an F1.2 lens with the gain ON at a 50 IRE video signal output. Boosting the gain or lowering the IRE level when testing will result in exaggerated performance specifications.
Synchronization	Sync is the ability of the camera to line up the data being processed in such a way that the camera generates an image that is not "torn," "skipping" or "skewed" in appearance. Internal Sync is when the camera is running in a stand-alone mode and "lining up" the timing data by itself. External Sync is when the camera is "sharing" timing data with a second or external device (i.e.: a second camera, a frame grabber, a digital recorder, etc.) so that the output of the signal is synchronized with the external device as required by the application. HD/VD: Horizontal Drive / Vertical Drive VBS: Composite Video Signal Master: The device that provides the sync signal to other devices. Slave: The device that uses a sync signal from other devices. Pixel Clock: A sync method which divides an incoming line of data into pixel data for more exact synchronization.
Trigger	A special signal provided to a camera to start some needed operation. Commonly used in machine vision for image acquisition.
Video Signals	Color video signals are made of light (luminance) and color (chroma). Two very common video signals are Composite and Y/C (S-Video). These signals carry essentially the same data, but with different "formats." Composite mixes the light and color into a single signal. Y/C separates the light and chroma into separate signals.
White Balance	A function allowing the value of white to be established. With "Auto" white balance settings, slight color shifts will occur with changing light conditions as the camera recalculates the value of white. With "Manual" white balance settings the values of the Red Gain and Blue Gain are manually set and do not vary. Auto white balance is used when the color of light can change. Manual white balance is used when the light source values are constant.
Units of Measurement	Vp-p: Volts peak to peak. The voltage difference that exists between the most positive and most negative peaks of an electric signal. A correct, standard video signal measures one volt peak to peak. Lux: A measurement of light. The smaller the Lux value the more light "sensitive" the camera performs. dB Decibel: Logarithmic measure of relative power levels. For example, concerning video noise the ratio is between the video signal and the noise. S/N = 56dB. For S/N the higher the number the better.

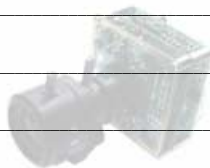
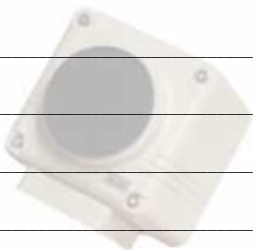
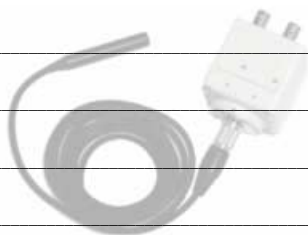
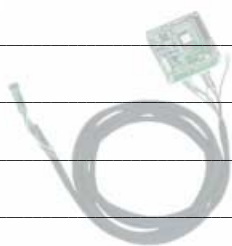
All specifications, descriptions, information, etc. contained herein are subject to change without prior notice.

We Proudly Accept:



SENTECH

Notes:



Standard Resolution
(Monochrome)



High Resolution
(Monochrome)



Standard Resolution
(Color)



High Resolution
(Color)



OEM Camera Module
(Color)



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Carrollton, Texas 75006 USA

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