

**1. Contents**

This package contains:

- Color camera module
- Connection cable
- User manual

**2. Features**

**(Selectable Through Software)**

- Manual gain control
- Back light compensation
- Selectable shutter modes
- Gamma on/off
- Scan mode interlaced / non interlaced

For more information regarding complementary models, camera control, and communication, please download application note 20K14X on [www.videology-inc.com](http://www.videology-inc.com)

**3. Precautions**

1. Never aim the camera at the sun or other extremely bright light sources. Whether in use or not, exposure to extremely bright light sources may harm the CCD image sensor or may cause smear on the picture.
2. Do not operate the camera beyond its temperature or power source ratings. The valid operating temp. should fall between -15°C and +55°C. Do not use power sources which exceed the specified values.
3. Cleaning the sensor: Avoid unnecessary exposure of the sensor to dust. If the surface of the sensor has to be cleaned, never use any cloth, tissue or brush and strictly avoid the use of any kind of cleaning fluid. Only use dry air to blow particles from the surface of the sensor.

**4. Power**

The camera module must be powered with a DC power source:

- Regulated (5VDC ± 5% Nominal)

**Note: 5VDC REGULATED**

**!!Do Not Reverse Polarity!!  
Connect + to +**

- Consumption: < 0.8W

**5. Output**

- S-video, Y/C  
Y = 1Vp-p      C = 700mVp-p

**6. Lenses**

<u>20K145YC/ 21K145YC</u>	<u>20K142YC/ 21K142YC</u>
Integrated lens M-12 Thread	Pinhole Lens- mount, M-12 Thread

20K148YC/ 21K148YC  
Standard CS-mount (1"-32 UN)

*\*Note  
C-mount lenses are applicable as well when using a 5mm spacer (C/CS mount adapter).*

**Mounting a CS Mount Lens**

- Remove the protective cover from the lens mount.
- If a C-mount lens is used, mount a 5mm spacer (C/CS mount adapter ring) between lens and camera.
- Screw the lens on the camera. Do not allow any dust to enter the space between the lens and the CCD element; if necessary, blow it away with clean air.
- Adjust the back-focus distance as described below (if using CS Mount).
- Aim the camera and focus the lens to the object or area to be observed.
- If a manual iris lens is used, adjust the iris for better picture quality. A large aperture gives the best light sensitivity, a small aperture the largest depth of field.

**Back-Focus Adjustment (CS Mount)**

- Set the lens focus ring, if present, to infinity, and the iris ring, if present, to its maximum opening.
- Aim the camera at an object at a distance of at least 15 meters/45 feet.
- Loosen the back-focus locking ring at the front of the camera by turning it counter-clockwise.
- Rotate the lens, including the CS mount ring, until the picture on the monitor is sharp.
- Keeping the lens in place, tighten the back-focus locking ring by turning it clockwise.
- Note: If the lens to be backfocused is a board or pinhole lens, then the set screw of the lens mount should be loosened to adjust and tightened to lock.

**7. Iris Control / Fixed Shutter**

The exposure time of the CCD is automatically controlled by electronic iris control.

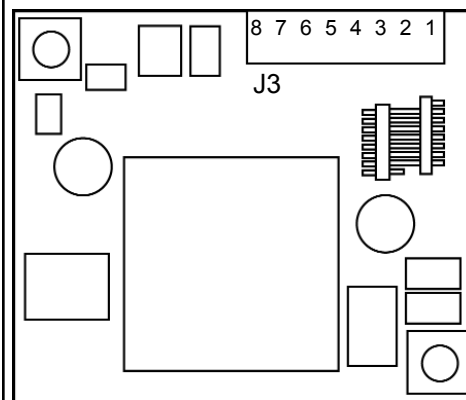
**8. Synchronization**

The camera produces its own internal synchronization.

**9. Connectors**

- J3: (8 pin)
- Pin 8 - +5V DC
- Pin 7 - Ground
- Pin 6 - Y-out
- Pin 5 - Ground
- Pin 4 - I<sup>2</sup>C CLK
- Pin 3 - I<sup>2</sup>C Data
- Pin 2 - Ground
- Pin 1 - C-out

20K14XYC (Back)



## 10. Technical Specifications

### Electrical

	20K14XYC NTSC	21K14XYC PAL
CCD Sensor	1/4" IL CCD	
Active pixels (HxV)	510 x 492	500 x 582
Horizontal resolution (TVL)	≥390 TVL	
Sensitivity	< 1.0 lux	
Signal to noise ratio	> 48 dB (AGC off)	
Gamma	0.45 default (1.0 via Software)	
Gain Control	Automatic 36 dB (AGC default) or Fixed options via software	
Scan Mode	Interlaced / Non Interlaced (selectable via Software)	
Mirror Mode	Selectable via software	
Synchronization	Internal	
Back light compensation	Default on (selectable via software)	
White Balance Mode	AWB auto white mode Fixed modes selectable via software	
Contour enhancement	Default on	
Iris Control	CCD Iris default	
Shutter Speeds	Automatic from 1/60 to 1/100,000	Automatic from 1/50 to 1/100,000
	8 fixed speeds via software	
Video output	S-video Y/C Y= 1Vp-p, C= 700mVp-p	
Control Communication	I <sup>2</sup> C control	
Power supply	5VDC ± 5% (not polarity protected)	
Power consumption	< 0.8 W	

### Environmental

Ambient operating temp.	-15° C to + 55° C
Ambient operating Humidity	20 up to 93%RH
Storage temp.	-25° C to + 70° C
Storage Humidity	Up to 98%RH
Lifetime	MTBF > 150000
Packaging	ESD safe package

### Mechanical

Dimensions (LxWxD)	22mm x 26mm x 25mm without lens	
Lens mount	Metal CS:	20/21K148YC
	Metal M-12 board:	20/21K145YC
	Metal M-12 pinhole:	20/21K142YC
Connectors Standard:	Power/ Video/ Communication	8 -pole Board connector
Cables Supplied	8 -pole mate for power and video with flying leads	

### Accessories

Communication kit	Model 60K1	
Includes:	Communication board	72V0012B
	Cable 1:	Camera / com board 60C1045
	Cable 2:	Com board to 25 pin computer connector 60C0102
	Camera control software	SFT-03001

### Complementary Models

20K14X	Standard resolution, CVBS
20K14XCB	Blanking pulse access
20K14XDIG	YUV 8-Bit digital output
20K14XDN	Day / Night color board camera
20K14XUSB	USB 2.0
20K15X	High resolution, CVBS
20K15XYC	High resolution (490TVL), S-Video Y/C
20K15XDIG	High resolution, YUV 8-Bit digital