

# VIDEOLOGY®

IMAGING SOLUTIONS INC.

## Operation Manual

M12 Board Lens		CS Lens	
NTSC	PAL	NTSC	PAL
20D436	20D436	20D439	21D439
20D436YC	20D436YC	20D439YC	21D439YC



### BOX CONTENTS

1. Camera module
2. Connection cable
3. User manual

### 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 will 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  $-15^{\circ}\text{C}$  and  $+55^{\circ}\text{C}$ . 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.

### POWER

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

Regulated 12V DC  $\pm 3\%$  DC  
Consumption:  $< 1.7\text{W}$

### OUTPUT

Video  
CVBS (1 Vp-p/75 ohms) is available at J730, pin 7  
  
Y/C available at J730 pin 7 and pin 8 (Y/C version)

### BACK-FOCUS ADJUSTMENT

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.

### IRIS CONTROL / FIXED SHUTTER

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

A video Iris signal is available at J730, Pin 11.

### SYNCHRONIZATION

The module is default in the internal synchronization mode. This means that the camera generates its own internal timing sequence.

### LENSES

20D436 / 21D436	20D439 / 21D439
Integrated lens / M-12 Thread	CS Standard

The camera module is equipped with a standard CS-mount (1"-32 UN) so fixed and manual lenses can be used.

### 20D43XYC, 21D43XYC

Y/C Video out - All lens options available

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

### MOUNTING A LENS

Remove the protective cover from the CS mount ring.

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.

Aim the camera and focus the lens to the object or area to be observed.

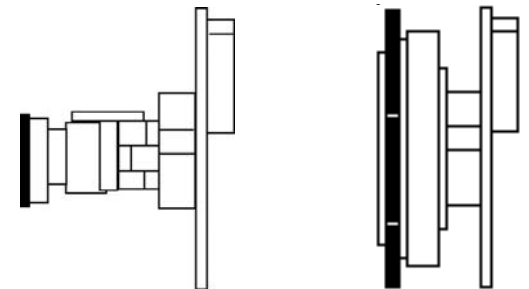
If a manual iris lens is used, adjust the iris for better picture quality. A large aperture gives the best light sensitivity, a small aperture the largest depth of field.

### 20D436 / 21D436

Integrated lens / M-12 Thread

### 20D439 / 21D439

CS Standard



## CONNECTORS

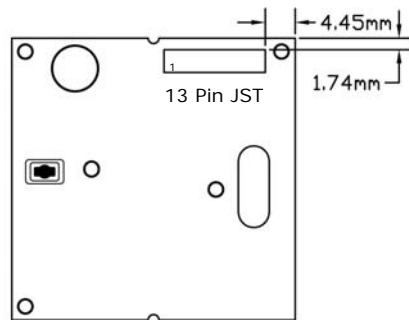
### J730

13 Pole Connector (Model # BM13B-SRSS-TB)

Y/C available at J730 pin 7 and pin 8 (Y/C version)

Analog Output Connector: J730  
13 Poles (2 XD439)

Pin No.	Function
1	DO NOT CONNECT, only for internal use
2	GND
3	+12V IN
4	Back Light Compensation Ground to turn On
5	GND
6	DO NOT CONNECT, only for internal use
7	CVBS (in case of Y/C this output is Y)
8	C-OUT (in case of Y/C)
9	VEXT
10	EE (when connected to ground then Electronic shutter is off)
11	IRISout
12	SDATA
13	SCLOCK (black wire)



## TECHNICAL SPECIFICATIONS

Electrical	20D436	21D436
	20D439 (NTSC)	21D439 (PAL)
CCD Sensor	1/3" IL	
Active Pixels (H x V)	768 x 492	768 x 492
Horizontal Resolution	460 (TVL) CVBS	
Sensitivity	0.5 Lux (50 IRE) F1.2, 3200° K, lens transmission 80%, scene reflection 75%	
Signal to Noise Ratio	> 48 dB (AGC off)	
Gamma	Default 0.45	
Gain	Automatic (36 dB default)	
Synchronization	Internal	
Back Light Compensation	Off (Default) hardware/ software select	
White Balance	Push to set and auto, software select	
Shutter Speed	Automatic from 1/60 to 1/100,000	Automatic from 1/50 to 1/100,000
	Fixed shutter hardware/ software select	
Mirror Mode	On/Off selectable via software	
Iris	CCD Iris default / video iris	
Video Output	1Vp-p video 75 ohms composite	
Power Supply	12VDC (+3 -4) (Polarity protected)	
Power Consumption	1.7W excluding: auto iris power consumption	

### Environmental

Ambient Operating Temp.	-15° C ~ 55° C (5° F ~ 131° F)
Storage Temp.	-25° C ~ 70° C (-13° F ~ 158° F)

### Mechanical

Dimensions WxHxD	42mm x 42mm x 25mm (1.65" x 1.65" x 0.98")	
Lens Mount	20D436 / 21D436	Metal M-12 board lens mount with reference plate 12mm diameter, 0.5mm pitch
	20D439 / 21D439	Metal CS mount with reference plate: Optional C mount with interface ring 60VZZ0030
Interfaces	13 Pin JST	

### Board Mount Lens Options

Specify "L3" suffix for 2.9mm lens (example: 20D436L3)	
L4	3.6mm
L6	6mm
L8	8mm
L12	12mm
VA	4-9mm No Iris Varifocal
VB	4-9mm DC Iris Varifocal
WA	2.6-6mm No Iris Varifocal
WB	2.6-6mm DC Iris Varifocal

### Accessories

Optional	24VAC power board
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## TECHNICAL SPECIFICATIONS

Electrical	20D436YC	21D436YC
	20D439YC (NTSC)	21D439YC (PAL)
CCD Sensor	1/3" IL	
Active Pixels (H x V)	768 x 492	768 x 492
Horizontal Resolution	490 (TVL) Y/C	
Sensitivity	1.5 Lux (50 IRE) F1.2, 3200° K, lens transmission 80%, scene reflection 75%	
Signal to Noise Ratio	> 48 dB (AGC off)	
Gamma	Default 0.45	
Gain	Automatic (26 dB default)	
Synchronization	Internal	
Back Light Compensation	Off (Default) hardware/ software select	
White Balance	Push to set and auto, software select	
Shutter Speed	Automatic from 1/60 to 1/100,000	Automatic from 1/50 to 1/100,000
	Fixed shutter hardware/ software select	
Mirror Mode	On/Off selectable via software	
Iris	CCD Iris default / video iris	
Video Output	1Vp-p video Y = 1Vp-p (75 Ohms) C = 700mVp-p	
Power Supply	12VDC (+3 -4) (Polarity protected)	
Power Consumption	2.0W excluding: auto iris power consumption	

### Environmental

Ambient Operating Temp.	-15° C ~ 55° C (5° F ~ 131° F)
Storage Temp.	-25° C ~ 70° C (-13° F ~ 158° F)

### Mechanical

Dimensions WxHxD	42mm x 42mm x 25mm (1.65" x 1.65" x 0.98")	
Lens Mount	20D436 / 21D436	Metal M-12 board lens mount with reference plate 12mm diameter, 0.5mm pitch
	20D439 / 21D439	Metal CS mount with reference plate: Optional C mount with interface ring 60VZZ0030
Interfaces	13 Pin JST	

### Board Mount Lens Options

Specify "L3" suffix for 2.9mm lens (ex: 20D436YCL3)	
L4	3.6mm
L6	6mm
L8	8mm
L12	12mm
VA	4-9mm No Iris Varifocal
VB	4-9mm DC Iris Varifocal
WA	2.6-6mm No Iris Varifocal
WB	2.6-6mm DC Iris Varifocal

### Accessories

Optional	24VAC power board
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