

# VIDEOLOGY®

IMAGING SOLUTIONS INC.

## Operation Manual

M12 Board Lens		CS Lens	
NTSC	PAL	NTSC	PAL
20D476	20D476	20D479	21D479



### BOX CONTENTS

1. Camera module
2. C-Mount lens holder
3. Connection cables
4. User manual

### SAFEGUARDS & WARNINGS

Prior to installation and use of this product, the following WARNINGS should only be observed.

1. Installation and servicing should only be done by Qualified Service and Installation Personnel.
2. Installation shall be done in accordance with all local and national electrical and mechanical codes.
3. Use only installation methods and materials capable of supporting four (4) times the maximum specified load.

### Power

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

Regulated 10.5VDC - 13.5VDC (12VDC optimal)  
Consumption: <1.5W

### Iris Control/Fixed Shutter

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

### Synchronization

The module is default in internal synchronization mode (X-Tal-locked). The module can also be used in external synchronization modes:

- 1) By connecting a Vertical pulse to pin 9 of J730, the camera is in V-lock (or Linelock).
- 2) By connecting also a Horizontal pulse to pin 10 of J730, the the camera is in H&V-lock.

### Video Output

Analog	CVBS	1Vp-p at 75 Ohms
	YC	1Vp-p at 75 Ohms (optional)
	RGB	RB 700mVp-p G 1Vp-p at 75 Ohms
Digital	YUV	Y 1Vp-p at 75 Ohms UV 700mVp-p

### Lenses

20D476/21D476      20D479/21D479

Integrated lens CS Standard  
M-12 Thread

20D479, 21D479

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

#### \*Note

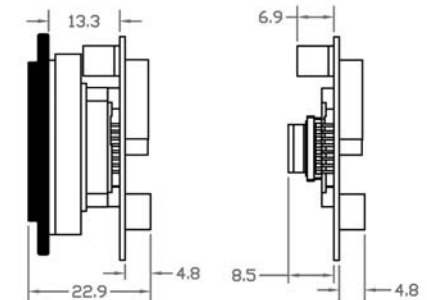
*C-mount lenses are applicable as well when using a 5mm spacer (C/CS mount adapter).*

### Mounting a Lens

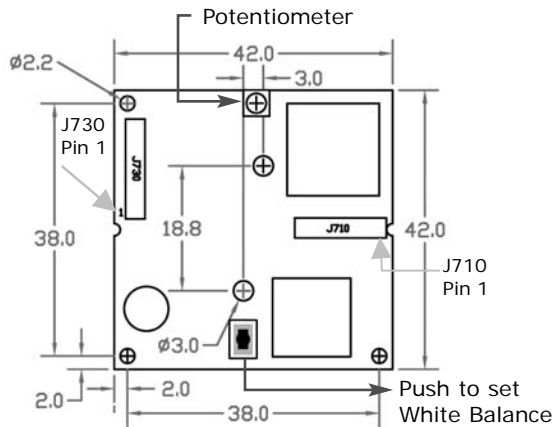
- 1) Remove the protection cover from the CS mount ring.
- 2) If a C-mount lens is used, mount a 5mm spacer (C/CS mount adapter ring) between lens and camera.
- 3) Screw the lens on the camera. Do not allow any dust to enter the space between the lens and the CCD element; if necessary, blow it away with clean air.
- 4) Adjust the back-focus distance as described below.
- 5) Aim the camera and focus the lens to the object or area to be observed.
- 6) 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

- 1) Set the lens focus ring (if present) to infinity, and the iris ring (if present) to it's maximum opening.
- 2) Aim the camera at an object at a distance of at least 15 meters/45 feet.
- 3) Loosen the back-focus locking ring at the front of the camera by turning it counter-clockwise.
- 4) Rotate the lens, including the CS mount ring, until the picture on the monitor is sharp.
- 5) Keeping the lens in place, tighten the back-focus locking ring by turning it clockwise.



## Connectors



### Analog Output Connector: J730

#### 13 Poles (2XD47X)

Pin	Function	Pin	Function
1	H-sync (C-sync)	7	CVBS
2	Ground	8	C-out
3	12V power in	9	Vext
4	Push to set white balance	10	Hext
5	Ground	11	V-sync (Iris out)
6	Y-out	12	1°C data
		13	1°C clock

### Digital Connector: J710

#### J710 flat foil connector

Pin	Function	Pin	Function
1	Ground	13	YUV-out-5
2	SCLOCK 1°C	14	YUV-out-4
3	SDATA 1°C	15	YUV-out-3
4	MODE3	16	YUV-out-2
5	MODE2	17	YUV-out-1
6	MODE1	18	YUV-out-0 lsb-bit digital out
7	MODE0	19	Ground
8	Pixel Clock	20	V-SYNC out
9	Ground	21	PROG-MODE2
10	PROG-MODE4	22	PROG-MODE3
11	YUV-out-7 msb-bit digital out	23	H-SYNC out
12	YUV-out-6	24	PROG-MODE1

## Technical Specifications

Electrical	20D476/ 479	21D476/ 479
	NTSC	PAL
Image Sensor	1/3" IL	
Active Pixels	(HxV) 768 x 492	(HxV) 752 x 582
Resolution	470 TVL	
H Resolution	470 (TVL) CVBS, 490 (TVL) YC (SVHS)	
Sensitivity	<0.5 Lux (50 IRE) F1.2 Lens transmission 80%, scene reflection 75%	
Signal Noise Ratio	> 48 dB (AGC off)	
Gamma	Default 0.45, 1.0 Selectable via software	
Gain	Automatic (26 dB default) Manual / Fixed via software	
Synchronization	Internal (X-tal coupled), H&V lock, line lock	
Back Light Comp	Selectable via software	
White Balance	Automatic (default) 3 Fixed modes via software Push to set via hardware or software	
Shutter Speed	Automatic from 1/50 to 1/100,000	Automatic from 1/60 to 1/100,000
	8 Fixed speeds via hardware 11 Speeds via software	
Scan Mode	Interlaced / Non-interlaced 75Hz option, specific model, -see app note	
Flickerless Mode	1/100 sec	1/120 sec
Contour Enhancement	Selectable horizontal & vertical via software	
Mirror Mode	On/Off Selectable via software	
Iris	CCD Iris default, video iris DC Iris output via option board 60PB24VDL	
Video Output	Analog	1Vp-p video 75 ohms composite Optional: Y/C (SVHS), RGB
	Digital	YUV 8 bit
Power Supply	8-16VDC, 12VDC Nominal	
Power Consumption	<2.0W excluding: auto iris power consumption	

### Environmental

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

### Mechanical

Dimensions	42mm x 42mm x 17mm (1.65" x 1.65" x 0.66")	
Lens Mount	20/21D476	Metal M-12 board lens mount with reference plate, 12mm diameter, 0.5mm pitch
	20D479	Metal CS mount with reference plate
	60VZZ0030	Optional C mount with interface ring
Interfaces	Analog	13 Pole AMP
	Digital	24 Pole Flex foil connector
Power Supplies	60PR12DC500	12VDC
Cables (Included)	60C1011	13-pin with flying leads

### Software

SFT-03001	Software control program available
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**Note: Serial Interface or YC options are special requests**