AIDA
IMAGING

4K/UHD 6G-SDI POV Camera

UHD6G-X12L

OPERATION GUIDE

| **CAUTION:** |
| RISK OF ELECTRIC SHOCK.
DO NOT OPEN. |

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK)
NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING
This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.

PRECAUTION
This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

To prevent damage which may result in fire or electric shock hazard, do not expose this appliance to rain or moisture.

1. Be sure to use only the standard adapter that is specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product.
2. Incorrectly connecting the power supply or replacing battery may cause explosion,cause excessive heat or fire
3. Securely plug the power cord into the power receptacle. Insecure connection may cause fire.
4. Do not place conductive objects (e.g. screw drivers, coins, metal items, etc.) or containers filled with water on top of the camera. Doing so may cause personal injury due to fire, electric shock, or falling objects.
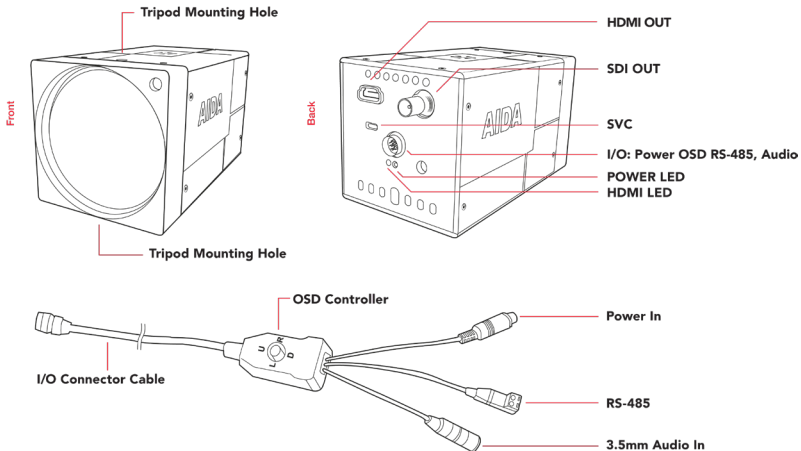
5. Do not install the unit in humid, dusty, or sooty locations. Doing so may cause fire or electric shock
6. If any unusual smells or smoke come from the unit, stop using the product. Immediately disconnect the power source and contact the service center. Continued use in such a condition may cause fire or electric shock.
7. If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way.
8. When cleaning, do not spray water directly onto parts of the product. Doing so may cause fire or electric shock.

PRECAUTION

Please read this Operation Guide before installing and using the camera & retain this copy for your reference.

1. Always follow the instructions in the operations guide when applying power. Fire and equipment damage can occur if power is applied incorrectly. For the correct power supply,refer to the specifications page.
2. Do not use camera if fumes, smoke or a strange odor is emitted from the camera, or if it seems not functional correctly. Disconnect the power source immediately and consult with your supplier.
3. Do not use the camera in extreme environments where high temperatures or high humidity exists. Use the camera under conditions where temperatures are between 32°F ~ 104°F, and humidity is below 90%.
4. If installed close to a TV, radio transmitter, magnet, electric motor transformer or audio speakers the magnetic field generated may interfere with or distort the image.
5. Try to avoid fluorescent light reflections, unstable light conditions, direct pointing toward the sun. Use caution when operating the camera in the vicinity of spotlights or other bright lights and light reflecting objects.
6. To prevent damage, do not drop the camera or subject it to strong shock or vibration.

Tripod Mounting Hole

HDMI OUT

SDI OUT

Front

Back

SVC

I/O: Power OSD RS-485, Audio

POWER LED

HDMI LED

Tripod Mounting Hole

OSD Controller

Power In

I/O Connector Cable

RS-485

3.5mm Audio In

- 4K UHD 1/1.7 Progressive Scan CMOS sensor capable of 4K (4092 x 2160) captures sharp and vivid images even under very low light conditions.
- Powered by a back-illuminated pixel technology.
- Superior 4K 12X optical zoom.
- Advanced digital imaging processor provides vivid and detailed images by utilizing Dynamic Range, Auto White Balance, and Noise Reduction.
- Superb motion-compensated temporal noise reduction filter for motion video without blurring.
- OSD control breakout cable with two audio inputs and RS-485 for remote communication.
- Dual video simultaneous out interfaces 6G-SDI & HDMI.
- Flawlessly relays multi-channel embedded audio via 6G-SDI & HDMI.
- Perfectly suited for broadcast, pro audio/video, and security.
- Conforming with SMPTE 292M, 424M, and 2081-10.
- Versatile, compact, and rugged design.

OSD MENU

```
   MAIN MENU

  *WB CONTROL        >
   AE CONTROL        >
   DAY /NIGHT        >
   AUDIO             >
   IMAGE CONTROL     >
   SPECIAL           >
   SETUP             >
   RESET             >
   EXIT
```

L- Left | **R-** Right | **U-** Up | **D-** Down | **■-** Select

1. **Move the Cursor Up/Down to Choose Menu**
   To move from item to item in the menu, move the joystick to the Up/Down.

2. **Change the Value**
   To change the value of the selected item, move the joystick to the Left/Right.

3. **Shift to the Sub Menu of the Chosen Menu**
   To go into sub menu, press SEL key. The menu items with > always have its sub menu.

```
FOCUS CONTROL

  FOCUS MODE       AUTO
  PUSH
  ZOOM SPEED    5    ◄■■■■■□►
  FOCUS LIMIT   50CM
 *AF AREA/SIZE            >
  RETURN
```

AUTO
Auto mode will adjust the exposure level automatically.

MANUAL
Focus control is done manually.
- **PUSH** : Press SEL key to focus automatically from the current view.

ZOOM SPEED
0 ~ 7 (Auto mode will adjust the exposure level automatically)

FOCUS LIMIT
10cm, 50cm, 1m, 2m, 3m, 5m, 10m (Focus speed can be adjusted from this menu)

AF AREA/SIZE User Mode : ON, OFF

WIDTH - 0 ~ 20 (Auto mode will adjust the exposure level automatically)

HEIGHT - 0 ~ 20 (Auto mode will adjust the exposure level automatically)

MOVE HOR - 0 ~ 20 (Auto mode will adjust the exposure level automatically)

MOVE VER - 0 ~ 20 (Auto mode will adjust the exposure level automatically)

```
WHITE BALANCE

 *MODE          ATW
  PUSH
  BLUE
  RED
  RETURN
```

AWB - Auto white balance mode will adjust white balance within 3,000˚K ~ 8,000˚K temperature.

ATW - Auto trace white mode will adjust white balance within 1,900˚K ~ 11,000˚K temperature.

ONE PUSH - One push mode is used if AWB or ATW cannot produce the proper white balance. Place a white paper in front of the camera when using the one push mode to self adapt.

INDOOR - Indoor mode will adjust white balance to indoor lighting conditions.

OUTDOOR - Outdoor mode will adjust white balance to outdoor lighting conditions.

MANUAL - Manual mode will adjust white balance manually.

BLUE - 0 ~ 100 (Select blue gain within the range of 0 to 100)

RED - 0 ~ 100 (Select Red gain within the range of 0 to 100)

```
EXPOSURE
*AE MODE        AUTO
 SHUTTER
 IRIS
 AGC
 AGC MAX        HIGH
 SENS UP        OFF
 AE BRIGHT      6    [====   ]
 IRIS SPEED     3    [===    ]
 FLK CONTROL    OFF
 LENS MODE      INDOOR
 RETURN
```

```
EXPOSURE
*AE MODE        SHUT FIX
 SHUTTER        AUTO
 IRIS
 AGC
 AGC MAX        HIGH
 SENS UP        OFF
 AE BRIGHT      6    [====   ]
 IRIS SPEED     3    [===    ]
 FLK CONTROL    AUTO
 LENS MODE      INDOOR
 RETURN
```

AUTO

Auto mode will adjust the exposure level automatically.
Detailed fine tuning options are available under this menu.

- **AGC MAX** : OFF, LOW, MIDDLE, HIGH, DMIN, DMID, DMAX
  "AGC MAX" sets the maximum gain value to control the video noise caused by Auto Gain Control.
- **SENS UP** : OFF, x2 ~ x10
  "SENS UP" mode controls the digital slow shutter to allow extra light into the camera and adjust the picture quality.
- **AE BRIGHT** : 0~20
  Auto Exposure brightness level can be adjusted.

SHUT FIX

SHUT FIX mode provides more detailed shutter speed option.
All other controls are tuned for the selected shutter speed.

- **SHUTTER** : AUTO, 1/30 ~ 1/10,000 (Shutter speed can be set)
- **AGC MAX** : OFF, LOW, MIDDLE, HIGH, DMIN, DMID, DMAX
  "AGC MAX" sets the maximum gain value to control the video noise caused by Auto Gain Control.
- **SENS UP** : 0~20
  "SENS UP" mode controls the digital slow shutter to allow extra light into the camera and adjust the picture quality.
- **AE BRIGHT** : 0~10
  Auto Exposure brightness level can be adjusted.

```
EXPOSURE
*AE MODE        AGC FIX
  SHUTTER
  IRIS
  AGC           AUTO
  AGC MAX       HIGH
  SENS UP
  AE BRIGHT     6   (■■■■    )
  IRIS SPEED    3   (■■■■■■  )
  FLK CONTROL   AUTO
  LENS MODE     INDOOR
  RETURN
```

AGC FIX

AGC FIX mode provides more detailed gain option.

All other controls are tuned for the selected gain value.

- **AGC** : AUTO, 0dB ~ 27dB, d2X ~ d9X
  Gain level can be set.
- **AGC MAX** : OFF, LOW, MIDDLE, HIGH, DMIN, DMID, DMAX
  "AGC MAX" sets the maximum gain value to control the video noise caused by Auto Gain Control.
- **AE BRIGHT** : 0~10
  Auto Exposure brightness level can be adjusted.
- **IRIS SPEED** : 0 ~ 5
  Electronic Iris speed can be controlled. (DC Iris lens only)
- **LENS MODE** : INDOOR, OUTDOOR, MANUAL
  Lens setting will be optimized for the selected environment. (DC Iris lens only)
- **FLK CONTROL** : AUTO, ON, OFF
  "FLK CONTROL" mode provides a proper image sensor frequency to match the power frequency in order to minimize video flicker.

```
DAY & NIGHT

*MODE          DAY (COLOR)
 NIGHT COLOR   OFF
 COLOR BURST   OFF
 RETURN
```

Adjust color or B&W setting from this menu.

- **MODE** : DAY(COLOR), NIGHT(B&W)
  Set camera to either color mode or B&W mode.
- **NIGHT COLOR** : ON, OFF
  When "NIGHT COLOR" is turned ON, camera stays on color mode even "NIGHT(B&W)" is selected from the MODE.
- **COLOR BURST** : ON, OFF
  Color burst signal ON or OFF can be set for CVBS signal. (Not applicable)

```
AUDIO

*MODE            LINE
 AUDIO LEVEL     0 dB
 MIC ATTENUATOR  OFF
 AGC LIMIT
 SAMPLE BITS     24BITS
 RETURN
```

MODE : OFF, LINE, MIC
Select the proper audio mode from this menu.
AUDIO LEVEL : -12dB ~ 48dB
Audio level can be manually adjusted from this menu.
MIC ATTENUATOR : ON, OFF
Audio input attenuation can be controlled from this menu to minimize the audio noise level.
AGC LIMIT : -0dB ~ 58dB
Audio gain level can be adjusted from this menu when MIC attenuation is enabled.
SAMPLE BITS : 16, 20, 24, 32 (Audio sample bit rate can be adjusted from this menu)

```
      IMAGE CONTROL
    *LENS SHADING    SHUTTER
     CONTRAST        11    ◀━━━━▶
     BRIGHTNESS      11    ◀━━━━▶
     SATURATION      10    ◀━━━▶
     HUE             0     ◀▶
     EDGE ENHANCE    5     ◀━━▶
     AUTO SATURATE   MIDDLE
     AUTO EDGE       ON
     BLACK WHITE LV              ❯
     GAMMA CORRECT   DEFAULT
     DNR                         ❯
     RETURN
```
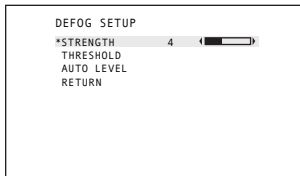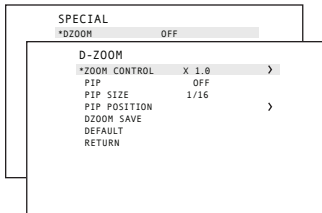
*0= Most Ghost Artifact I 4= Most Ghost Artifact

Camera image control can be adjusted from EFFECT menu.

- **LENS SHADING** : ON, OFF

  Optical vignetting issue can be corrected from this menu.
- **BLACK LEVEL** : -64 ~ 64 (Gamma level can be adjusted)
- **GAMMA CORRECT** : DEFAULT, 0.4 ~ 1.0 (Gamma level can be adjusted)
- **DNR** : Camera noise level can be adjusted from this menu.

  - **DNR MODE** : OFF, 2D, 3D, 2D+3D

    Digital noise reduction can be applied from this menu.
  - **DNR LEVEL** : AUTO, LOW, MIDDLE, HIGH

    Noise reduction level can be adjusted from this menu.
  - **DNR APERTURE** : 0 ~ 4 (Motion artifacts tightness can be adjusted)

```
      IMAGE CONTROL
     LENS SHADING    OFF
    *CONTRAST        11    ◀━━━━▶
     BRIGHTNESS      11    ◀━━━━▶
     SATURATION      10    ◀━━━▶
     HUE             0     ◀▶
     EDGE ENHANCE    5     ◀━━▶
     AUTO SATURATE   MIDDLE
     AUTO EDGE       ON
     BLACK WHITE LV              ❯
     GAMMA CORRECT   DEFAULT
     DNR                         ❯
     RETURN
```

- **CONTRAST** : 0 ~ 20 (Contrast level can be adjusted)
- **BRIGHTNESS** : 0 ~ 20 (Brightness level can be adjusted)
- **SATURATION** : 0 ~ 20 (Saturation level can be adjusted)
- **HUE** : 0 ~ 20 (Hue level can be adjusted)
- **EDGE ENHANCE** : 0 ~ 20 (Image sharpness level can be adjusted)
- **AUTO SATURATE** : OFF, LOW, MIDDLE, HIGH

  Decrease saturation automatically when noisy scene is detected.
- **AUTO EDGE** : ON, OFF

  Decrease edge enhancement (sharpness) automatically when noisy scene is detected.
- **DEFAULT** : See *Effects* menu to default value.

```
SPECIAL
*DZOOM        OFF

    D-ZOOM
  *ZOOM CONTROL    X 1.0      >
   PIP            OFF
   PIP SIZE       1/16
   PIP POSITION              >
   DZOOM SAVE
   DEFAULT
   RETURN
```

Camera special functions can be adjusted from SPECIAL menu.

D ZOOM : ON, OFF (Digital Zoom and PIP function can be enabled from this menu)

• **ZOOM CONTROL :** RATIO, POSITION, RETURN
  Adjust the digital zoom ratio and position.
  Use LEFT / RIGHT button to adjust the ratio, then press select.
  USE LEFT / RIGHT/ UP / DOWN button to adjust the image position, then press select.
  Press select to exit.

• **PIP :** ON, OFF (Turn ON or OFF the PIP window)

• **PIP SIZE :** 1/16, 1/25 (Change the size of PIP window)

• **PIP POSITION :** POSITION, RETURN (Adjust the PIP window location)
  USE LEFT / RIGHT/ UP / DOWN button to adjust the image position,then press select.
  Press select to exit.

• **DEFAULT :** Set privacy zone to default value.

```
DEFOG SETUP

*STRENGTH       4   (■     )
 THRESHOLD
 AUTO LEVEL
 RETURN
```

DEFOG : ON, OFF, AUTO ("DEFOG" menu improves foggy image)

• **STRENGTH :** 0 ~ 16
  Change defog strength.

• **THRESHOLD :** 0 ~ 3
  Threshold value sets minimum sensitivity value for automatic defog control.
  Higher value makes defog-on control reluctant.

• **AUTO LEVEL :** LOW, MID, HIGH
  Auto level value sets maximum strength value for automatic defog control.
  Higher value makes defog effect to be stronger.

DWDR : Wide Dynamic range can be adjusted from the sub menu.

MOTION DETECT : Camera can detect a motion within the selected areas.

```
BACKLIGHT - BLC
*BLC            ON
 SIZE/POSITION
 LEVEL          128  ◀■■■▶
 DISPLAY        ON
 DEFAULT
 RETURN
```

BACK-LIGHT : OFF, BLC, HLM

Camera back-light compensation can be adjusted.

BLC : OFF, ON

BLC enables back light compensation.

- **SIZE/POSITION** : SIZE, POSITION, RETURN

  Adjust BLC area window size.
- **LEVEL** :

  Back-light level compensation level can be adjusted from this menu.

  Higher level will compensate more from the selected area
- **DISPLAY** : OFF, ON (BLC area display can be turned ON or OFF)
- **DEFAULT** : Set BLC menu to default value.

```
BACKLIGHT - HLM
 AREA            ON
*AREA DISPLAY    ON
 SIZE/POSITION        ›
 LEVEL           3   ◀■■■▶
 BLACK MASK      ON
 DEFAULT
 RETURN
```

HLM : OFF, ON

HLM can be adjusted.

- **AREA DISPLAY :** ON, OFF

  HLM AREA DISPLAY can be turned ON or OFF.
- **SIZE/POSITION :** SIZE, POSITION, RETURN

  Adjust BLC area window size.
- **LEVEL :** 0 ~ 20

  Amount of masking area can be adjusted.
- **BLACK MASK :** OFF, ON

  Masking area highlight can be turned ON or OFF.
- **DEFAULT :** Set HLM menu to default value.

```
DEFECT PIXEL
*STATIC PROGRESS    PRESS OK
 SDPC UPDATE        PRESS OK
 SDPC CLEAR         PRESS OK
 RETURN
```

BINNING : OFF, ON
Binning can be turned ON or OFF.
DEFECT PIXEL : OFF, ON, ON (FIXED), STATIC
Defective Pixel Correction feature can be operated. It is turned ON by default and
will run both dynamic and static *DPC* function.

```
DISPLAY FUNCITON
*FREEZE             OFF
 MIRROR             MIRROR
 IMAGE EFFECT       NEGATIVE
 ROTATION           ROT
 PICTURE STYLE      VIVID
 RETURN
```

DISPLAY FUNCTION : OFF, ON (Adjust image display features from this menu)
- **FREEZE :** OFF, ON
  Image freeze can be turned ON or OFF.
- **MIRROR :** OFF, MIRROR, V-FLIP, BOTH(H/V) Image mirror or flip can be operated.
- **IMAGE EFFECT :** OFF, NEGATIVE, GREY MODE, REDDISH-1 ~ 4,
  BLUISH-1 ~ 4, GREENISH-1 ~ 4.ROTATION : OFF, ROT_L 1:1
  Several color effects can be applied.
- **ROTATION :** OFF, ROT_L FULL, ROT_L 1:1, ROT_R Full, ROT_R 1:1
  Image can be rotated either left or right side.
- **PICTURE STYLE :** OFF, STANDARD, VIVID, CLEAR, VIVID CLEAR, NEUTRAL
  Different types of picture style can be applied.

FLICKER DETECT : OFF, ON
"FLICKER DETECT" mode provides a proper image sensor frequency
to match the power frequency in order to minimize video flicker.

```
PRIVACY MASK
*MODE          ON
 TYPE          SQUARE
 MASK NO.      MASK 1
  DISPLAY      ON
  COLOR        BLACK
  POLY PIXEL
  POSITION-X   2    (■■■   )
  POSITION-Y   5    (■■■   )
  SIZE-X       20   (■■■■  )
  SIZE-Y       11   (■■■   )
 DEFAULT
 RETURN
```

Privacy zone can be setup from this menu.
MODE : ON, OFF
Enable "PRIVACY ZONE" ON or OFF.
TYPE : SQUARE, POLYGON
Select privacy zone shape.
MASK NO : MASK1 ~ MASK8
Select privacy zone mask number.
DISPLAY : ON, OFF
Turn ON or OFF the selected privacy mask zone.
COLOR : WHITE, GREEN, BLUE, RED, CYAN, MAGENTA, YELLOW, GRAY-1 ~ 6, MOSAIC, BLACK. (Select privacy zone mask color)

POLY SELECT : L- TOPP, L- BOTTOM, R- TOP, R-BOTTOM
Change the shape of the polygon by selecting the corner of the polygon.
POSITION-X & POSITION-Y
Change the size of the selected corner from *"POLY SELECT"* menu.
SIZE-X & SIZE-Y
Change the size of the privacy square.
DEFAULT
Set privacy zone to default value.
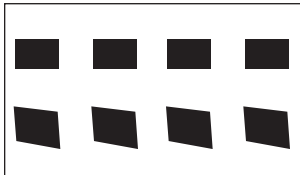
```
SETUP
*CAM TITLE      OFF
 RS485                  >
 MENU COLOR             >
 FACTORY RESET          >
 SYSTEM INFO            >
 OUTPUT FORMAT  1080P60 >
 RETURN
```

Camera setup can be adjusted from this menu.

CAM TITLE : OFF, ON

Camera title can be turned ON or OFF.

COMMUNICATION : ON, OFF, AUTO

VISCA communication control can be adjusted.

- **CAM ID :** 0 ~ 7

  Camera ID can be setup.

- **ID DISPLAY :** OFF, ON

  Camera ID can be setup.

- **BAUDRATE :** 2400, 4800, 9600, 19200, 38400

  Camera baudrate can be set.

SYSTEM INFO : ON, OFF, AUTO

Camera information can be found under this menu.

OUTPUT FORMAT : ON, OFF, AUTO

Camera resolution and frame rate can be set

Supported formats are:	**4K2160P -** *30 / 29.97*	**1080P -** *60 / 59.94*	**1080I -** *60 / 59.94 / 50*
* 1080p by default	*25 / 24*	*50 30/ 29.97 / 25 / 24*	**720P -** *60 / 59.94 / 50*

```
RESET
*MODE          FACTORY
RESET              >
SYSTEM INFO
SAVE AS USER
RETURN
```

MODE : FACTORY, USER
Camera will reset to factory default or user saved value.
RESET :
Reset the camera to the selected mode.
SAVE AS USER :
Save the user desired setting from the menu. Mode must be set to User.

VIDEO

Image Sensor	1/1.7" inch Progressive CMOS
Sensor Size	Diagonal 9.93 mm (17:9)
Effective Pixels	Horizontal: 4096, Vertical: 2160
Pixel Size	1.85 μm x 1.85 μm
Resolution	4096 x 2160, 3840 x 2160, 1920 x 1080, 1280 x 720
Resolution Rate	4K (4096 X 2160) 30/29/25/24p
	2160 30/29.97/25/24p
	1080p 60/59.94/50/30/29.97/25p/24p
	1080i 60/59.94/50i
	720 60/59.94/50/30/25p
Output	HDMI 1.4
	HD/3G/6G-SDI (BNC)
Color Space	4:2:2 (YCbCr) 10bit

FUNCTION

White Balance	AWB / AE / AF
Exposure	Full Auto, Bright, Shutter Priority, Iris Priority, Manual
Other	WDR, DIS (Digital Image Stabilization), 2D/3D
	Noise Reduction, Digital Slow Shutter,
	Black Level Compensation, Flicker Detection.

LENS

Lens	12X UHD Optical Zoom Lens,
	4.2mm/82° (Wide) ~ 50.04mm/8° (Tele),
	F1.8 (Wide) - F2.8 (Tele)

AUDIO INPUT

Input	3.5mm TRS Stereo Mic-in & Line in over I/O Cable
Sample Rate	16/24/32 Bits

STANDARD

SMPTE	SMPTE 292M, SMPTE 424M, SMPTE 2081-10

PHYSICAL

Camera Control	RS-485, OSD Button
Operation Temp	15° F - 120° F
Dimension	90.20mm x 90.20mm x 156.70mm /
	3.55" x 3.55" x 6.17"
Weight	600g / 1.2lbs
Power	12VDC (+9 - +15VDC)

Specification are subject to change without notice.

Visit us:

www.aidaimaging.com/support

E-mail us:

support@aidaimaging.com

Give us a Call:

Toll Free: 844.631.8367 | **Tel:** 909.333.7421

Operating Hours: Mon-Fri | 8:00am – 5:00pm PST

AIDA
IMAGING