

IPM Scope CAM2

PRODUCT MANUAL

Item # 2862



Spectrum[®]
Technologies, Inc.

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Caution

- After use, turn the power off to prevent overheating.
- To avoid any damage, do not drop or strike the microscope.
- When not using the microscope for extended periods of time, please remove the battery and store the equipment in a safe place.
- The microscope is not waterproof. Do not immerse in water or other liquids.
- Please operate moving parts gently to avoid damage.

Thank you for purchasing the IPM Scope CAM2. This manual will familiarize you with the features and operation of your new IPM Scope CAM2. Please read this manual thoroughly before using your instrument. For customer support, or to place an order, call Spectrum Technologies, Inc. at (800)248-8873 or (815) 436-4440 between 7:30 am and 5:30 p.m. CST, FAX at (815)436-4460, or E-Mail at info@specmeters.com. www.specmeters.com

Spectrum Technologies, Inc
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OVERVIEW

Features

The 2 megapixel IPM Scope CAM2 allows you to capture high resolution pictures and videos in the field. View pictures instantly on the built-in LCD display and then transfer them via USB cable to a PC. The LED lighted unit features 10x and 40x optical zoom and up to 200x digital zoom. The scope has a battery life of up to 5 hours and includes an adjustable-height stand.

- 2.8 inch LCD display
- 2GB internal flash memory
- Easy to use touch pad controls
- 4 built in white-light LED's with brightness control
- Rechargeable lithium ion battery

Specifications

Sensitive Element	2 million pixels CMOS
Lens	High-sensitive Lens
Auxiliary Light	Ultra-bright white light LED x4
LCD	2.8" LCD Full color Screen
Memory	Built in 2G
USB Port	USB 2.0 Compatible
Magnification	Optical Zoom 1x~ 10x and 40 x; 5 x Digital Zoom
Joint	DC IN Terminal (mini USB joint)
Lithium Battery	Model: NP-120; Voltage: 3.7V
USB Power	AC Transformer (Output: DC 5.0/1A)
Supply Device I (Adapter)	Input: AC 100-240V 50/60 Hz)
Electric Consumption	4V/360mA (Default)
Size	121 (L) x 56 (W) x 26 (H) mm
Weight	Host weighs around 90 grams (130 grams including the battery)
Operation Environment	Temperature -5°C ~ 50°C; Humidity—lower than 85% (No Condensation)

Kit Contents

IPM Scope CAM2	Li-ion Battery	USB 1.1 Cable
Product Manual	Power Adapter	Installation CD
Protection Sleeve	Wrist Strap	Cleaning Cloth
Support Stand	Calibrator for making measurements	

KEYS AND INDICATORS

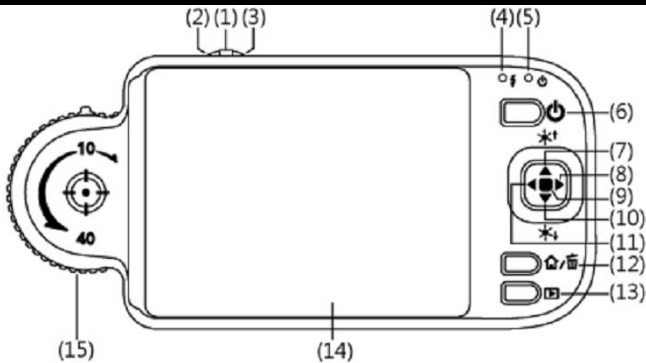


Figure 1

- (1) **Capture Button:** In **Picture Mode**; Capture Button takes a picture. Press and hold the capture button to enter or quit comparison view.
In **Video Play Mode**: Capture button opens video files
In **Video REC Mode**: Capture button starts or stops recording the video

- (2) Zoom Out
- (3) Zoom In

- (4) **Battery Charge Indicator:** Red light is on when charging. Light turns off when battery is fully charged.

- (5) **Power Indicator:** Green Light displays the device is powered on.

- (6) **Power Button:** Press power button for 3 seconds to turn on unit. Press power button again to turn unit off.

NOTE: To select functions 7, 8, 9, 10 press on the SILVER Ring—around the button. To confirm selection press the center button.

- (7) **Increase Brightness:** In picture mode you can choose between 8 levels of brightness. In Video play mode this button stops the video. Also can be used to move up
- (8) **Select right button:** Press the button for 2 seconds to show **Crossing Alignment** in the center of the LCD Display. Also can be used to move right.
- (9) Decrease brightness of illumination. Press the button for 2 seconds to switch to the **Scene mode**. Also can be used to move down.

(10) **Select Left Button:** Press the button for 2 seconds to show **Alignment in Range** in the center of the LCD Display. Also can be used to move left.

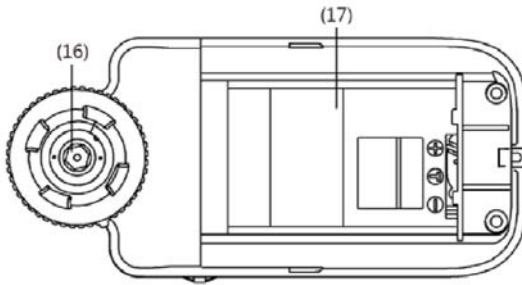
(11) **Enter Button:** Switch between special effects under **picture mode** and **video mode**.

(12) **Function Menu/Delete:** **Picture Mode:** Skip to Function Menu
Album Mode: Delete Photos
Video Play Mode: Delete Video

(13) **Preview Photos:** **Picture Mode:** Preview Photos
Other Modes: Back, previous level, exit

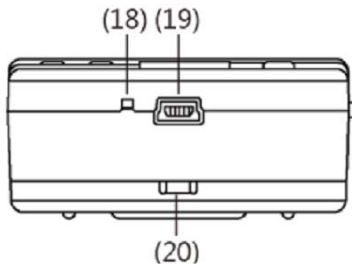
(14) Display Screen

(15) Focus Wheel: Use the black wheel to adjust the optical focus, and magnify from 10-40 X.



(16) Lens

(17) Battery Compartment



(18) Reset Button

(19) USB Connection Port

(20) Wrist Strap Connection

OPERATION OF MICROSCOPE

Focusing:

Use the black focus wheel to focus from 10x to 40x. Moving dial past 10 is for using the microscope as a standard camera to take a long shot picture.

Programming Functions:

Press the **Function menu/delete** button display to the 8 function modes. The following screen will appear:

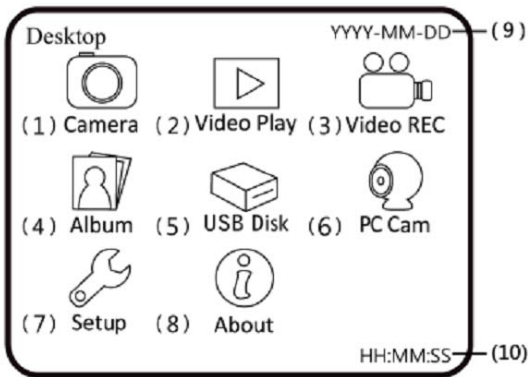


Figure 2

Mode 1: Camera Mode:

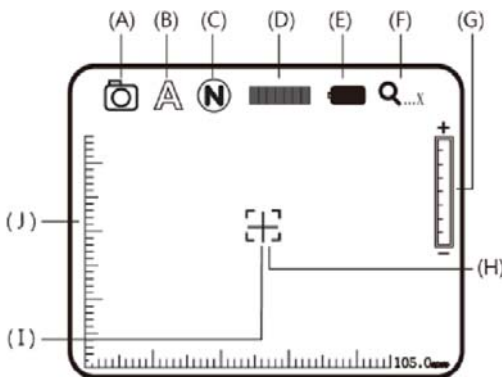
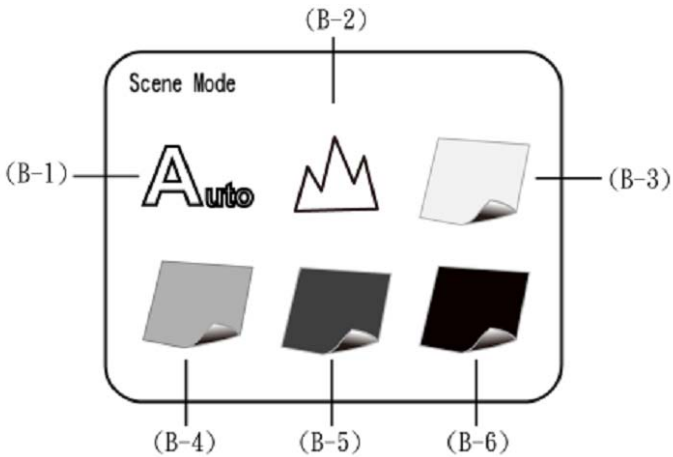


Figure 3

(A) Picture Mode

(B) Contrast Mode: Press the down arrow on the silver ring for several seconds to get to the screen with the contrast settings.



Using the silver ring press right to navigate through the choices below, pressing the enter button to confirm your choice.

Contrast Modes

(B-1) Automatic mode

(B-2) Camera mode. LED is turned off.

(B-3) **White mode:** is best for shiny materials.

(B-4) **Grey mode:** is best for light colors.

(B-5) **Dark Grey mode:** is best for dark colors.

(B-6) **Black mode:** is best for black.

(C) Special Effects: Pressing the enter button to scroll through the choices for special effects.

- N—Normal—no special effects
- G—Grey Scale
- I—Reversed Phase
- E—Relief

(D) Brightness of Lights—press up or down on the silver ring to adjust the brightness of lights in Picture Mode.

Refer to Camera Mode (Figure 3 on page 6)

(E) **Battery Indicator** shows the amount of battery charge. A lightning bolt in battery indicator means the battery is being charged with a USB power supply. The USB symbol will appear when the power supply is coming from the USB and not the battery.

(F) **Optical Digital Magnification**: represents current magnification rate.

- Adjusting the focus wheel back towards the 10 will show 10X on the screen, moving towards the 40 will show 42X on the screen. If you move it past the 10, then you can use the scope as a regular camera to take a long shot picture.
- After selecting optical focus (10x or 42x) increase your magnification by 8 stages to a maximum digital zoom of 47x when starting at 10x and a maximum of 196x when starting at 42x. The zoom stage is indicated by a bar on the left of the screen. The rates at different stage are as follows:

10x optical rate [$10 * (1+0.5*stage)$]				
Stage	1	2	3	4
Rate	15x	20x	25x	30x
Stage	5	6	7	8
Rate	35x	40x	45	47x

Note: this formula is for 0-7 stages.

42x optical rate [$42 * (1+0.5*stage)$]				
Stage	1	2	3	4
Rate	63x	84x	105x	126x
Stage	5	6	7	8
Rate	147x	168x	189x	196x

Note: this formula is for 0-7 stages.

(G) **Total Magnification** shows the combined magnification for the selected optical and digital zoom.

(H) A **bracket for Alignment** appears in the center of the screen when pressing the silver ring to the left for several seconds.

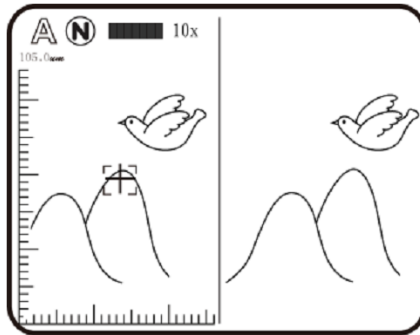
(I) **Crosshairs for Alignment** appear in the center of the screen when pressing the silver ring to the right for several seconds.

Refer to Camera Mode (Figure 3 on page 6)

(J) The IPM Scope CAM2 has 2 scales that can be displayed on the screen. Press the enter button for 3 seconds to bring up the first scale. Press the enter button for 3 seconds to turn the scale off and then press again for 3 seconds to bring up the second scale.

Preview mode ((13) in Figure 1 on page 4) used to preview all the pictures that have been taken. Using the silver ring to scroll through photos. Using zoom buttons to zoom in on pictures. Once the photo is enlarged, use the silver ring to move the photo up, down, left or right. Press the enter button to return to original window status.

(K) Comparison mode: Press the Capture button for several seconds to get to comparison mode. See figure below for example of screen image.



This allows comparison of latest photo (right side) and current live image (left side). All buttons work the same in the left preview window.

Refer to Programming Functions (Figure 2 on page 6)

Mode 2: Video Play Mode:

The screen will appear like the image to the right. To select the video to play, press the Capture Button. Using the silver ring choose the video to play. Press the enter button to play the video selected.

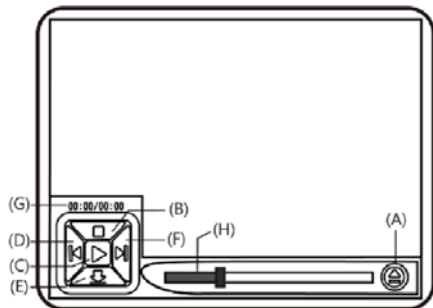
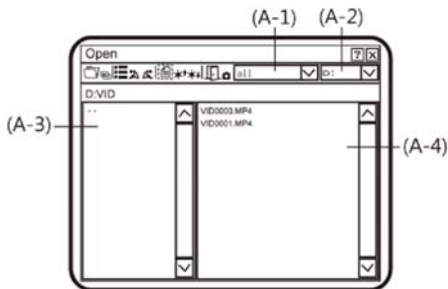


Figure 4



To show screen above, press the **Capture Button** in the Video Mode.

- (A-1) File type: Using the silver ring to choose, pressing the enter button shows file types (all, *3gp, *mp4).
- (A-2) Drive the file is located on.
- (A-3) Position of file selected.
- (A-4) Select file to view.

Refer to Figure 4 on page 9.

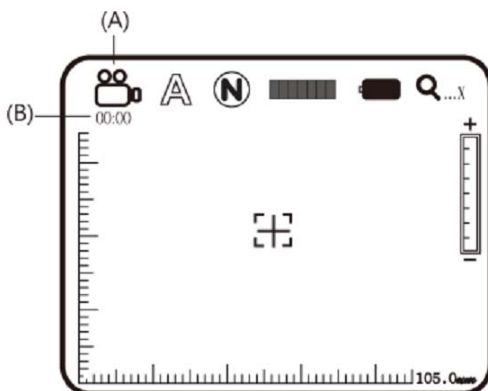
- (B) Press the 'up' arrow on the silver ring to stop the playing of the video.
- (C) Once the file is selected press the enter button to play the video.
- (D) Press the left arrow on the silver ring to play the last file.
- (E) Press the 'down' arrow on the silver ring to hide the control panel.

Refer to Programming Functions (Figure 2 on page 6)

Mode 3: Video REC Mode

When selected, the following screen image will display.

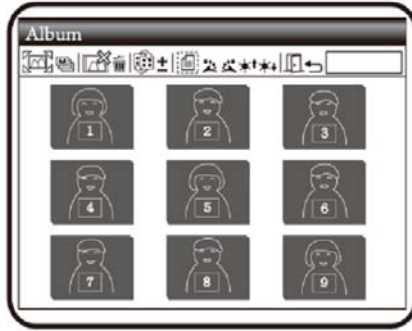
- (A) Press the Capture Button (refer to number 1 on Figure 1 on page 4) to start the recording of a video.
- (B) Recording Time is listed below the video camera.



Refer to Programming Functions (Figure 2 on page 6)

Mode 4: Album Mode

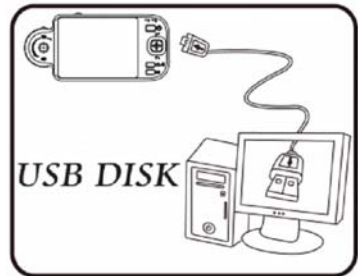
The following screen appears when Album Mode is selected.



Using the silver ring to navigate through the pictures. Press the enter button to select the picture of choice. To delete a picture press the Function Menu/Delete key (refer to Figure 1 on page 4). A screen will appear that will ask if you want to delete the picture. Use the silver ring to toggle between 'yes' and 'no'. Press the enter button to complete the process.

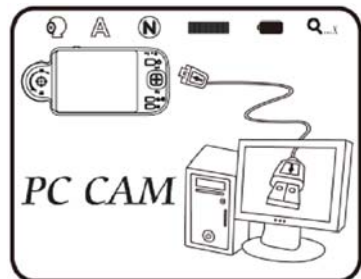
Mode 5: USB Disk Mode

When selected, the screen image to the right will display. Choose this mode so your computer can download saved files.



Mode 6: PC Cam Mode

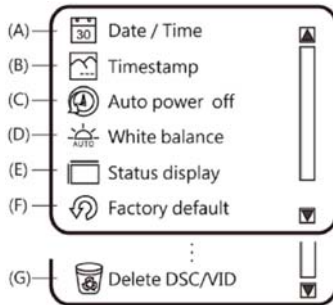
When selected the screen image to the right will display. In this mode the microscope can be connected to the PC for use as an internet camera or microscope camera. Prior to using microscope in this mode the software and driver programs must be installed on PC. Use software disk enclosed.



Refer to Programming Functions (Figure 2 on page 6)

Mode 7: Set Up Mode

Used to configure settings. Using the silver ring to toggle between choices and the confirmation button to select option.



(A) Date/Time—Set current date and time.

(B) Timestamp—Set current timestamp.

(C) Auto power off—Set idle time until power down.

(D) White Balance—Set to “on” for automatic adjusting of contrast.

(E) Status—Use to display status.

(F) Factory Default—Revert to the factory default settings.

(G) Delete DSC/VID—delete photos (DSC) or videos (VID).

(8) About Mode: Contains information on the version of the microscope.

EXTERNAL INTERFACES

USB Cable—Plug small connector to the microscope and large connector to the PC. Used to transmit images and supply power source.

USB Power Supply—Plug small connector to the microscope and plug large connector to the USB power supply. Plug the USB power supply into an electric supply.

Battery—Remove battery cover and input battery by placing the written face up and lining up the positive and negative.

PROGRAM INSTALLATION

Step 1: When the Installation CD is installed the following screen will display:



Step 2: Click on 'Install VT300 Application Program'

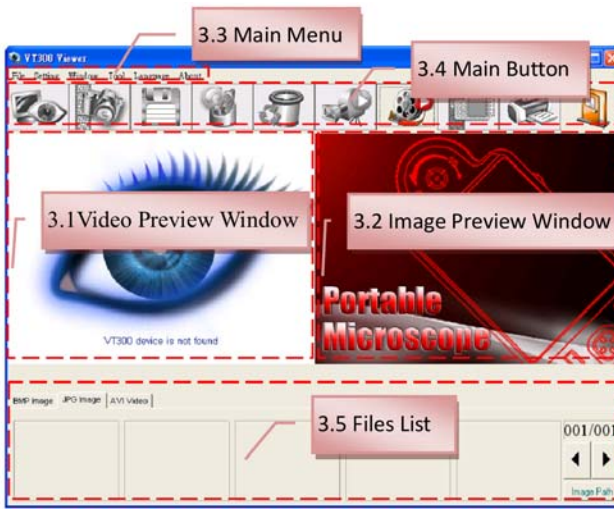
Step 3: Click on 'Install VT300 Driver'

Step 4: Click on 'Exit'

For detailed program installation, refer to manual setup located on the installation CD.

APPLICATION PROGRAM

For detailed operation instructions, refer to the Application Program Operations Manual located on the installation CD.



3.1 Video Preview Window

After connecting to microscope camera, the window will show video information, video files, icons and special functions.

3.2 Images Preview Window

The window displays saved images and allows for editing and processing of images.

3.3 Main Menu (Left to Right): Files, Setting, Windows, Tools, Languages, About

3.4 Main Buttons (Left to Right): Online/Offline, Photography, Save, Image Editing, Delete Image, Video REC/Stop Video REC, Video Play/Stop Video Play, Image Processing, Print Images, Quit.

3.5 File List

3.6 Special Function Modules

WARRANTY

The IPM Scope CAM2 is warranted to be free from defects in materials and workmanship for a period of 1 year from the date of original purchase. During the warranty period, Spectrum will, at its option, either repair or replace products that prove to be defective. This warranty is void if the product has been damaged by customer error or negligence, or if there has been an unauthorized modification.

Returning Products to Spectrum

Before returning a failed unit, you must obtain a Returned Goods Authorization (RGA) number from Spectrum. You must ship the product(s), properly packaged against further damage, back to Spectrum (at your expense) with the RGA number marked clearly on the outside of the package. Spectrum is not responsible for any package that is returned without a valid RGA number or for the loss of the package by any shipping company.



This equipment has been manufactured for
Spectrum Technologies, Inc.
12360 S. Industrial Dr. East
Plainfield, IL 60585 USA

The Manufacturer's **DECLARATION OF CONFORMITY** is on file at the above address, and certifies conformity to the following:

Model Number: 2862
Description: IPM Scope CAM2
Type: Electrical Equipment for Measurement, Control, and Laboratory Use
Directive: 2004/108/EC
Standards: EN 61326-1:2006
EN 61000-4-2:1995, including A1:1998 and A2:2001
EN 61000-4-3:2002
EN 55011:2007

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