Phantom Quick Start User Guide

VISION
RESEARCH

PHANTOM
when it's too fast to see, and too important not to

AMETEK®
MATERIALS ANALYSIS DIVISION

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Part I

1 Quick Start Guides

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Welcome to the Quick Start Guides for your Phantom camera.

The Quick Start Guides in this section are designed to provide a quick introduction on using a Phantom camera with the Phantom Camera Control application, Touch-Sensitive LCD Screens, and On-Camera Control Buttons. They are intentionally kept brief so that you can start using your camera as quickly as possible. The objective of these Quick Start Guides is not to teach you every single detail of the Phantom Camera Control applications, Touch-Sensitive LCD Screens, or On-Camera Control Buttons, but familiarize you with the basic procedures necessary to use your camera.

1.1 Phantom v-Series Cameras via Phantom Camera Control (PCC) Application

This Quick Start Guide aims to provide 6 easy steps to get started using your Phantom camera.

For full details on the procedures described in the guide, please refer to the Step-by-Step Procedures section.

STEP-BY-STEP PROCEDURES

▼ Pre-Installation Check

The Phantom cameras have a few requirements, which must be met before you are able to use it.

1. The Phantom Control Unit must have either the Microsoft Windows NT, Window XP Pro, VISTA Business Edition or Windows 7 operating system installed.
2. The Phantom Control Unit's Firewalls must be turned off. (Contact your IT Group if necessary.)
3. The Phantom Control Unit must be set to IP Address: 100.100.h.h; (where h.h is a unique host identifier, i.e., 100.100.100.1) with a Sub-network Mask set to: 255.255.0.0.

   For step by step instructions to change IP Address, go to: Changing IP Address on the Phantom Control Unit.

▼ Connecting Camera and Controller Unit Operation

1. Connect the Power Supply to Phantom camera.
2. Connect the Ethernet cable to Phantom camera and the Phantom Control Unit.
3. Connect Capture Cable to Phantom camera.
4. If using an external trigger, connect it to Trigger BNC, (Red), of the Capture Cable.
5. Attach the lens to the Phantom camera.
6. Boot Up the Phantom Camera Control Software on Phantom Control Unit, then
7. Wait for the "Ethernet Connected" message window to appear just above the Phantom Control Unit's Taskbar.

8. Setup and record a Cine file, (image data).

▼ Capturing Video via the Phantom Camera Control Application

1. If the Manager Panel is not the active dialogue window,

2. Click on the Manager tab, then

3. Double mouse-click on the Phantom camera to be used to record with from the Cameras Group.

4. Open the Live Panel by clicking on the Live tab.

5. Under Cine Settings define the:

   a. Set the Resolution, 800x600 by selecting the option from the pull-down selection list.

   b. Sample Rate, (also referred to as the Frame Rate or Recording Rate), i.e., 200pps by selecting the option from the pull-down selection list.

   c. Set the Exposure Time to the maximum available in the selectable pull-down list.

   d. Set the EDR, (Extreme Dynamic Range) exposure time to zero (0) by selecting the option from the pull-down selection list.

   e. Post Trigger to one (1) by:

      1) Enter a 1 into the Post Trigger entry field, alternatively

      2) Move the Trigger Position slider to the right.

5. Under Advance Settings set the External Sync>Sync Imaging parameter to Internal by selecting the option from the pull-down selection list.

6. Click on the Camera Settings selector, and

7. Click on the CSR button to perform a Current session Reference.

8. Using the Toolbar buttons, click on the Zoom Actual Size, , button.

9. View the preview image in selected Phantom camera's Preview Panel, and adjust the Resolution, Sample Rate, and Exposure Time for optimum viewing.

NOTE

The Live Status display is active indicating the camera is Preview Mode and is not recording any image data.

10. Click on the Capture button to put selected Phantom camera into Record Mode.

NOTE

The Live and Rec Status displays are both active indicating the camera is still in Preview Mode and is also in Record Mode, (capturing image data).

11. Trigger the Phantom camera, to stop recording, using any of the methods below:

    a. Click on the Trigger or Stop Recording button, alternatively

    b. Provide a switch closure or an external trigger signal, (a TTL pulse), to the Trigger BNC connector of the Capture Cable.

12. Playback the recorded Cine, (image data), file.

▾ Playback Operation

1. Open the Play Panel by clicking on the Play tab.
2. Use the Playback controls to view recorded images:

   rewind   pause   forward

   fast   step   step   fast
   rewind backward forward forward
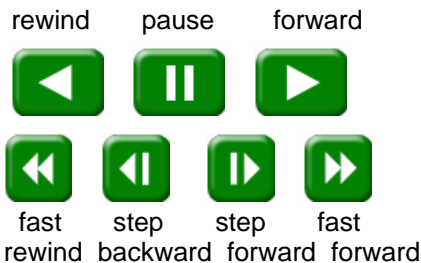
3. Edit the record Cine file:

   a. Locate the first image of the Cine file to be saved,and

   b. Click on the Mark-In [button.

   c. Locate the last image of the Cine to be saved, then

   d. Click on the Mark-Out] button.

4. Click the Play Speed & Options sub-panel, and

   a. Select, (check), Limit to Range.

   b. Deselect, (uncheck), Repeat.

5. Playback the preferred, (edited), Cine.
6. Save, (download), the edited Cine to the hard drive of the Phantom Control Unit.

▾ Save Cine File to the Controller Unit

1. After completing the Playback Operations procedure,
2. Click the Save Cine... button at the bottom of the Play Panel.
3. In the Save Cine dialogue window:

   a. Create a Windows Folder to store the Cine file(s) into.

   b. Enter a distinct/unique file name for each Cine file in the File name: entry field.

   c. From the Save as type pull-down selection list select the Cine Raw, *.Cine file format.

   d. Click the Border Data... button, (optional), and select the desired information to be displayed.

   e. Click the Save button to begin downloading the Cine file from the Phantom camera to the Phantom Control Unit's hard drive.

4. Ensure the Cine file you just downloaded, has been stored in the Phantom Control Unit, and is not corrupted before deleting the Cine file from the camera:

   a. Select the Open File command.

   b. In the Open Cine dialogue window:

      1) Navigate to the Windows Folder containing the Cine file you just downloaded.

      2) Highlight the Cine file to be opened.

      3) Click the Open button.

    c. From the Play Panel, play the saved Cine file.

▾ **Get Ready to Record Again**

After ensuring the Cine file you just downloaded, has been saved to the Phantom Control Unit's hard drive, and was not corrupted:

1. Via Manager Panel:

    a. Open the Manager Panel by clicking on the Manger tab.

    b. Highlight the recorded Cine under the selected Phantom camera, then

    c. Click the Remove From Tree [✕] button to erase the image data stored in the camera's RAM.

    d. Click the OK button when the 'Delete Cines from camera?' warning message appears.

RESULT: Camera is now in Live Mode as indicated by the Live Status displays below the selected Phantom camera's Preview Panel.

2. Via Live Panel:

    a. Open the Live Panel by clicking on the Live tab.

    b. Click on the Capture button.

    c. Click the OK button when the 'Delete existing RAM Cines and proceed to new recording?' warning message appears.

RESULT: Camera is now in Live Mode as indicated by the Live Status displays below the selected Phantom camera's Preview Panel.

3. Go back and follow directions for Capturing Video via the Phantom Camera Control Application and Playback Operations.

IMPORTANT OPERATIONAL NOTES

1. Do NOT disconnect the Ethernet cable from the Phantom Control Unit or the Phantom camera while in operation. If the Ethernet connection is disrupted, the camera may lock up. Be sure to close the Phantom Camera Control application completely on the control unit before disconnecting the Ethernet cable.

2. ALL images will be LOST in camera if power to the camera is removed.

3. Insure the lens is clean before recording.

RELATED PROCEDURE

▾ **Changing IP Address on the Phantom Control Unit**

1. Click the Start button in the Windows Taskbar, then

2. Open the Control Panel.

3. Double-click on the Network Connections option.

4. In the Network Connections window:

    a. Right-mouse click on appropriate Ethernet Connection, then

              b. Select the Properties command.

      5. In the connection's Properties dialogue window:

              a. Highlight the Internet Protocol (TCP/IP) option, then

              b. Click the Properties button.

      6. In the Internet Protocol (TCP/IP) Properties dialogue window:

              a. Enable the "Use Follow IP Address automatically' radial button.

              b. Enter   IP Address :   100.100.100.1
                             Subnet: 255.255.0.0

      7. Click OK and close all open windows and return to Pre-Installation Check.

1.2   Phantom Miro M / R / LC-Series Cameras via Phantom Control Software

Welcome to the Quick Start Guide for a Phantom Miro M-Series camera. This Quick Start Guide aims to provide 4 basic steps to get started.

▼ Hardware Setup

1. Carefully unpack the contents of the camera package, and check the contents.

2. Insert The Phantom Camera Control Installation Disk into the Phantom Control Unit (lap/PC) and follow the on-screen instructions.

3. Open the Phantom CineFlash compartment door, and then carefully insert the Phantom CineFlash into the compartment, by aligning the CineFlash insertion guide slots, until it is securely seated.

4. Attach the following cables: the

    a. Ethernet

       1) Insert the Ethernet cable, RJ45 connector, to the Ethernet interface of the Phantom Control Unit (laptop/PC), then

       2) Insert the Ethernet cable, Fischer connector, to the Ethernet port of the Phantom camera.

    b. Phantom CineFlash Dock eSATA

       1) Insert the eSATA connector to the Phantom CineFlash Card Reader docking station, then

       2) Insert the eSATA, and USB connectors to the PC/MAC computer's eSATA and USB interfaces.

    c. Capture

      The Capture Cable can be used to provide/access the following input/output signals; Trigger (Red), Strobe/IRIG Out (Blue), Ready (Green), Image-Based Auto-Trigger (Black – marked FSYNC), IRIG-In (White), and Video (Yellow).

       1) Connect the appropriate Capture cable BNC connector to the BNC connector of the connected device, i.e., trigger mechanism, video, Image-Based Auto-Trigger, IRIG clock, etc. A BNC gender-bender, customer supplied, may be required to connect the two BNC connectors together.

       2) Connect the Capture cable BNC connector to the Capture port of the Phantom camera.

7. Carefully slide the rechargeable battery downward, onto the rear of the camera, to lock the battery into place.

8. Use of the AC power adapter allows you to capture and playback Cines without worrying about depleting the battery.

    a. Plug the AC power adapter connector into the Power port on the rear of the camera, then

    b. Plug the AC power adapter cord into the power outlet.

9. Set the Power Mode

    The Phantom Miro M-Series camera can be set to one of three power-up modes:

    a. OFF - When the switch is in the OFF position, the camera is off.

    b. AUTO - When the switch is set to AUTO, it works exactly like any previous Phantom Camera. Providing power to the Primary DC Input will power up (boot) the camera and it will be ready for use.

    c. ON - When the switch is moved to the ON position, the camera will power-up immediately provided there is power connected to the primary power port OR a battery is connected to the camera.

▼ Capturing a Cine via the PCC (Phantom Camera Control) Software

1. Double mouse-click on the PCC (Phantom Camera Control) application icon.

2. Select the camera for use:

    a. Click on the Manager tab, then

    b. Double mouse-click on the Phantom camera to be used to record with from the Cameras Group.

3. Set the required recording parameters and place the camera into the capture, recording, mode:

    a. Under Cine Settings define the required:

        1) Resolution, by selecting an option from the pull-down selection list.

        2) Sample Rate, (also referred to as the frame/recording rate), by selecting the option from the pull-down selection list.

        3) Exposure Time to the maximum available in the pull-down list.

        4) EDR, (Extreme Dynamic Range), exposure time to zero by selecting the option from the pull-down selection list.

        5) Post-Trigger value, by selecting an value from the Last pull-down selection list, entering a value into the Last data entry field, or sliding the T (Trigger) slider to the desire value. The value defined determines the number of post-trigger frames to be recorded, for example:

            • 0 (zero) fills the RAM with all pre-trigger frames.

            • The maximum value fills the RAM with post-trigger frames only.

            • Any value between 0 and the maximum fills the buffer with both pre-and post-trigger frames. This value equals the number of post-trigger frames to be recorded.

        6) Perform a Current Session Reference by clicking on the CSR button in the PCC software, or depressing the AUTOBREF button on the front of the camera.

b. At the bottom of the Live control panel, click on the Capture button.

c. Apply a trigger signal:

a) Click on the Trigger button located at the bottom of the Live control panel, or

b) Depress the Trigger button on the front of the camera, or

c) Apply a switch closure or TTL pulse via the Trigger BNC connector.

▼ Edit, the Captured Cine

1. Click the Play control panel tab.

2. Click the Play Forward button, and

3. Locate the first image of the Cine you wish to set as the Mark-In point of the Cine, then

4. Click the Pause button.

5. Set the Mark-In point by clicking the Mark-In button.

6. Click the Play forward button, and

7. Locate the last image of the Cine you wish to set as the Mark-Out point of the Cine, then

8. Click the Pause button.

9. Set the Mark-Out point by clicking the Mark-Out button.

10. Under the Play Speed & Options selector, enable (check) the Limit to Range option, then

11. Click on the Jump to Start button to rewind the Cine to the Mark-In point.

12. Click the Play Forward button to review the edited Cine.

▼ Save the Cine

1. Click the down-arrow in the Save Cine button to save the edited Cine to:

a. A designated location on an external hard-drive, i.e., control unit laptop/PC, or

b. The Phantom CineFlash

1.3   Phanrtom Miro C210J / C210 Cameras via PCC

Welcome to the Quick Start Guide for a Phantom Miro C310J or Miro C310 camera. This Quick Start Guide aims to provide the basic steps to get started.

▼ Prepare Your Computer

Camera controlling computers:

1. Must have either the Microsoft Windows XP Pro, VISTA Business Edition or Windows 7 or 8 operating system installed.

2. Firewalls must be turned off. (Contact your IT Group if necessary)

3. Using the 'Windows Control Panel' set the IP address of your computer's network card to 100.100.100.1 with a 255.255.0.0 subnet mask.

   If working with a 10Gb Ethernet connection the computer's IP address should be set to 172.16.0.1 with a 255.255.0.0 subnet mask.)

▼ Install PCC Software

Install the latest version of Phantom Camera Control (PCC) software from the accompanying CD or USB key

▼ Cable the Camera

Connect the 16-28VDC power supply to the camera's power connector (Miro C210), or to the power connector of a Miro JBox (Miro C210J: required / Miro C210: optional).

Attach the supplied Ethernet cable between the Phantom camera and the computer (Miro 210C), or the Miro JBox (Miro C210J: required / Miro C210: optional)

Connect a Miro MiniBob or Capture cable to the Phantom camera (Miro C210).

If an external trigger is being used to trigger the camera, connect it to the Trigger connector of the Miro MininBob , Capture cable (Miro C210), or Control Break Out Box (Miro C210J)

▼ Select Camera for Use

In the Manager Control Panel double mouse-click on the Phantom camera to be used from the ' Cameras' group folder.

▼ Define Recording Parameters

Click the 'Live' tab.

Click 'Cine Settings' and define the following parameters by either the selecting the required value from the pull-down selection list, or typing the value into the respective data entry field.

1. Set 'Resolution' to the required Width x Height.

2. Choose the required 'Sample Rate' and 'Exposure Time'.

3. Post Trigger to zero (0) by:

   a. Moving the 'T' (Trigger Position) slider to the right, or
   b. Enter zero (0) into the 'Last' data entry field.

Cover the camera lens first, then click on the CSR button to perform a Current Session Reference.

▼ 'Arm' Camera

Click the 'Capture' button to start recording to the camera's internal memory (circular buffer).

▼ **Trigger**

At the end of the action, click the action 'Trigger' button at the bottom of the 'Live' panel, or

Provide a switch closure or an external trigger signal (TTL pulse) via the Trigger connector.

▼ **Edit Cine**

Click the 'Play' tab.

Using the following Video Control Buttons to locate the first image of the Cine to be saved.

Rewind

Pause

Play

Fast Rewind

Rewind 1 Frame

Advance 1 Frame

Fast Forward

Locate the first image of the Cine to be saved.

Click the 'Mark-In button. [

Locate the last image of the Cine to be saved.

Click the 'Mark-Out' button.]

Select 'Play, Speed, & Options" and enable (check) 'Limit to Range'.

Under the Video Control Buttons click the 'Jump to Start' button.

▼ **Review Edited Cine**

Review the edited Cine using the Video Control Buttons.

Click the 'Save Cine...' button at the bottom of the 'Play' panel.

▼ Save to Computer

In the 'Save Cine' window:

1. Navigate to the folder where you want to save the Cine file.

2. Enter a file name for the Cine file in the 'File name:' data entry field.

3. From the Save as type pull-down selection list select the 'Cine Raw, *.Cine' file format.

4. Click the Save button to begin downloading the Cine file from the camera to the computer's hard drive.

▼ Save to Phantom CineFlash

Click the down-arrow of the 'Save Cine... button.

Select 'Save RAM Cine to Flash' (in popup window).

Click the Save button to save the Cine file onto the Phantrom CineFlash.

▼ Confirm Computer Save

Click the 'Open File' button.

In the 'Open Cine' window:

1. Navigate to the folder containing the saved Cine file.

2. Highlight the Cine file to be opened.

3. Click the Open button.

Using the Video Control Buttons review the saved Cine file.

▼ Confirm CineFlash Save

Click the 'Manager' tab.

Double-click on the 'Cine F#' file under the camera used to record the Cine.

Using the Video Control Buttons review the saved Cine file.