Phantom MultiCam User Manual

© 2016 Vision Research - AMETEK Material Analysis Division

Software Revision: 2.7.756.2
Updated: Wednesday, January 27, 2016

Table of Contents

Foreword 5

Part I Phantom MultiCam Application - Help 8

1 Graphical User Interface Elements 9

Parameters Tables/Cells 9

Camera Parameters and Informational Fields 10

Cine Parameters and Informational Fields 13

Menu Options 15

Tables Popup Menus 16

"How-To" Use Cases 17

Part II Service & Support 24

1 Service Centers 25

2 Phantom Certification Program 27

© 2016 Vision Research - AMETEK Material Analysis Division

Phantom MultiCam User Manual

Last Updated: 1/27/2016

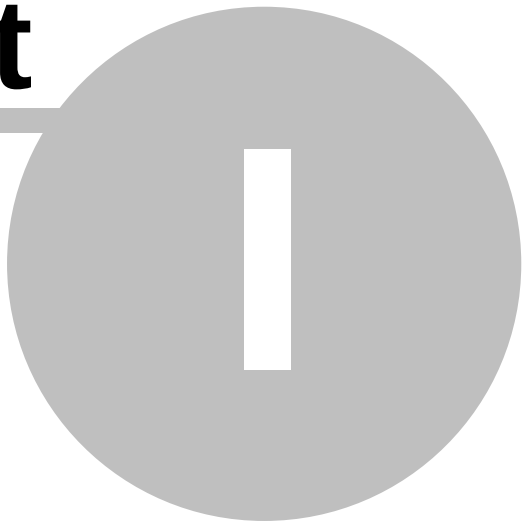
by Vision Research

The Phantom MultiCam application is a data sheet utility that allows for the controlling of connected Phantom cameras and their corresponding Cine files. It is a utility which allows the end-user to manage one or more cameras by viewing and editing parameters for recording or viewing Cine files to and from the cameras integrated memory. It is mainly focused on handling acquisition and set up camera parameters with straightforward image feedback.

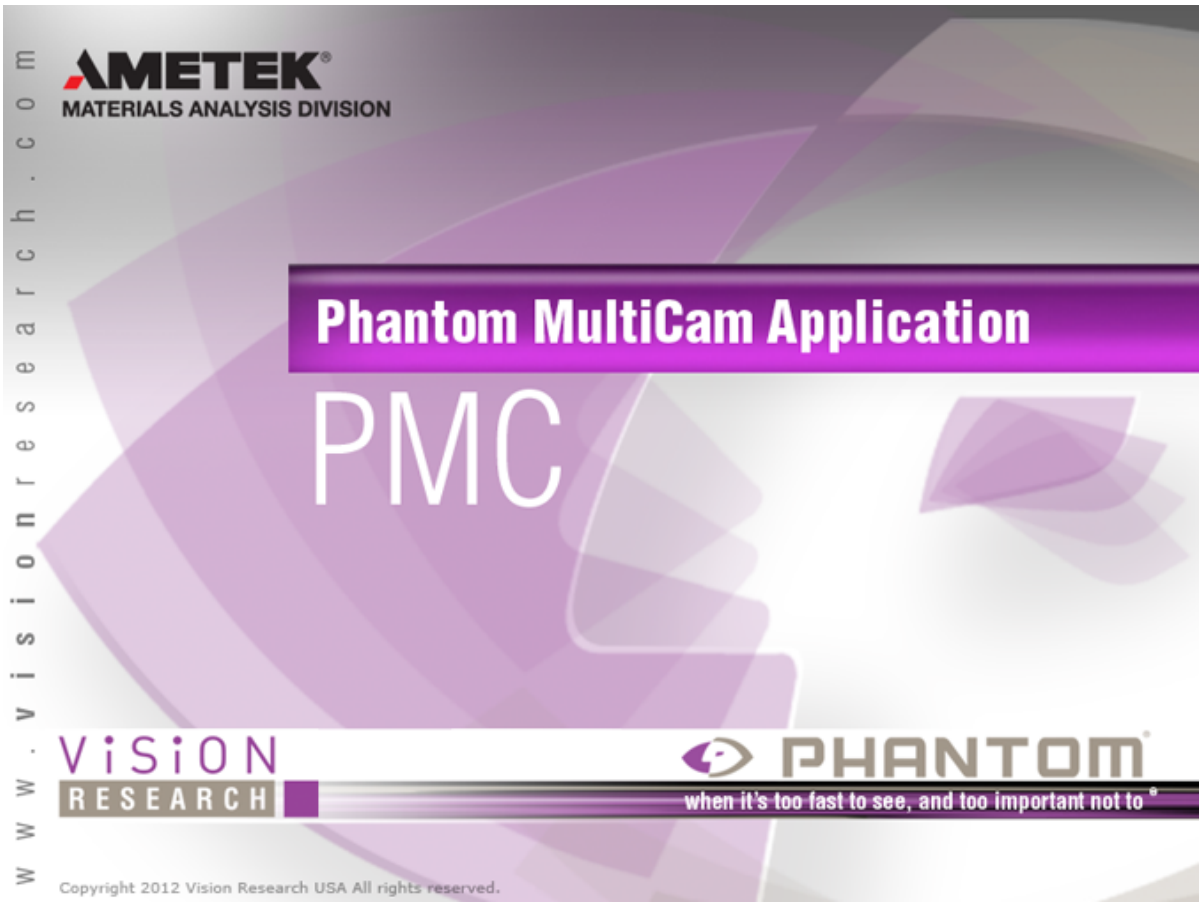
The Phantom MultiCam can be run as an independent software application aiming to offer easy control over connected cameras and their corresponding Cine files.

© 2016 Vision Research - AMETEK Material Analysis Division

Part



1 Phantom MultiCam Application - Help



Software Version 2.6.749.0
Updated: Wednesday, January 27, 2016

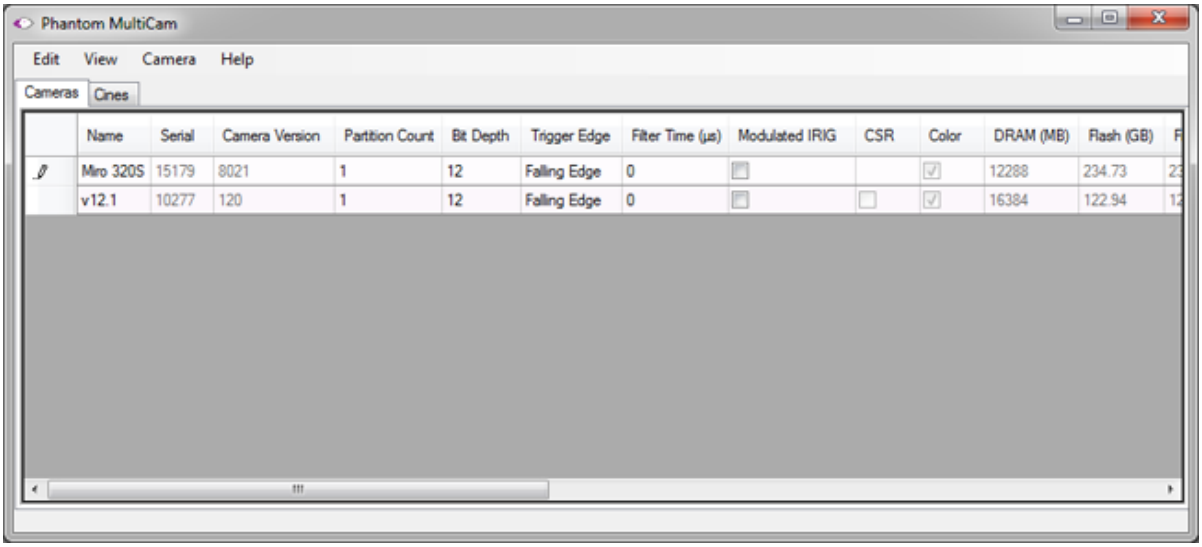
The Phantom MultiCam application is a data sheet utility that allows for the controlling of connected Phantom cameras and their corresponding Cine files. It is a utility which allows the end-user to manage one or more cameras by viewing and editing parameters for recording or viewing Cine files to and from the cameras integrated memory. It is mainly focused on handling acquisition and set up camera parameters with straightforward image feedback.

The Phantom MultiCam can be run as an independent software application aiming to offer easy control over connected cameras and their corresponding Cine files.

© 2016 Vision Research - AMETEK Material Analysis Division

1.1 Graphical User Interface Elements

This topic describes the elements that make up a MultiCam Graphical User Interface, shown below.



Phantom MultiCam Main Screen

The elements consist of:

- Parameters Tables
- Menu Options
- Table Popup Menus

1.1.1 Parameters Tables/Cells

Parameter Tables

Phantom MultiCam organizes parameters in two categories:

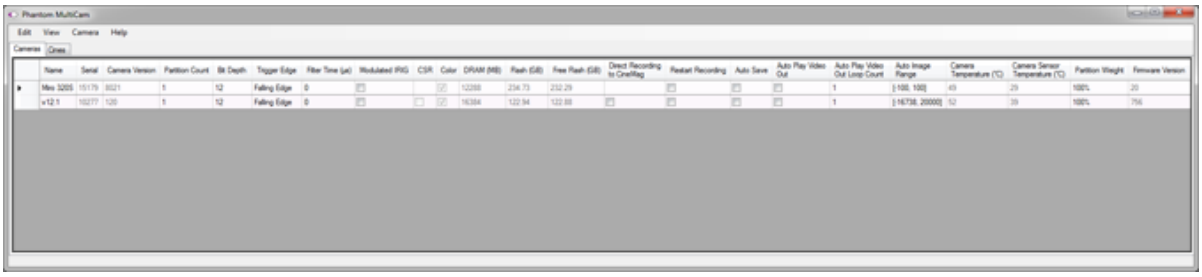
- Camera parameters, accessible by the Cameras table.
- Cine parameters, accessible by the Cines table.

Parameter Cells

- Each parameter has an associated cell in the table.
- Each cell employs a dedicated control in order to view/edit the parameter value easily.
- Each new parameter value is immediately validated and written in the camera.
- Editing a parameter can cause a value change for one or more other parameters (i.e., increasing resolution can cause a frame rate change).
- These changes are automatically triggered when necessary.
- Editing a parameter can cause a read-only change in one or more other parameters (i.e., disabling auto-exposure will also disable auto-exposure level and auto-exposure rectangle).

© 2016 Vision Research - AMETEK Material Analysis Division

1.1.1.1 Camera Parameters and Informational Fields



PARAMETER/ INFORMATIONAL FIELD	DESCRIPTION
Name	Name displays the Camera Name associated with the Phantom camera. This entry field allows the end-user to enter a new name for the camera. Valid Parameter Range: 15 characters maximum.
Serial	Serial indicates the four or five-digit Serial Number of the camera. Valid Parameter Range: N/A - Read only status.
Camera Version	Camera Version indicates the Camera Version Code of the camera. Valid Parameter Range: N/A - Read only status.
Partition Count	Partition Count specifies the number of MultiCine memory segments, or partitions, a camera's memory will be divided into. Valid Parameter Range: The maximum number of MultiCine memory segments, displayed in a pull-down selection list, varies based on the camera model.
Bit Depth	Bit Depth specifies the active pixel image bit depth. Valid Parameter Range: The bit depths available, displayed in a pull-down selection list, varies based on the camera's bit depth option purchased.
Trigger Edge	Trigger Edge specifies whether the leading edge or trailing edge of a TTL supplied input trigger signal is to be used to trigger the camera. Valid Parameter Range: Falling Edge or Rising Edge
Filter Time (μs)	Filter Time instructs the Phantom camera to ignore a trigger signal if it is detected before the specified Filter Time parameter. It also specifies the length of time the trigger signal must be held in for it to be a valid trigger signal.
Modulated IRIG	Modulated IRIG specifies that a supplied IRIG-B input signal is a modulated signal, rather than an unmodulated signal, which is the default setting. Valid Parameter Range: Modulated, (checked), or Unmodulated,

© 2016 Vision Research - AMETEK Material Analysis Division

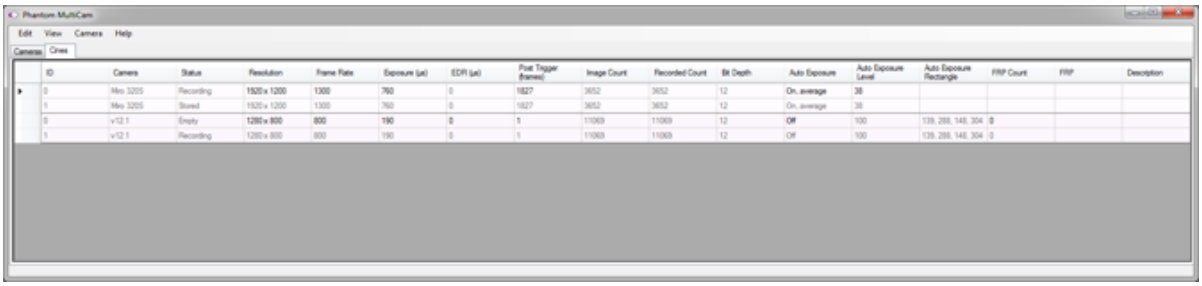
	(unchecked)
CSR	For older types of cameras, it indicates that the .stg in the camera is the result of a CSR command. Valid Parameter Range: N/A - Read only status.
Color	Color indicates if the camera is a color camera, (checked), or a monochrome camera, (unchecked). Valid Parameter Range: N/A - Read only status.
DRAM (MB)	DRAM displays the size, in megabytes, of the integrated image data memory buffer installed in the camera. Valid Parameter Range: N/A - Read only status.
Flash (GB)	Flash displays the size, in gigabytes, of the integrated non-volatile flash memory installed in the camera. Valid Parameter Range: N/A - Read only status.
Free Flash (GB)	Free Flash displays the size, in gigabytes, of free space available for the integrated non-volatile flash memory installed in the camera. Valid Parameter Range: N/A - Read only status.
Direct Recording to CineMag	By default Phantom cameras will write image data into its' RAM image buffer prior to writing it into the non-volatile Flash memory of a Phantom CineMag. When enabled, (checked), the Direct recording to CineMag feature (called Run/Stop mode) instructs the Phantom camera to write the image data directly into the non-volatile Flash memory of the mounted Phantom CineMag. The camera memory will retain in this case only the last images, no more than a number equal to 'Frames' value. This option is used also to record in CineMag Cines with more images than 'Frames' value. Valid Parameter Range: Enable / Disable
Restart Recording	Restart Recording is used to automatically reset the camera back to the recording state prior to or immediately after a Cine file has been recorded into the camera's RAM. Valid Parameter Range: Enable / Disable
Auto Play Video Out	Auto Play Video Out instructs the camera to play a Cine file, to an attached video monitor, immediately after it has been recorded into the camera's RAM. Valid Parameter Range: Enable / Disable
Auto Play Video Out Loop Count	Auto Play Video Out Loop Count specifies the number of times to replay a Cine file immediately after it has been recorded into the camera's RAM, to an attached video monitor, when the Auto Play Video Out feature as been enabled. Valid Parameter Range: 0 (infinite) - 999,999,999

© 2016 Vision Research - AMETEK Material Analysis Division

Auto Image Range	Auto Image Range is used to specify the first and last Cine image number to be reviewed when the Auto Play Video Out feature is enable. Valid Parameter Range: Dependent on the image range of the recorded Cine.
Camera Temperature	Camera Temperature displays the operating temperature of the camera. If the temperature of the camera exceeds the camera's factory set threshold setting the camera's cooling system will work harder to reduce the camera's operating temperature. Valid Parameter Range: N/A - Read only status.
Camera Sensor Temperature	Camera Sensor Temperature displays the operating temperature of the sensor. If the Sensors temperature rises above the sensor's factory set threshold setting, the sensor's thermal expansion diodes will reduce the temperature of the sensor. If the sensor temperature dips below the (sensor) factory set threshold setting, the sensor's thermal expansion diodes will increase the temperature of the sensor. Valid Parameter Range: N/A - Read only status.
Partition Weight	Partition Weight specifies, in percentages, how the camera's or Phantom CineMag's memory is to be allocated. Valid Parameter Range: Minimum of 1%, and the sum of all partitions cannot exceed 100%
Firmware Version	Firmware Version displays the Firmware Version installed in the camera. Valid Parameter Range: N/A - Read only status.

© 2016 Vision Research - AMETEK Material Analysis Division

1.1.1.2 Cine Parameters and Informational Fields



PARAMETER/ INFORMATIONAL FIELD	DESCRIPTION
ID	ID 0 - used to set the various capture parameters of the camera. ID 1 through n - represents the number of memory segments the RAM of the camera had been partitioned up into. Valid Parameter Range: N/A - Read only status.
Camera	Camera displays the name of assigned to the camera. Valid Parameter Range: N/A - Read only status.
Status	Recording - indicates the camera is writing image data into the scrolling buffer of a particular partition. Empty - indicates that the memory associated memory block buffer has no image data stored in it. Triggered - indicates that the camera as detected a trigger signal, and will stop capturing image data upon the completion of recording the required, user specified, post trigger fames. Stored - indicates that a Cine file has been stored into the associated memory buffer. Valid Parameter Range: N/A - Read only status.
Resolution (w x h)	Resolution represents the number of active pixels used to record the image data. Valid Parameter Range:
Frame Rate (fps)	Frame Rate indicates the speed, or frequency, each image is being recorded at. Valid Parameter Range: Any sample rate between the minimum and maximum rates displayed within the Frame Rate Pull-Down Selection List.
Exposure (μs)	Exposure indicates the amount of time the pixels are active per frame, exposed to light, or image. Valid Parameter Range: Any exposure time between the minimum

© 2016 Vision Research - AMETEK Material Analysis Division

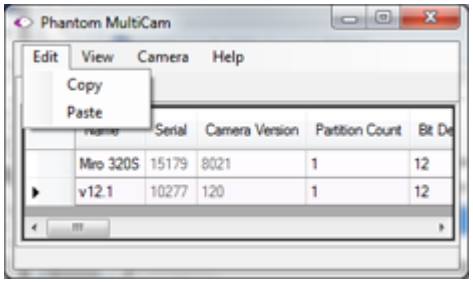
	and maximum exposure times displayed within the Exposure Pull-Down Selection List.
EDR (μs)	EDR indicates the amount of time saturated pixel only are active, exposed to light, per frame. Valid Parameter Range: Any EDR, (Extreme Dynamic Range), exposure time between the minimum and maximum EDR exposure times displayed within the EDR Pull-Down Selection List.
Post Trigger (frames)	Post Trigger specifies the number of images to be saved after a trigger has been detected. Setting the number of post trigger frames also determines the reciprocal number of pre-trigger images saved. Valid Parameter Range: Varies based on the size of the camera memory, the Resolution setting.
Image Count	Image Count indicates how many images or frames will be recorded within the Duration time. Valid Parameter Range: N/A - Varies based on how the amount of memory in the camera, and how the resolution and sample rate parameters are set and will change accordingly.
Recorded Count	Recorded Count indicates the total number of frames that has been recorded. Valid Parameter Range: N/A - Read only status.
Bit Depth	Bit Depth indicates the active pixel image bit depth. Valid Parameter Range: N/A - Read only status.
Auto Exposure	Auto Exposure specifies if the Auto Exposure feature is used or not, and if so, when it should become active. Valid Parameter Range: Off, On, lock at trigger, On, active after trigger
Auto Exposure Level	Auto Exposure Level specifies the desired Level, the average gray scale level for the specified area, to be realized by the automatic exposure process, (i.e., for an 8-bit pixel image depth a mid gray level is 128, black is 0, and saturation is 255). Valid Parameter Range: Based on bit depth setting.
Auto Exposure Rectangle	Auto Exposure Rectangle specifies the region of interest where the auto-exposure measures the average pixel level. Valid Parameter Range: Based on resolution settings. (Left, Top, Right, Bottom)
FRP Count	FRP Count specifies the number Frame Rate Profile, that will automatically change the frame rate, at designated images, during the capturing process of post trigger frames. Valid Parameter Range: 4 maximum

© 2016 Vision Research - AMETEK Material Analysis Division

FRP	FRP specifies the frame rate, and the designated images number, the frame rate will change at during the capturing process of post trigger frames. Valid Parameter Range: Image Number, Frame Rate per profile.
Description	Description specified a user defined description that could be any name, project number, test sequence number, etc. Valid Parameter Range: Any combination of letters, numbers, or spaces, up to a maximum of 4,096 characters up to 4,096 characters.

1.1.2 Menu Options

The application has a small menu above the two tables with the following options:



Phantom Edit Menu

Edit

Copy

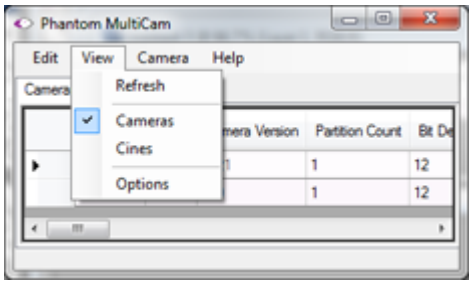
Copies in the clipboard all the parameters corresponding to the selected row; this could be either a camera or a Cine row. To select a row, left-click on the row's header.

Paste

Pastes the clipboard data over the selected row or rows. The Paste operation supports multiple destinations.

NOTE

Copy and Paste operations are performed for rows of identical type: i.e., from camera row to camera row/rows or from Cine row to Cine row/rows and never from camera row to Cine RAW or vice versa.



Phantom View Menu

View

Refresh

Forces a refresh for both tables by rescanning for connected cameras, and rereading all the parameters.

Cameras

Instructs the Cameras table to become the current table.

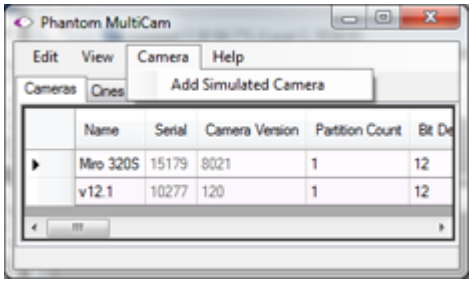
Cines

Instructs the Cines table to become the current table.

Options

© 2016 Vision Research - AMETEK Material Analysis Division

The Options command, when selected, displays a dialog box allowing the end-user to set up the application options. So far, there is only one configurable option referring to hiding or showing flash Cines. If the user prefers to monitor only RAM Cines, he or she can deselect the “Show Flash Cines” option. This will result in the Cines tab displaying only RAM Cines. The end-user at anytime can enable, (check), the “Show Flash Cines” option. This option should be user persistent.

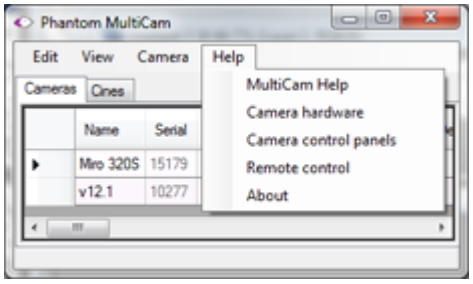


Phantom Camera Menu

Camera

Add Simulated Camera

Allows the user to add a simulated camera.



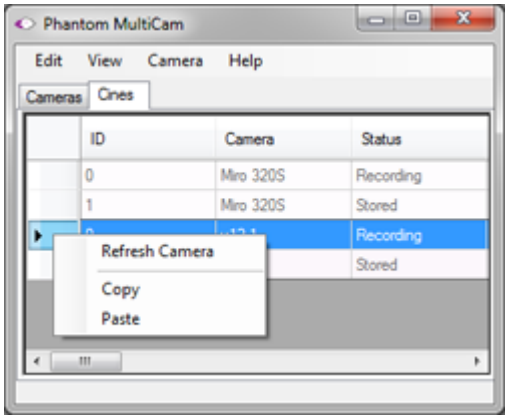
Phantom About Menu

Help

Displays the current Phantom MultiCam information.

1.1.3 Tables Popup Menus

For both the Cines and Cameras tables, several functionalities are grouped in two popup menus. In order for these menus to be displayed, the end-user has to do a right-click on the row header or column header.



Row Header Popup Menu

Refresh Camera

Forces a refresh for the current camera. For the Cameras tab, the current camera is the camera corresponding to the selected row. For the Cines tab, the current camera is the camera owner of the current Cine.

Copy

Copies all the parameters corresponding to the selected row into the clipboard. To select a row, left-click on the row’s header.

© 2016 Vision Research - AMETEK Material Analysis Division

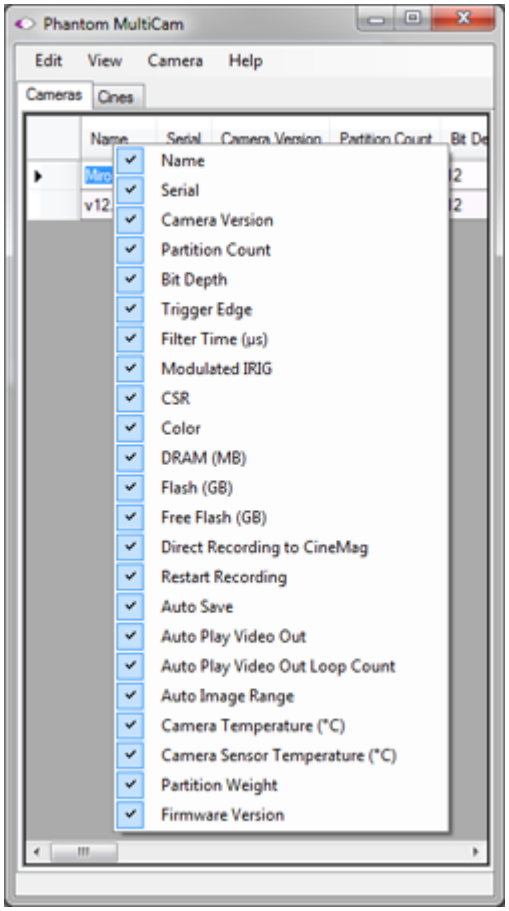
Cine Row Popup Menu

NOTE

Copy and Paste operations are performed for rows of identical type: i.e, from camera row to camera row/rows or from Cine row to Cine row/rows and never from camera row to Cine RAW or vice versa.

Paste

Pastes the clipboard data over the selected row or rows. The Paste operation supports multiple destinations.



Camera Column Popup Window

Column Header Popup Menu

Displays a list with all the column options for either the Cines table or the Cameras table, and allows the end-user to select or deselect the visible columns.

1.1.4 "How-To" Use Cases

Below is the Phantom MultiCam main use cases and their particularities, including:

Edit Parameter Values

To edit a non read-only parameter select its corresponding cell, introduce the new value and press Enter or select another cell. The new value will be validated and sent to the camera. Any detected problem during validation is signaled to the user.

© 2016 Vision Research - AMETEK Material Analysis Division

If a certain parameter is valid, but not accepted by the camera (e.g. frame rate is out of supported frame rate range), its value is automatically adjusted. This behavior is similar with Phantom Camera Control application.

Also, changing a parameter value may cause modification of other parameters, which are related with the first one (e.g. frame rate and resolution are strongly related; for different resolutions the frame rate range varies).

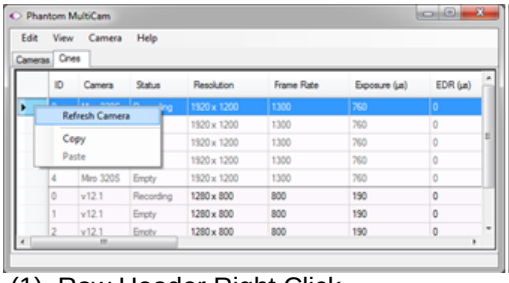
Update Displayed Information

Displayed data can be updated at the user request. This will cause the application to re-read data from connected cameras.

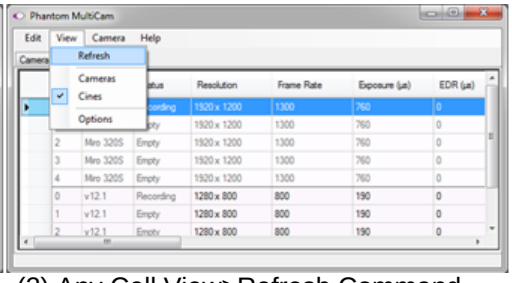
In order to trigger an update operation, the user can:

1. Right-click on the row header of a camera, or
2. Highlight any cell in the data-sheet, and Select the View>Refresh command.

The figures below illustrate these operations.



(1). Row Header Right Click



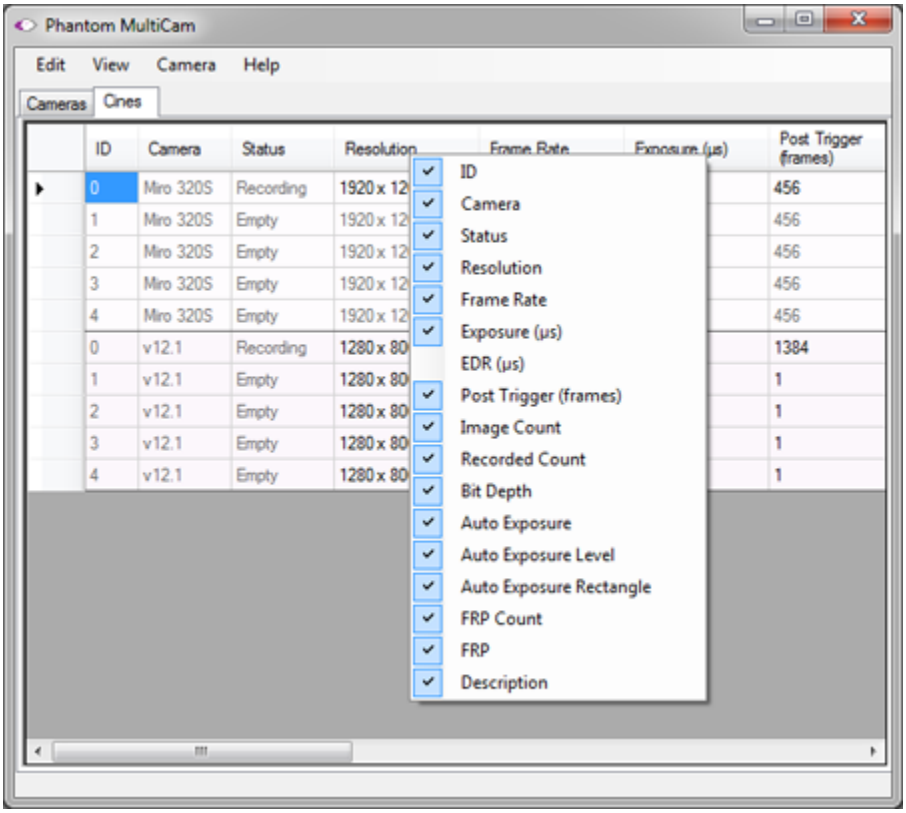
(2) Any Cell View>Refresh Command

© 2016 Vision Research - AMETEK Material Analysis Division

Hide/Show Parameters

The user has the option to select columns that are of interest. If he or she wants to manage only some parameters, the others can be hidden. Also, if the user needs to investigate some hidden parameters, the show option can be enabled.

By right-clicking the column header, the user can select columns that are to be visible and deselect columns that should be hidden.



© 2016 Vision Research - AMETEK Material Analysis Division

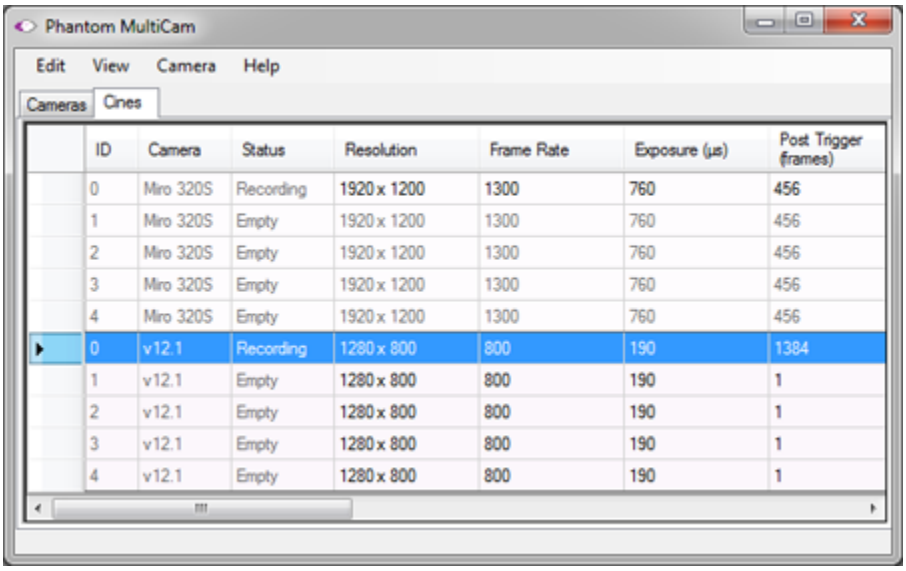
Copy/Paste Operations

In order to simplify manipulating the Cine parameters, the user has the option to perform copy/paste operation between several Cines. Thus, one can copy a Cine parameters and use these values for another Cine or group of Cines parameters.

This procedure has four main steps:

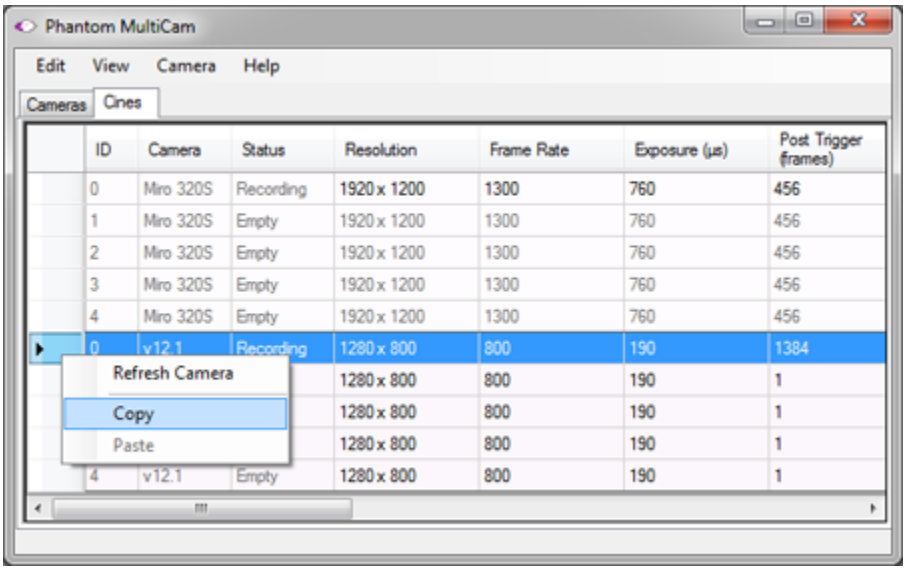
1. Selecting the source Cine.

   This is done by clicking on the row header of the source Cine.



2. Copying selected data.

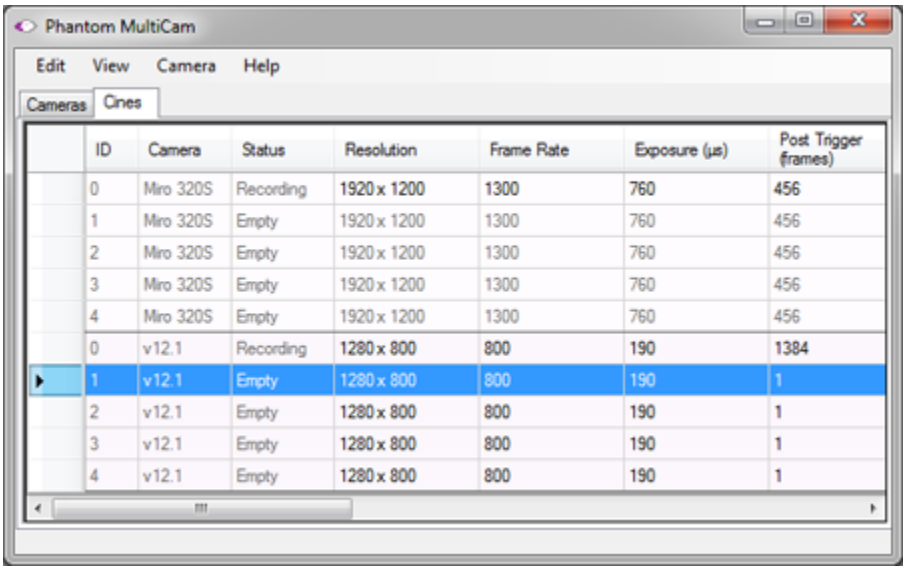
   This is done by right-clicking on the row header and selecting the Copy option.



3. Selecting the destination Cine or Cines.

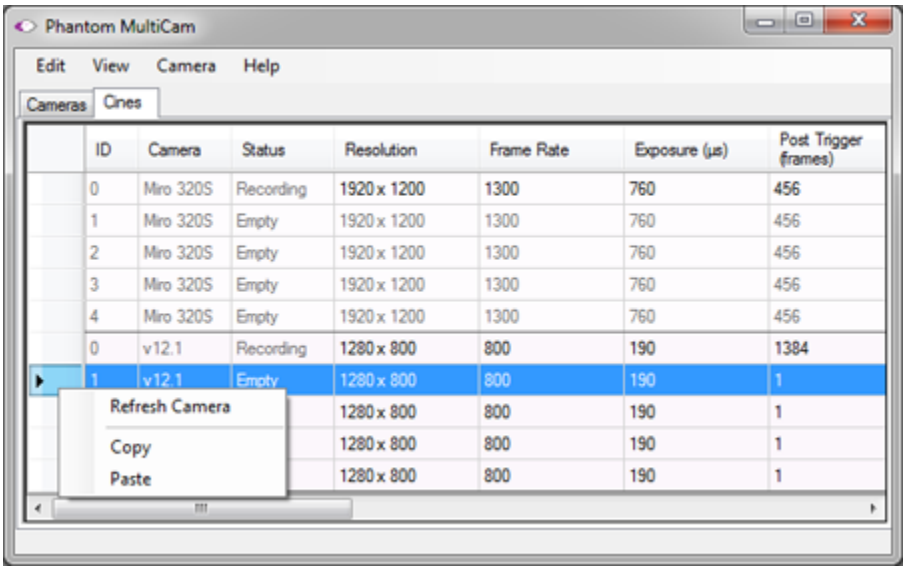
© 2016 Vision Research - AMETEK Material Analysis Division

This is done by clicking one or more consecutive row headers of the destination Cine/Cines.



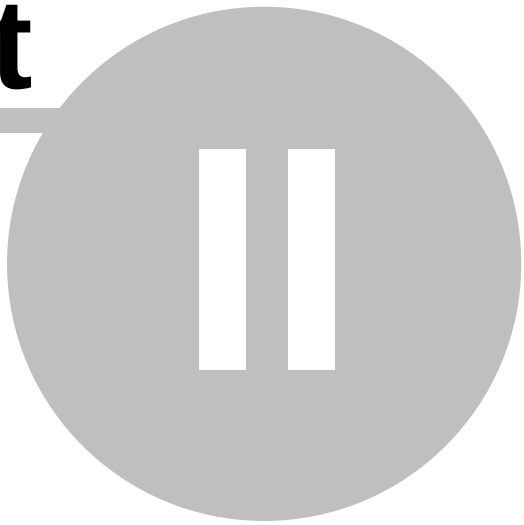
4. Pasting the clipboard data onto destination Cine/Cines.

This is done by right-clicking on the row-header and selecting the Paste option.



© 2016 Vision Research - AMETEK Material Analysis Division

Part



2 Service & Support

AMECARE Service Offerings

Maintenance, Support and Education that delivers ultimate satisfaction and operational confidence for the user

Product and operator performance directly impact your goals and objectives. To ensure maximum product uptime and operator success, Vision Research offers a complete line of service programs, extended warranties and training classes to meet your specific product or operational needs. Our professional, factory trained service engineers and educators will deliver this training and support through a network of service centers, on-line/self-serve content and user community forums that will help you achieve the results you need.

Customer Service – General inquires, technical troubleshooting or ‘how to’ questions? We’re here to help. Our support centers are staffed from 8:00 AM to 5:00 PM Local Time.

- Professional Repair Services – Fast, accurate and competitively priced repairs for all of your product needs
- Extended Warranties – Designed to add peace of mind and extend the factory warranty coverage that eliminates unexpected out of pocket expenses
- Customer Training – Delivered in a Basic and Advanced format designed to get you quickly using our cameras or to explore the depths of our comprehensive feature set
- On-Site Predictive Support and Training – is designed for customers who have 5 or more cameras. This optional service program offers our customers the opportunity to receive a 1 day visit for refresher training, camera inspection, firmware upgrades and general maintenance
- Loaner Product – Minimizes lost productivity by minimizing project downtime. Should an unexpected camera failure occur, a loaner camera will be dispatched to a customer’s site to restore business continuity while your product is in for servicing

View a list of AMECare documents available for download

© 2016 Vision Research - AMETEK Material Analysis Division

2.1 Service Centers

Updated: 11/08/2013

Contacting Vision Research Service Centers

GLOBAL HEADQUARTERS

Vision Research, Inc. - Wayne, New Jersey

100 Dey Road

Wayne, New Jersey 07470 USA

T: +1.973.696.4500

F: +1.973.696.0560

For answers to most questions, please visit us at:

www.visionresearch.com

For general product, account, order/RMA status inquires and other non-technical questions please e-mail us at:

customer.support@visionresearch.com

For technical product support, product operation or applications support please e-mail us at:

technical.support@visionresearch.com

LIVE CUSTOMER AND TECHNICAL SUPPOR

Serving the Americas and Asia Pacific:

M-F 8:00 AM to 5:00 PM EST (GMT-4:00)

Vision Research, Inc. - Stuart, Florida

1002 Monterey Commons, Suite 200

Stuart, Florida 34996 USA

T: +1.973.696.4500

F: +1.973.696.0560

Customer Support, extension 4002

Technical Support, extension 4003

Serving Europe, the Middle East and Africa:

M-F 9:00 AM to 6:00 PM GMT +3:00

Vision Research, Inc. - Bucharest, Romania

Str. Eugen Botez Nr. 1
Bucharest, Romania, 020232
T: +40 21 210 8587
F: +40 21 210 8587

© 2016 Vision Research - AMETEK Material Analysis Division

© 2016 Vision Research - AMETEK Material Analysis Division

2.2 Phantom Certification Program

Vision Research proudly offers a new program that delivers a comprehensive training solution for users of Phantom cameras. The Phantom v-Series Camera Certification Training Program is a two-tiered training program that can reduce in-house training expenses and enhance your workforces' productivity.Phantom v-Series Camera Certification Training Program

Our Phantom v-Series Camera Certification Training Program helps engineers and technicians better understand Phantom cameras, as well as the use of Phantom software, accessories, and applications for high-speed imaging; that will deliver high quality technical and product education you require.

Our instructors provide an in-depth customer-focused hands-on learning experience for our Phantom products as well as the basics in photography through a combination of lectures; exercises, labs, and training solutions. Class size is limited to eight students per session to ensure that each student receives the individual attention he or she may need.

"Our Phantom v-Series Camera Certification Training Program helps engineers and technicians better understand Phantom implementations, use of Phantom software and hardware, and applications," says Frank Mazella, Chief Instructor for Vision Research," and delivers high quality technical and product education our customers' require. We believe this will allow them to maximize the use of our products and the effectiveness of their personnel."

If you are interested in attending, or have any question regarding the training, please contact your local Vision Research sales representative; or, use our "Contact Us" form (http://www.visionresearch.com/Contact-Us/Contact-Form/) to request more information.

For a schedule of our training classes go to: http://www.visionresearch.com/News--Events/Events/Training/

If you are in need of training for television or motion picture production applications, please contact AbelCine if you are in the US or Canada, or your local Phantom sales representatives worldwide.

© 2016 Vision Research - AMETEK Material Analysis Division

www.visionresearch.com

Vision Research - Corporate Headquarters
100 Dey Road
Wayne, New Jersey 07470
USA
Ph: +1.973.696.4500
Toll Free: 800.737.6588
Fax: +1.973.696.0560

Vision Research - Florida Office
1002 Monterey Commons, Suite 200
Stuart, Florida 34997
USA
Ph: +1.772.286.7000
Fax: +1.772.286.6206

Vision Research Ltd. - UK
Suite F8, Bedford i-lab
Priory Business Park
Stannard Way, Bedford
MK44 3RZ, United Kingdom
Ph: +44 1234 834 850
Fax: +44 1234 834 851