



TRAINING

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Subject to change Rev April 2016

Phantom® V-Series Camera Operator Certification Training

Student Training Manual
Hands-On Exercises
Small Class Size

Cost:

- Phantom Operator Certification Level I & Level II (two-days) \$2,000US per student
- Phantom Operator Certification Level II only (one-day) \$1,150US per student

CUSTOMIZATION:

All course material, lectures, and hands-on exercises are open to modification to meet specific client requirements. This course can also be conducted at the customer site.

Cost \$10,000US (Domestic)

For the cost of International, on-site training, please contact Vision Research Training Services directly by dialing 1.609.254.6531 or e-mail us at: training@visionresearch.com for quote.

Vision Research reserves the right to accept or decline registrations, and to cancel the course and return all registration fees if enrollment is insufficient. No refunds will be made to participants who fail to cancel by at least five (5) working days before the course starts. Cancellations will be charged a \$200 service fee if made more than five (5) working days prior to the start of the course. Substitutions may be made at any time without penalty.

SCHEDULE:

Our training schedule can be found online at:
<http://www.phantomhighspeed.com>

To reserve your seat in one of our training sessions, please contact your local sales representative or distributor. Or contact Vision Research Training Services directly by dialing 1.609.254.6531 or e-mail us at: training@ametek.com.

AMETEK®
MATERIALS ANALYSIS DIVISION

Key Benefits:

WHEN IT'S TOO FAST TO SEE, AND TOO IMPORTANT NOT TO®

Vision Research, a worldwide leader in providing digital high-speed imaging systems proudly offers a program that delivers a comprehensive training solution for users of Phantom cameras.

This Certification Program was created in response to our camera buyers, to reduce in-house training related expenses and enhance workforce productivity. Directors and managers can use our training program to train their users, and system administrators, for all Phantom products.

Our Phantom Certification Training Program helps engineers and technicians better understand Phantom cameras, use of Phantom software and hardware, and applications for high-speed imaging, and delivers high quality technical and product education you desire. Our training program will allow you to maximize the use of Phantom products and the effectiveness of your personnel.

Our instructors provide an in-depth customer-focused hands-on learning experience for our Phantom products, and basics in photography best practices 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.

V-Series Camera Operator Certification

LEVEL 1 - COURSE OBJECTIVES:

After attending this course the student will be able to:

- Explain what a high speed camera is, how they work, and how to select the best camera to meet recording requirements.
- Describe basic photographic terminology.
- Determine if a computer can be used as a Phantom Camera Control Unit computer, and how to maintain it.
- Restore a camera back to factory defaults.
- Navigate through the Graphical User Interface and define interface preferences.
- Capture a Cine using the most basic capture techniques.
- Specify how a Cine is to be reviewed, and how to use the common video buttons to play a Cine.
- Edit and save a recorded Cine to various storage devices manually or automatically.
- Set the camera to perform a CSR (Current Session Reference automatically).
- Select the appropriate framing clock source to record an event.
- Use an external trigger device to trigger the camera.
- Use PCC to find important information about the camera, and/or a Cine file.
- Convert Cine files into various file formats.
- Maintain your camera, and resolve the most basic camera issues should they arise.

LEVEL 1 - WHO SHOULD ATTEND:

Operators who have little or no experience in recording high speed events, and technicians required to install, the Phantom cameras and their peripherals.

LEARNER PREREQUISITE SKILLS AND KNOWLEDGE:

- Photography principles knowledge and practical experience (Level 1 and 2)
- Microsoft Windows utilization and file manipulation for all participants (Level 1 and 2)
- Digital electronic repair skills for technicians responsible for maintaining the cameras (Level 1 and 2)
- Working knowledge to capture, review, edit, and save a Cine clip using a PCC (Level 2)

OVERVIEW:

LEVEL 1: The Level 1 certification course has been designed to provide a basic understanding of what a high speed digital camera is comprised of, how it works, and how to use it to capture, review, edit and save Cine clips in its simplest form for operators who have little or no experience in digital high-speed imaging. This course will elaborate on the many decisions the operator has to consider prior to recording an event: lighting, lenses, memory, and storage just to name few. It will provide the student with the general knowledge.

COURSE OUTLINE:

Part I: Welcome (8:30 - 9:00)

Introductions and Registration

Part II: Terminology (9:00 - 11:00)

Photographic

Phantom Camera Related

Part III: The User Interface Overview (11:00 - 12:00)

Lunch (12:00-1:00)

Part IV: Pre-Capture Preparations (1:00 - 1:30)

Camera Positioning

Lensing, Lighting, and Shot Considerations

Defining the Application Preferences

Part V: Cine Basics (1:30 - 2:30)

Capturing, Reviewing, Editing, and Saving a Cine

Part VI: EDR Exposure Time (2:30 - 2:50)

Part VII: Other Advanced Features (2:50 - 3:00)

Auto Black Reference

Start / End of Recording Options

Part VIII: Other Camera Settings (3:00 - 3:20)

Lens Control
Backup & Restore Settings

Part IX: Post Processing (3:20 - 4:30)

Image Tools
Converting to a Movie Formats
Converting to an Image Formats
Compressing a Cine

Part X: Camera Repair & Firmware Upgrade (4:30 - 4:45)

Restore Settings
Firmware Upgrade
Assign a Secondary IP Address

Part XI: Wrap-Up and Evaluations (4:45 - 5:00)

OVERVIEW:

LEVEL 2: The Level 2 certification course has been designed to provide students with the ability to use the advanced features and options incorporated in a Phantom camera. It provides various networking choices to synchronize multiple cameras to record an event to capture several angle views of an event. This course will supply analyst with the tools necessary to utilize the 'easy-to-use' measurement tools incorporated in our PCC software. In addition, it will detail the various methods used to control a Phantom camera.

COURSE OUTLINE:

Part I: Welcome (8:30 - 9:00)

Introductions and Registration

Part II: Features and Options (9:00 - 12:00)

Low Light and Bit Depth
Auto Exposure
Image-Based Auto-Trigger
MultCine
Continuous Recording
Flash Memory

Lunch (12:00 - 1:00)

LEVEL 2 - COURSE OBJECTIVES:

After attending this course the student will be able to:

- Detail the benefits of, and the ability to configure the use of following features and options:
 - Automatic Mechanical Shutter
 - Automatic Black Reference
 - Auto Exposure
 - Frame Rate Profile
 - Flash Memory
 - Image-Based Auto-Trigger
 - MultCine
 - Continuous Recording
 - PIV (Particle Image Velocimetry)
 - Burst Mode
 - Range Data
 - Signal Acquisition
 - Versatile Dual –HD-SDI
- Perform Timing Measurements and Motion Analysis.
- Generate and Review Measurement Reports.
- Synchronize multiple networked Phantom cameras using a variety of frame clock sources.
- Create Camera/Cine Groups.
- Review multiple Cine clips synchronously.
- Detail the other methods used to control a Phantom camera.

LEVEL 2 - WHO SHOULD ATTEND:

Operators who have little or no experience in recording high speed events, and technicians required to install, the Phantom cameras and their peripherals.

DATA SHEET

Phantom® V-Series Camera Operator Certification Training

Part II: Features and Options Continued (1:00 - 3:00)

- Frame Rate Profile
- Range Data / Signal Acquisition
- PIV (Particle Image Velocimetry)
- Burst Mode
- Versatile Dual HD-SDI

Part III: Measurements (3:00 - 4:00)

- Timing Measurements
- Measurement Unit Definition
- Measurement Scale Definition
- Setting/Clearing an Origin Point
- Coordinate Analysis
- Distance, Speed, Angle, and Angular Speed Analysis
- Collect Point Analysis
- Report Generation and Review

Part IV: PCC in Multi-Camera Environments (4:00 - 4:45)

- Networking & Synchronizing Multiple Cameras
- Camera and Cine Group Creation
- Copying Camera Parameters to Multiple Phantom Cameras
- Synchronized Playback of Multiple Cine Clips
- Saving Cine Clips from Multiple Phantom Cameras

Part VI: Wrap-Up (4:45 - 5:00)

AMETEK Vision Research's digital high-speed cameras are subject to the export licensing jurisdiction of the Export Administration Regulations. As a result, the export, transfer, or re-export of these cameras to a country embargoed by the United States is strictly prohibited. Likewise, it is prohibited under the Export Administration Regulations to export, transfer, or re-export AMETEK Vision Research's digital high-speed cameras to certain buyers and/or end users.

Customers are also advised that some models of AMETEK Vision Research's digital high-speed cameras may require a license from the U.S. Department of Commerce to be: (1) exported from the United States; (2) transferred to a foreign person in the United States; or (3) re-exported to a third country. Interested parties should contact the U.S. Department of Commerce to determine if an export or a re-export license is required for their specific transaction.

Focused

Since 1950, Vision Research has been designing, and manufacturing high-speed cameras. Our single focus is to invent, build, and support the most advanced cameras possible.

VISION
RESEARCH

AMETEK®
MATERIALS ANALYSIS DIVISION

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