



## 390 Basic System

### Operators Manual



AFG Training Technology, LLC

VERSION 20160408-00

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<b>Specifications</b>	
Training Distance Requirements	<p><b>Paper Targets:</b> sufficient distance to support engagement for the intended course of fire.</p> <p><b>Projection:</b> 8' 6" from projector to projection surface, plus sufficient room for movement behind the projector.</p>
Power Requirements	Input Voltage: 110V/220V AC
Operational Environment	Indoors
Operating Temperature	32°F (0°C) to 95°F (35°C)
Paper Target Software Images Included:	M9 Trans Star II 5 Bulls-eye B-27E B-21E Silhouette Modified QIT FBI Q E Silhouette ICE-QT

**NOTE:** The contents of this manual are applicable to **390** Systems shipped with 390V6 software version **1.0.0** or later. This manual is subject to change without notice. AFG reserves the right to change or improve any of the products described without notice.

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## Minimum Hardware Requirements

### CUSTOMER MINIMUM HARDWARE REQUIREMENTS

For operation in Basic (Paper Target) Mode, this system requires a computer. For operation in Advance (Projection) Mode, this system requires a computer and projector. Minimum required specifications for this hardware are listed below. If your hardware does not meet these minimum specifications, your system will not operate properly.

#### COMPUTER

##### Windows XP

- 1.5 GHz Pentium Processor
- 512 MB RAM
- 128 MB Graphics Memory
- 1024x768 Screen Resolution
- External VGA Output for Projector
- 10/100 Mbps LAN Card
- 40 MB Free Disk Space (390 software only)
- Additional 3 GB Disc Space (when video scenarios are installed)

##### Windows Vista, Windows 7/8

- 2.0 GHz Pentium Processor
- 1 GB RAM
- 256 MB Graphics Memory
- 1024x768 Screen Resolution
- External VGA Output for Projector
- 10/100 Mbps LAN Card
- 40 MB Free Disk Space (390 software only)
- Additional 3 GB Disc Space (when video scenarios are installed)

#### PROJECTOR

- Pixel Format: 1024x768
- Aspect Ratio: 4:3
- Minimum Screen Width: 80"
- Minimum Throw Distance: 80" (100" recommended)
- Maximum Throw Ratio: 2.0:1 (1.3:1 recommended)
- RGB Analog Input
- 15-pin HD, D-sub Connector for RGB

The **390 System** is a comprehensive interactive training system with a proven record in small arms training for sportsmen, law enforcement and military shooters. The system is portable and can be quickly set up in a limited size training area. Shooters train with their own firearms using lasers instead of live rounds, and target hits are displayed on the projection screen and/or the computer.

This System includes software for operation in **Basic** and **Advanced** Modes.

The **Basic Mode** provides for engagement of full-size or scaled paper targets and includes a unique **Course of Fire Generator** that allows you to create and save your own courses of fire for paper targets. Operation in this mode requires the user to supply a computer (see previous page for minimum specifications) and a paper target. Target engagement requires a software target image corresponding to the paper target. See Specifications on page 3 for available software target images.

The **Advanced Mode** provides for engagement of projected targets with interactive skill-building exercises and video scenarios (non-branching). Operation in this mode requires the user to supply a computer and projector (see previous page for minimum specifications). A sound system is recommended. Users can film and import their own video scenarios.

**Available accessories include:**

- The **390 Linked System** - This provides the capability for expanding to 8 paper target lanes linked to a single Computer. Up to 8 shooters may each engage a separate paper target with centralized scoring provided on the Computer.

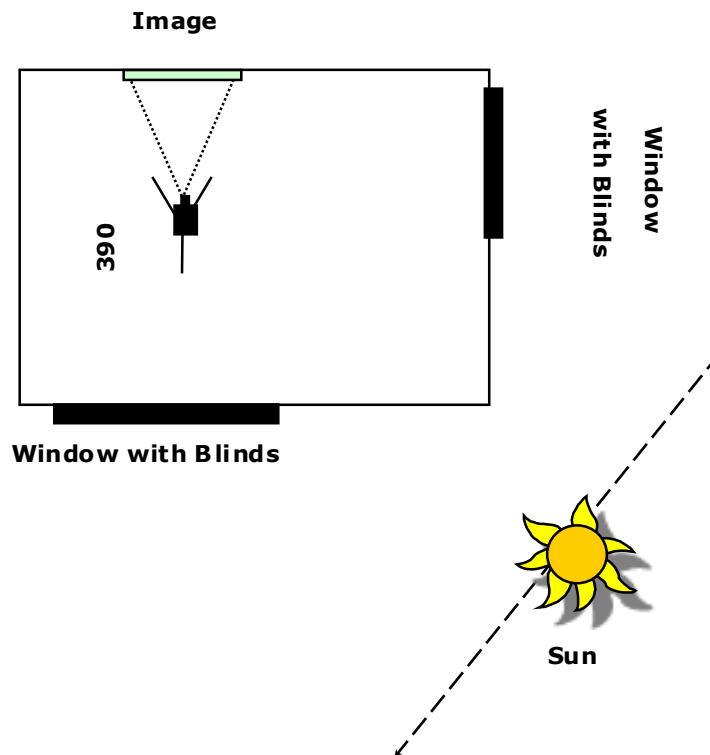
## Training Area Identification

Users should carefully consider the training area location to avoid frequent re-calibration. The system works best when it is not subject to rapid changes or variations in light levels. It is important to not disturb the unit once it has been set up and calibrated, as this will affect functionality and accuracy.

### Preferred Location

Best results occur when system is setup in a room where light conditions are consistent and controlled. It is important to maintain the environmental conditions once the system has been calibrated for each individual training session.

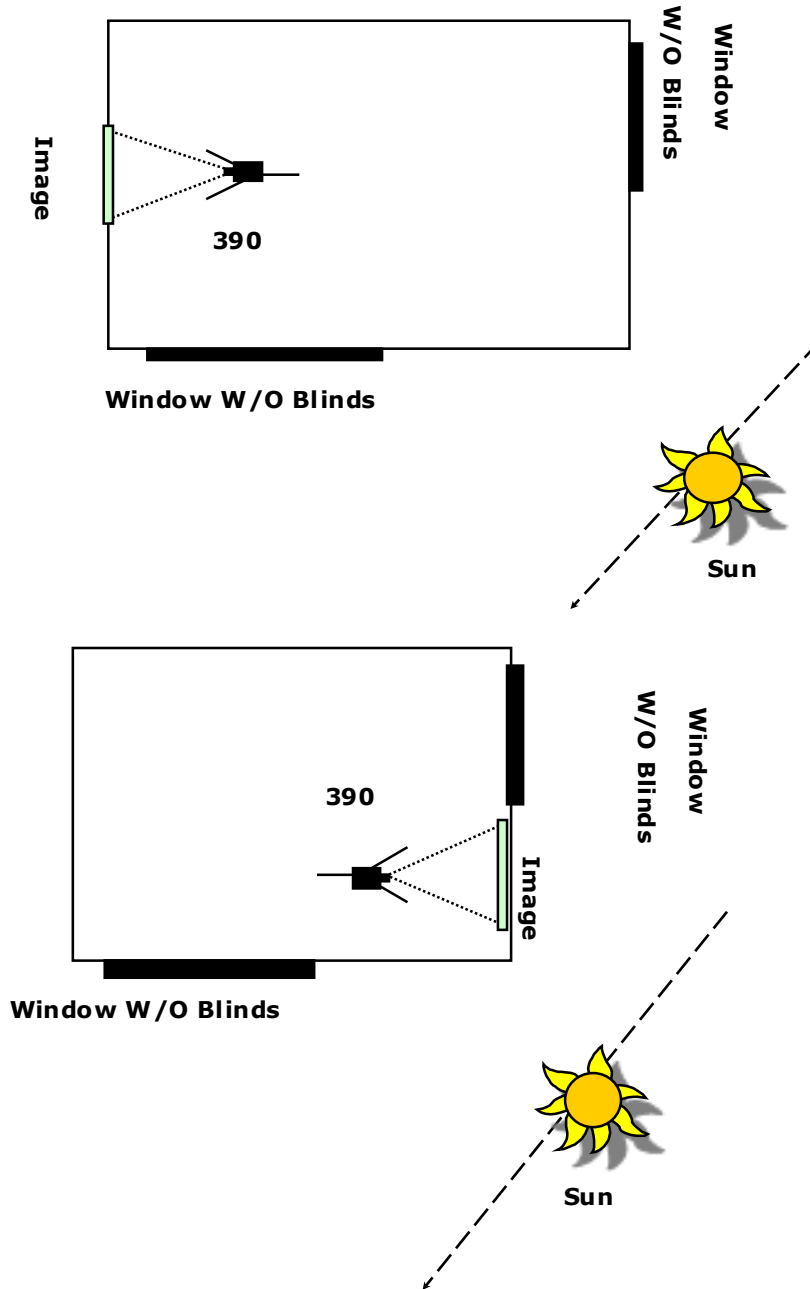
**NOTE:** The user should assess each training area to locate the best possible equipment location.



**NOTE:** Infrared motion detection devices associated with security systems can produce false hits on this system. It may be necessary to block such devices in a room where the 390 is set-up.

Poor Locations

The following setups allow too much direct sunlight onto the screen or into the Laser Detection Device (LDD) lens and cause the greatest amount of variation throughout the training day:



## Components

The 390 Basic System (Part No. MDM1702) includes the following components:

### 390V5 or 390V6 Camera (referred to as Laser Detection Device or LDD)

(1 ea)

Part No. MD3680 or MD3687



### 390V5 or 390V6 LDD Power Supply

(1 ea)

Part No. MD1091 or MD1093

### Crossover Ethernet Cable

(1 ea)

Part No. MD1050



**NOTE:** This is NOT a standard Ethernet cable, it is a crossover cable. To use a standard Ethernet cable, a network hub is required (not included).



### 390 Linked System Tripod

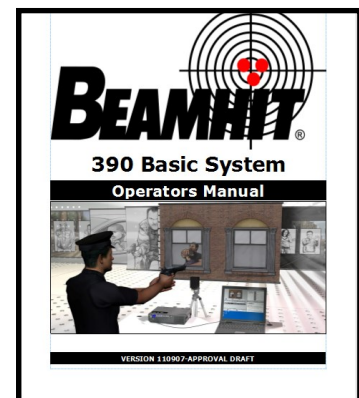
(1 ea)

Part No. MD3657

### SYSTEM MANUAL

QTY: 1ea

Available for download from website [www.beamhit.net](http://www.beamhit.net)







**Laser: LS-101**

QTY: 1ea



**MCR-SM-L**

**(.22 to .32 Caliber Rifle)**

QTY: 1ea



**MCR-SM**

**(.22 to .32 Caliber)**

QTY: 1ea



**MCR-ML**

**(.357 to .45 Caliber)**

QTY: 1ea



**ALLEN WRENCH -  
1.5mm**

QTY: 1ea

**SOFTWARE**

**CD: 390V6 Software** (1 ea) Part No. MD4557

**390 5-CD Video Library** (1 ea) Part No. MD3667



**Also Included:**

**390 Carton** (1 ea) Part No. MD1526

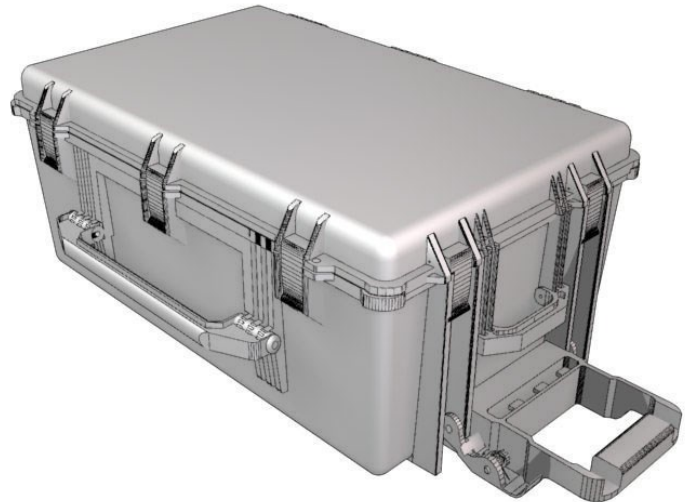
**390 Case Insert** (1 ea) Part No. MD1534

**Packing Foam** (1 ea) Part No. MD1550

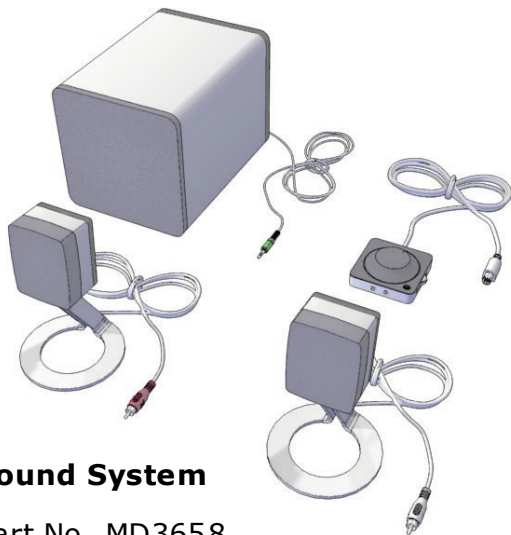
**Optional Components/Accessories**



**Laptop Computer** (Part No. MD3600) with **USB to Serial Port Adapter** (Part No. MD3607)



**Carry Case: 390V6**  
Part No. MD1556



**Sound System**  
Part No. MD3658



**Video Projector**  
Part No. MD3543

The **390 Linked System** is available as an add-on to the 390 System to provide linking capability with paper targets (Basic Mode) for up to 8 lanes (total). The following configurations are available:

**Communication Kit (Part No. MD1714)** - One communication kit is required to accommodate expansion from a one lane to a multi-lane system up to the 7 additional lanes the system allows.

**Lane Kit (Part No MD1714)** - Provides 1 additional lane to the System (up to 7 may be added for a total of 8 lanes).

A **390 Link Conversion Kit (Part No MD1716)** is also available for customers who have 2 or more 390 Systems and desire to link them in the Basic paper target mode .

### Technical Support

WWW.Beamhit.net

#### Install 390 Software:

1. In the Control Panel, select Classical View.
2. Disable the Firewall.
3. Change the IP Address to 10.0.10.2 and Subnet Mask to 255.255.255.0 (see App E).
4. Insert the [Beamhit](#) 390 software CD. The setup Software will run automatically.
5. Install the Paper Target Software.
6. Install the Projector software.
7. Close the Setup software and remove the 390 software CD.

**(NOTE:** Refer to your laptop or display manufacturer's manual for specific instructions about adjusting these settings.)

**1.** Configure your computer for multiple displays.

- Displays should be independent (extended display).
- The Projector should be Display Number 1 (primary display) and its resolution should be 1024x768.
- The Computer display must be Display Number 2 (secondary display) and its resolution should be 1280x800 or higher.

**2.** After adjusting the settings, desktop icons should be on the projector screen and the computer display should be empty. You should be able to move your mouse arrow between the screens.

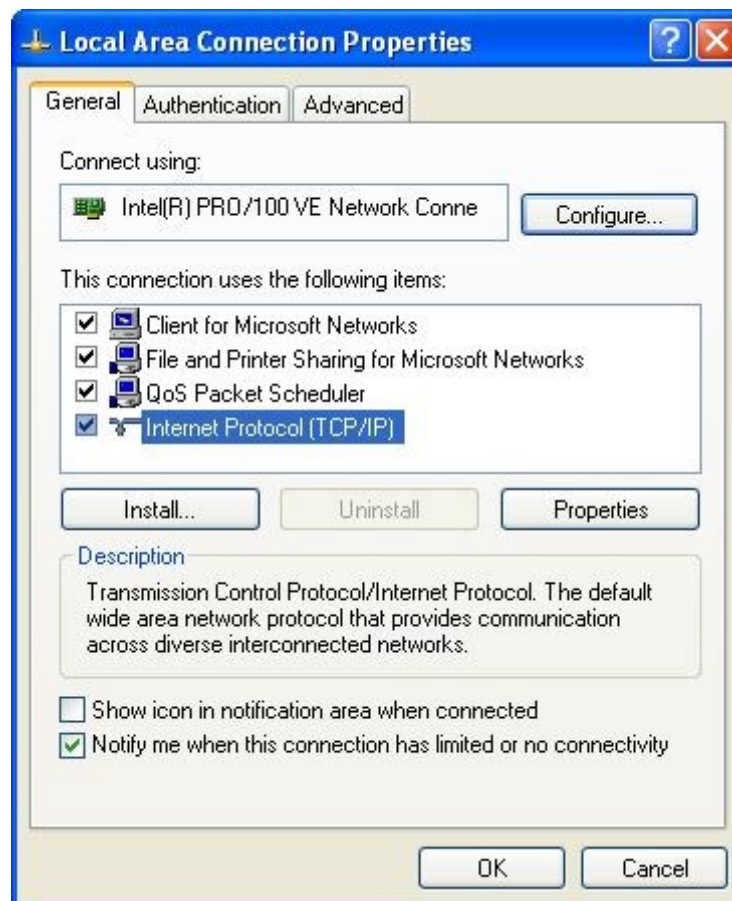
## Computer IP Address

**The last digits of the Computer IP address must be different from the LDD IP address.** Your Computer can communicate with the LDD only when they are in the same network. For example, if the IP address found on the back of your LDD is 10.0.10.51, your Computer's IP address should be 10.0.10.2.

Following are instructions for changing the IP address for the Microsoft Operating Systems you may encounter.

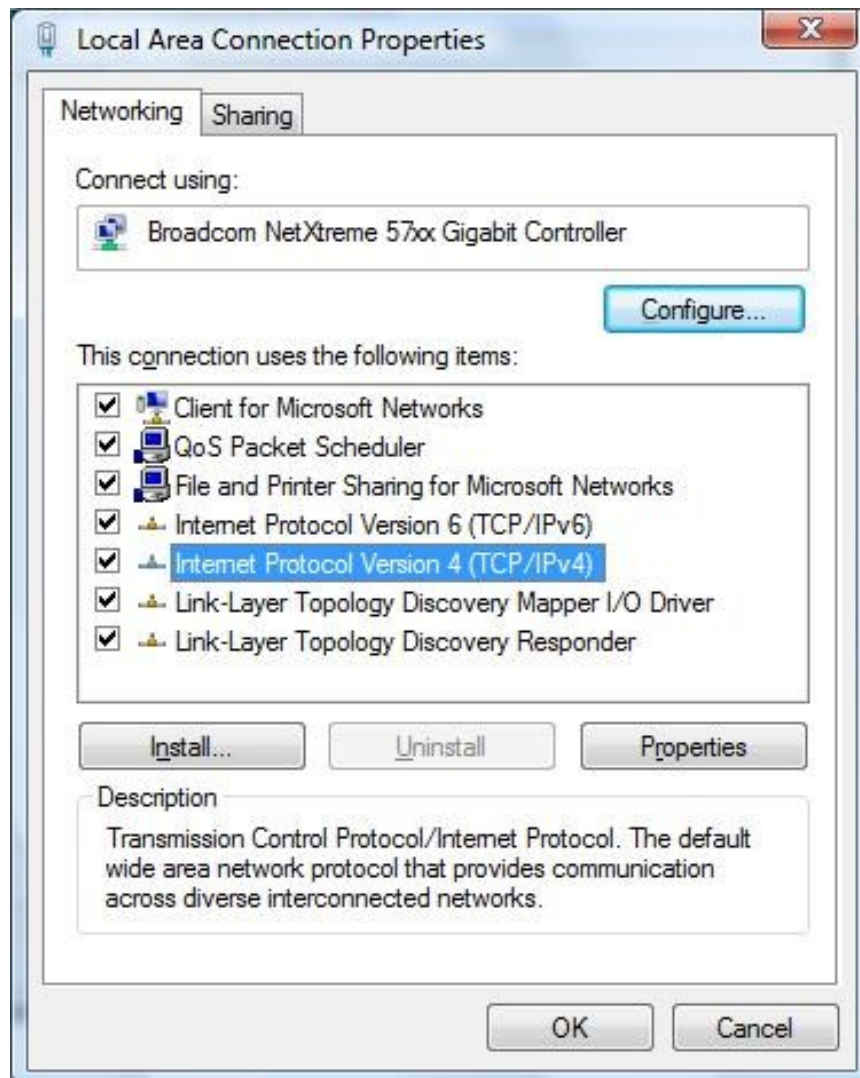
### Windows XP

1. Turn on the Computer.
2. Double click the Network Connections icon in the Control Panel. Then double click the Local Area Connection icon. The Local Area Connection Properties window will open.
3. Select "Internet Protocol (TCP/IP)" and click the "Properties" button.



**Windows Vista:**

1. Turn on the Computer.
2. Click the Network and Internet icon in the Control Panel. Next click Network and Sharing Center. On the left side menu click "Manage Network Connections". Then double click the Local Area Connection icon. Click on Properties and a window will open. Click Continue in the security message box.
3. Select Internet Protocol Version 4 (TCP/IPv4).

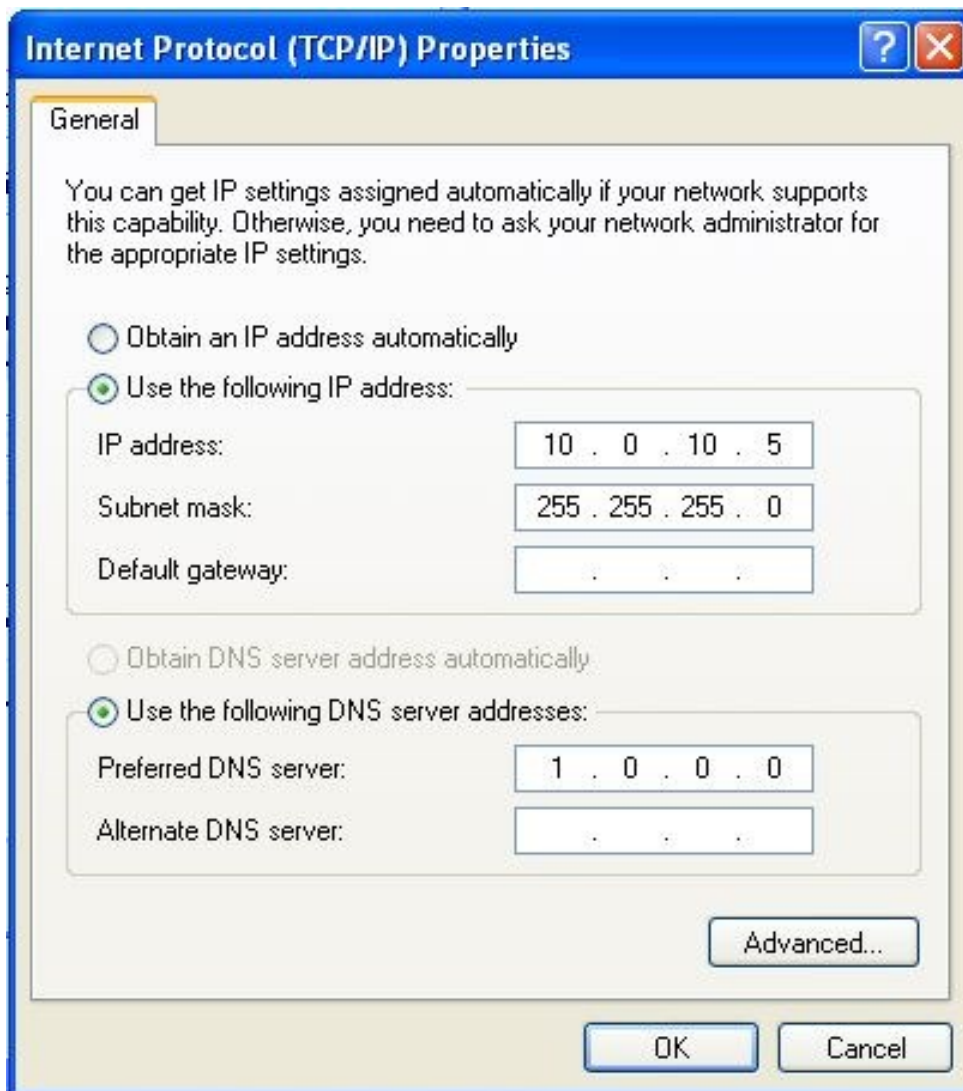


## Computer IP Address

### Windows XP and Vista:

4. On Internet Protocol Properties window, select "**Use the following IP address**" and type the desired IP address (10.0.10.2).
5. Subnet mask must be 255.255.255.0.
6. Default gateway and DNS server address can be anything.
7. Click on the "**OK**" button.

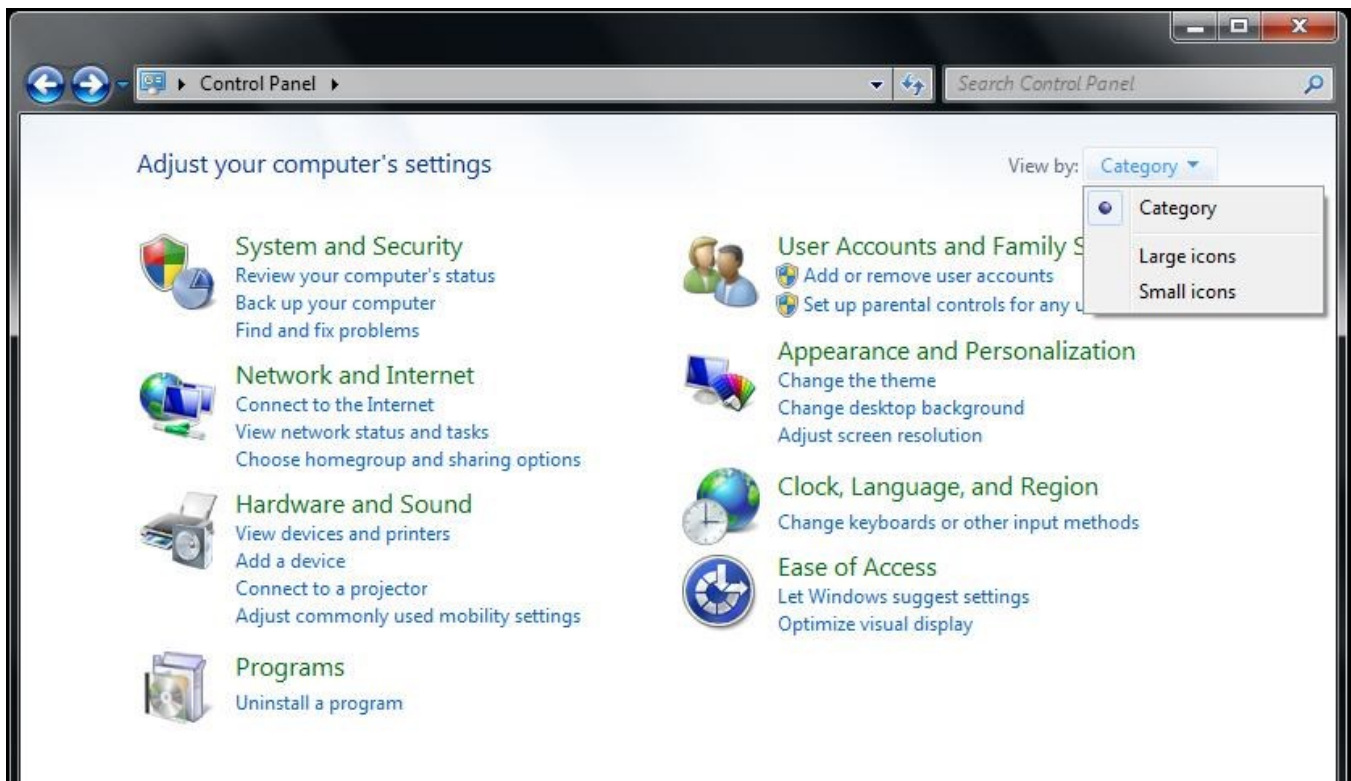
The IP address is set to a new static value.



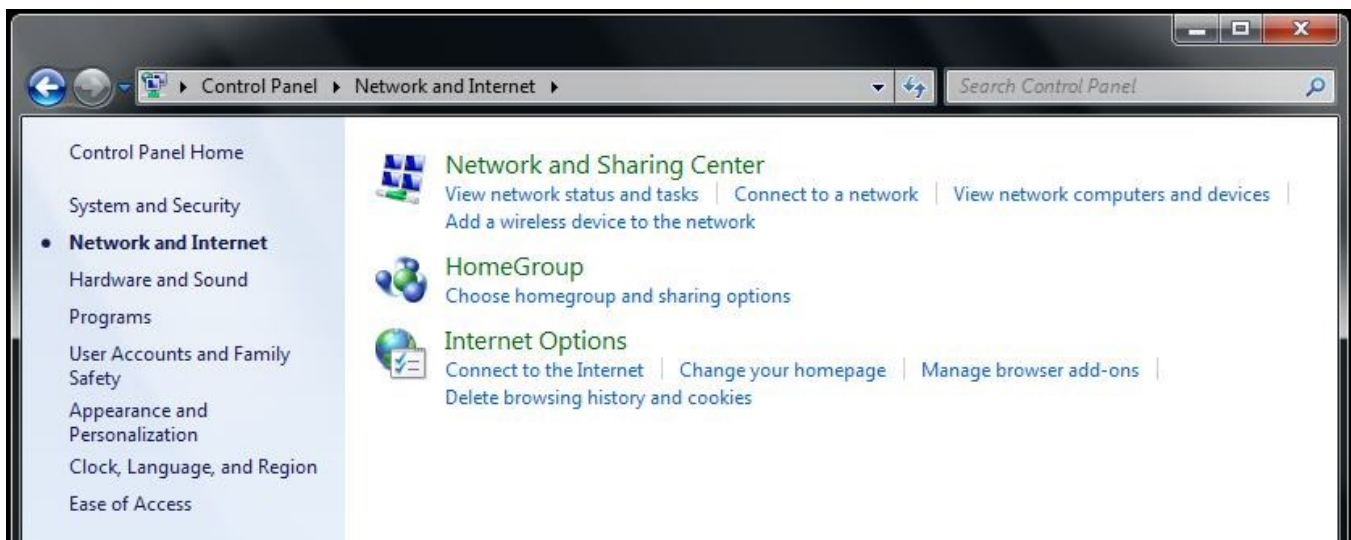


**Windows 7/8**

1. Turn on the Computer.
2. Click the Windows Start Menu and select **Control Panel**. The Control Panel Window will open.
3. On the top right corner, select "**Category View**".

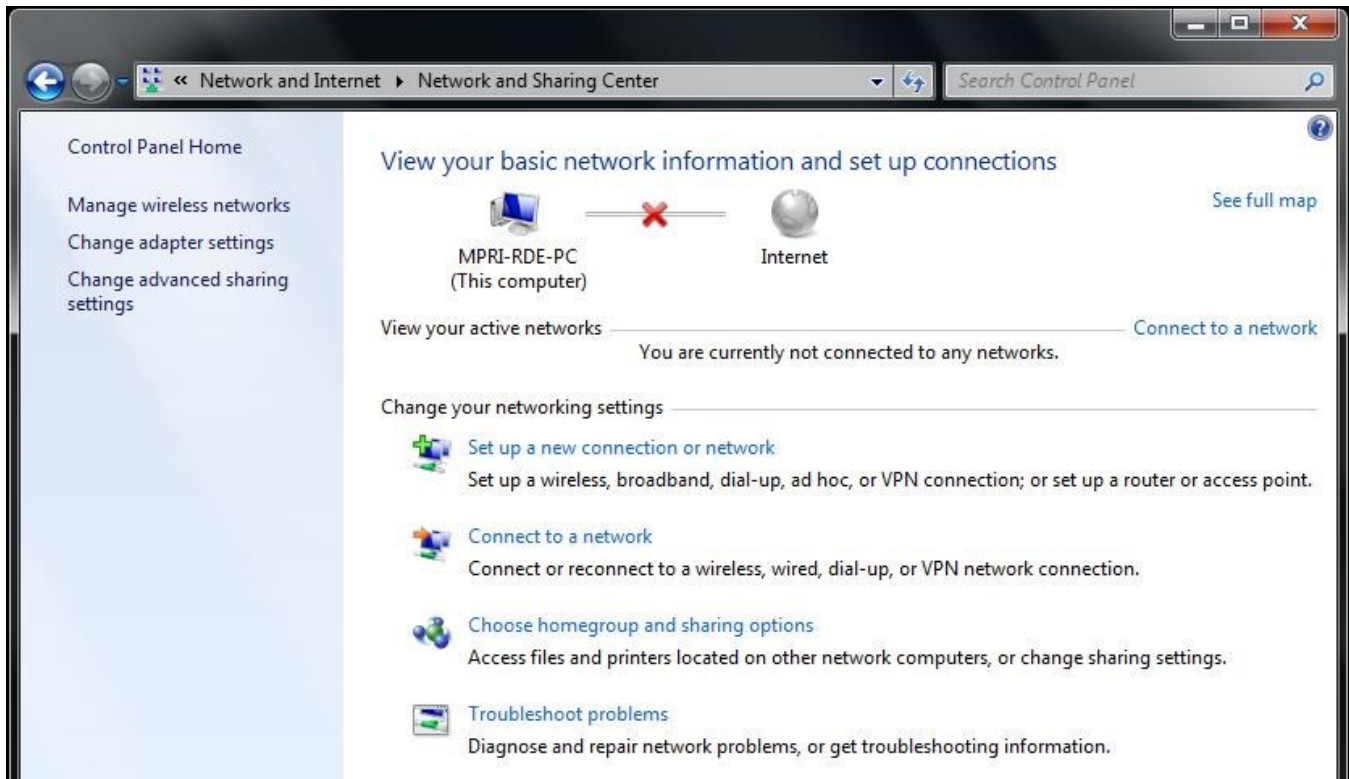


4. Click "**Network and Internet**". A new window will open.



## Computer IP Address

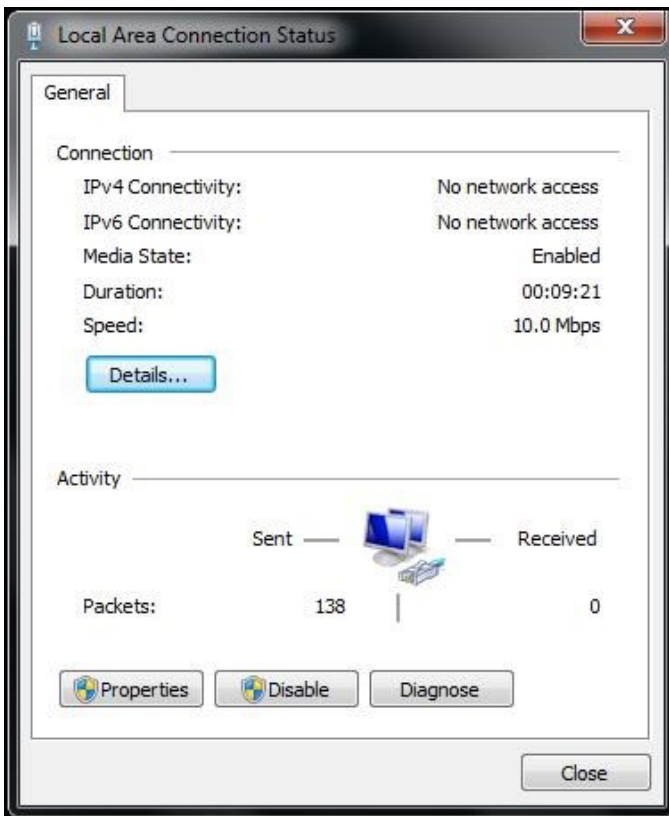
5. Select "**Network and Sharing Center**". The Network and Sharing Center window will open.



6. Click the "**Change adapter settings**" shortcut on left side of the window. A new window will open.

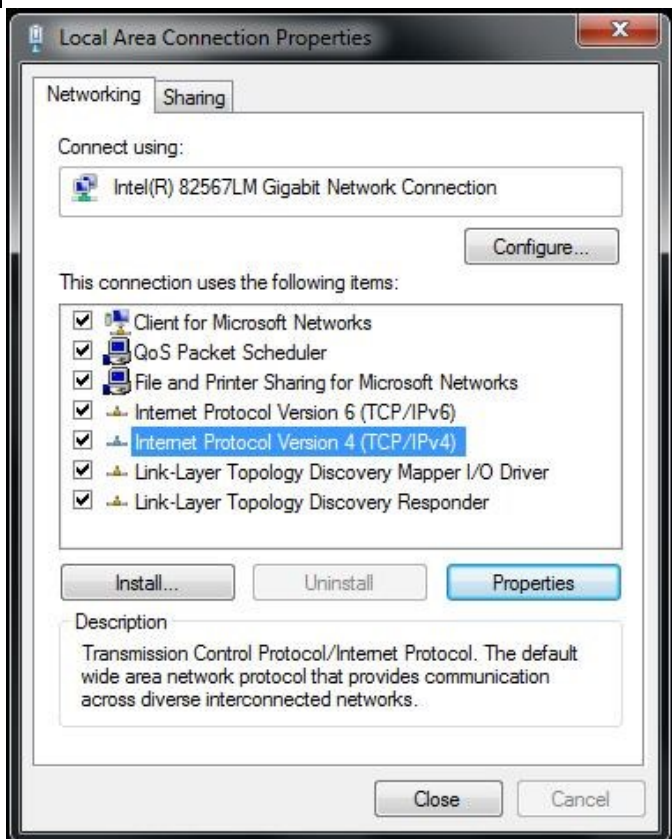


7. Double click the "**Local Area Connection**" icon. The Local Are Connection Status window will open (see next page).



The Local Area Connection Properties window will open.

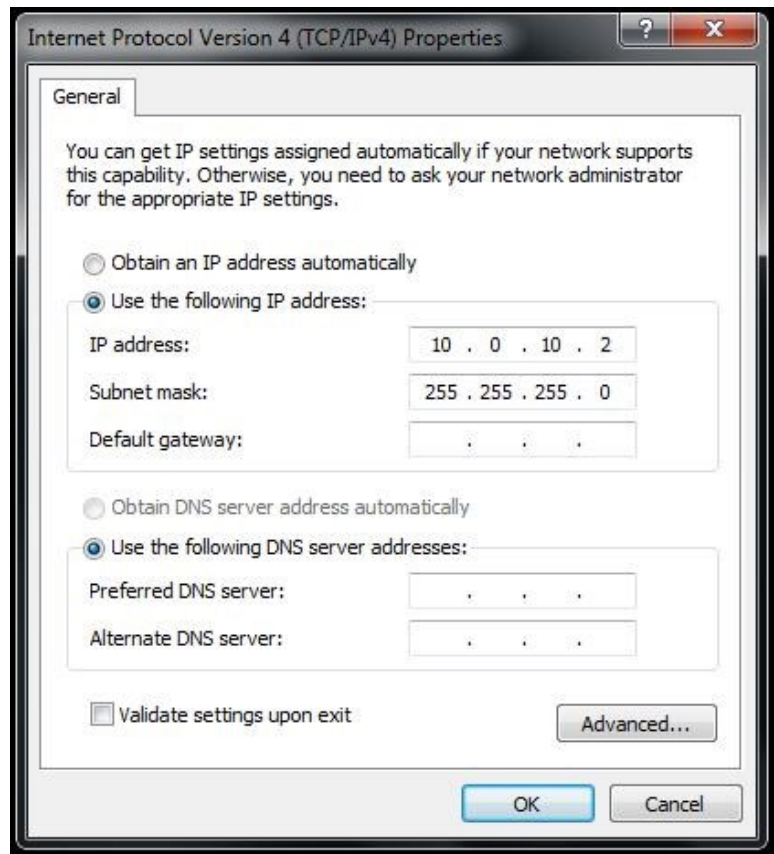
9. Select "**Internet Protocol Version 4 (TCP/IPv4)**" and click the "**Properties**" button.



8. Click the "**Properties**" button.

## Computer IP Address

The Internet Protocol Version 4 (TCP/IPV4) Properties windows will open.



**10.** Select "**Use the following IP address**" and set the IP address to "**10.0.10.2**" and subnet mask as "**255.255.255.0**". Click the "**OK**" button.

**11.** It will take a few seconds for Windows to set the IP address. Close all other windows.

### Check the Status of the Connection

After you set the IP address check the status of the connection.

#### Windows XP:

In the Control Panel, double click on Network Connections.

Right click on Local Area Connection icon and select Status. If "Status" is disabled, it means that connection is not established. Check the 10/100 Switch power connection and the network connections.

#### Windows Vista:

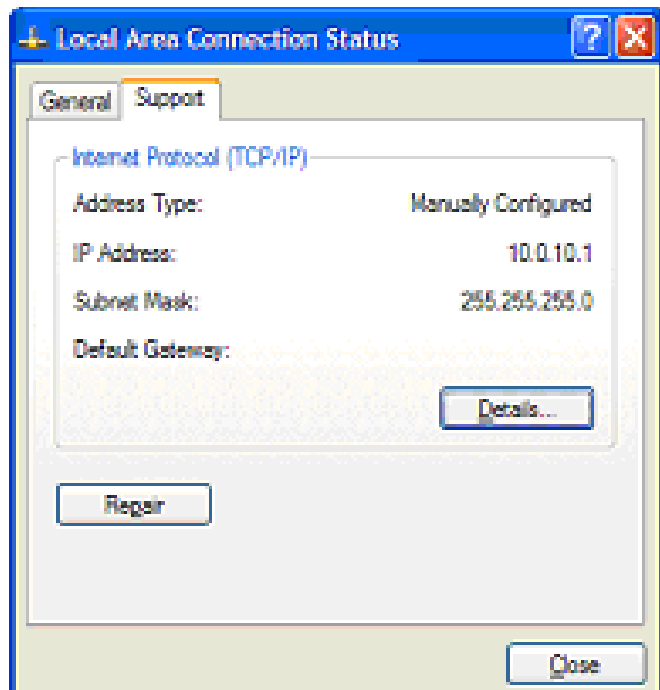
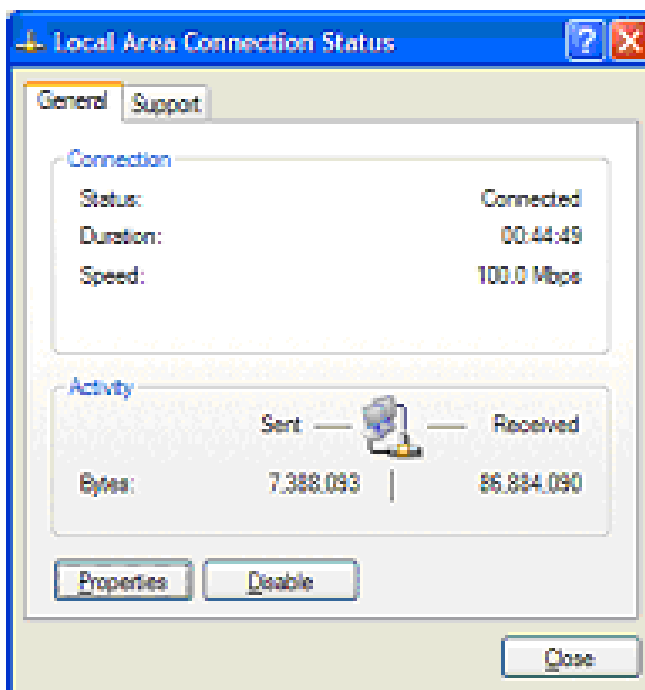
In the Control Panel, click on Network and Internet.

Next click Network and Sharing Center.

On the left side menu click on Manage network connections.

**NOTE:** It may take up to one minute for the Computer to recognize that the LDD is connected.

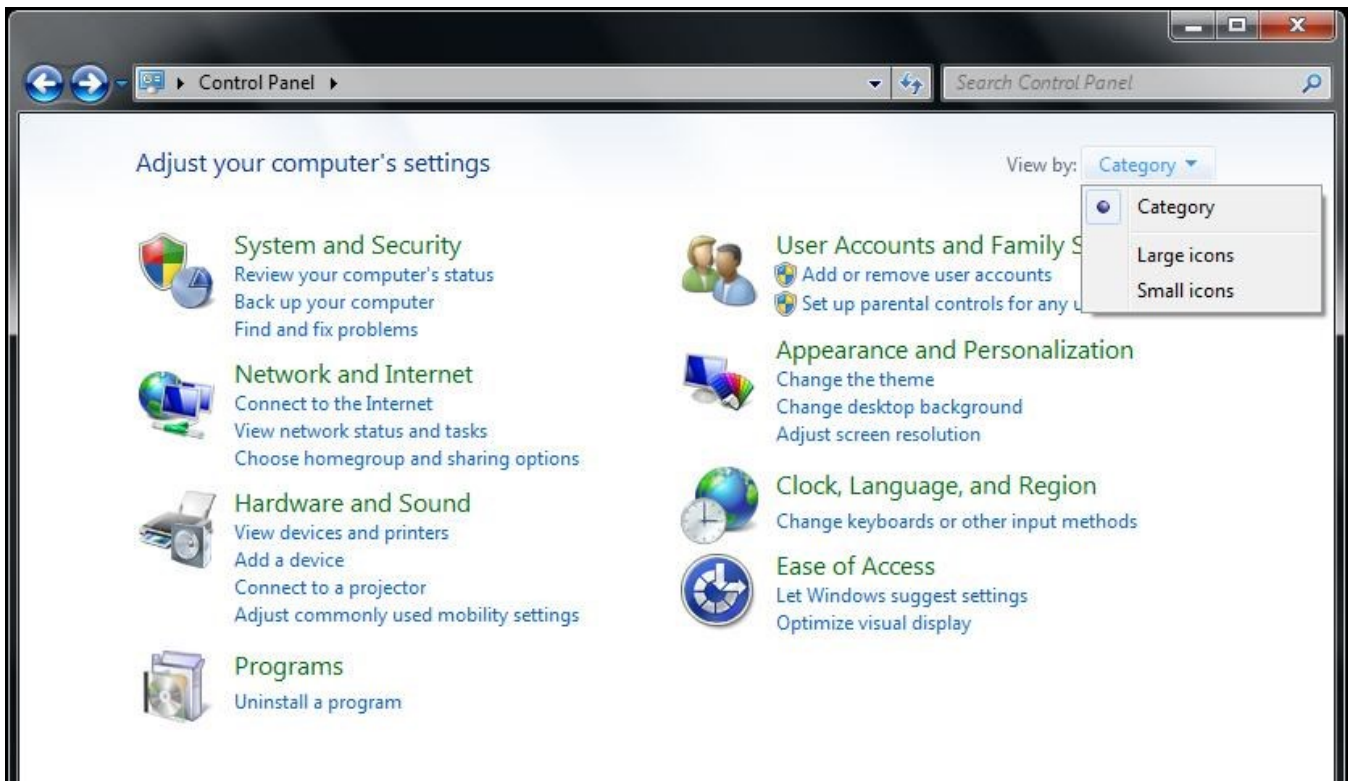
Status should be "**Connected**". When you click on Support, you can see the IP address of the Computer.



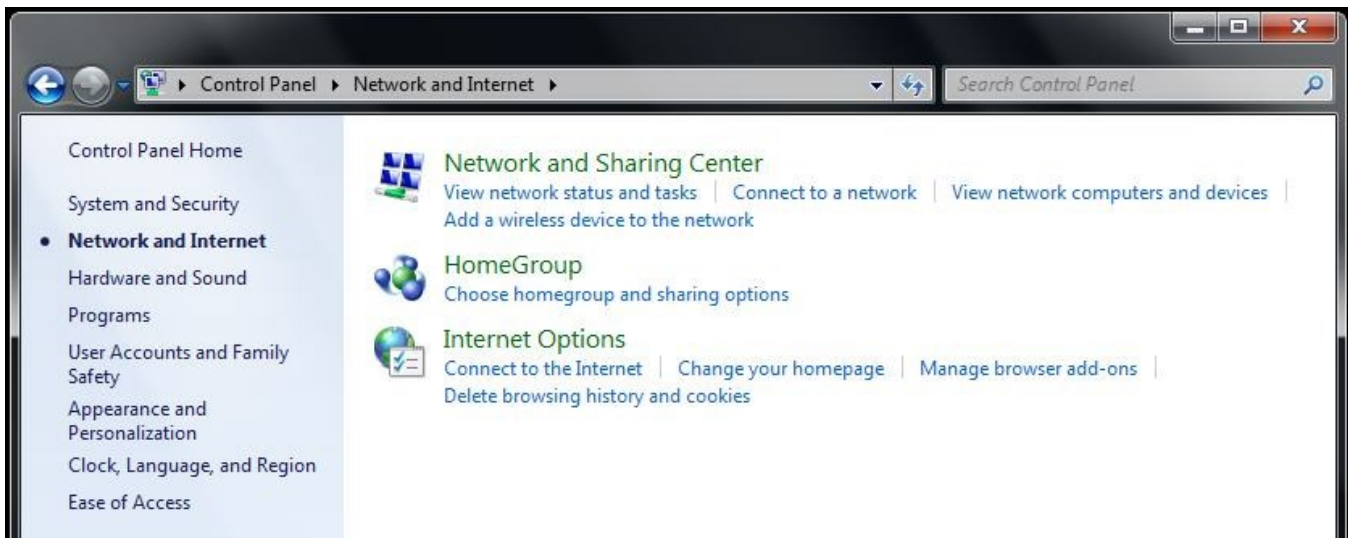
## Computer IP Address

### Windows 7/8

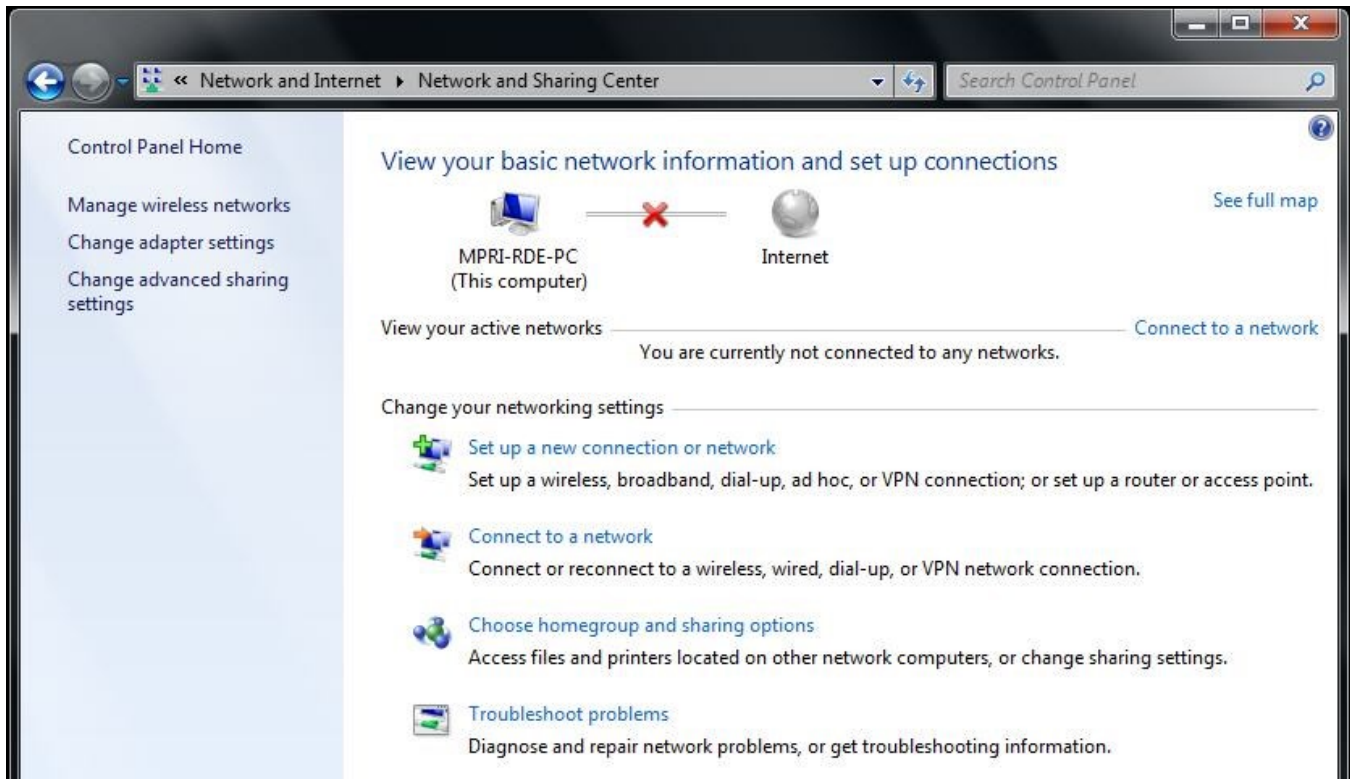
1. Turn on the Computer.
2. Click the Windows Start Menu and select **Control Panel**. The Control Panel Window will open.
3. On the top right corner, select "**Category View**".



4. Click "**Network and Internet**". A new window will open.



5. Select "**Network and Sharing Center**". The Network and Sharing Center window will open.



6. Click the "**Change adapter settings**" shortcut on left side of the window. A new window will open.



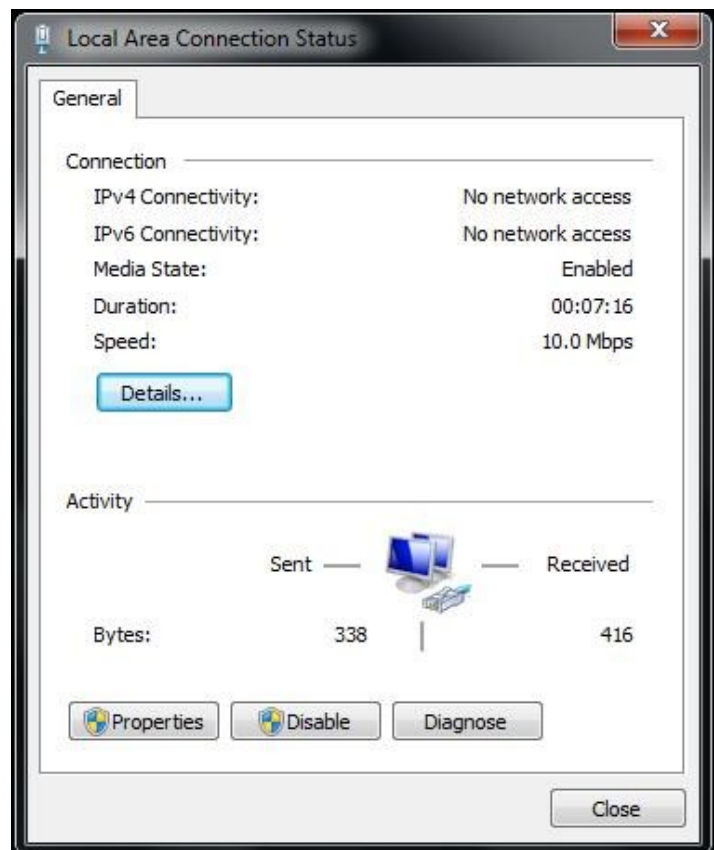
The Local Area Connection icon should not have red "x" on it. If there is, check the connection from PoE switch to the Computer. Make sure that PoE switch is powered.

## Computer IP Address

7. Right click the "Local Area Connection" icon and click "Status".



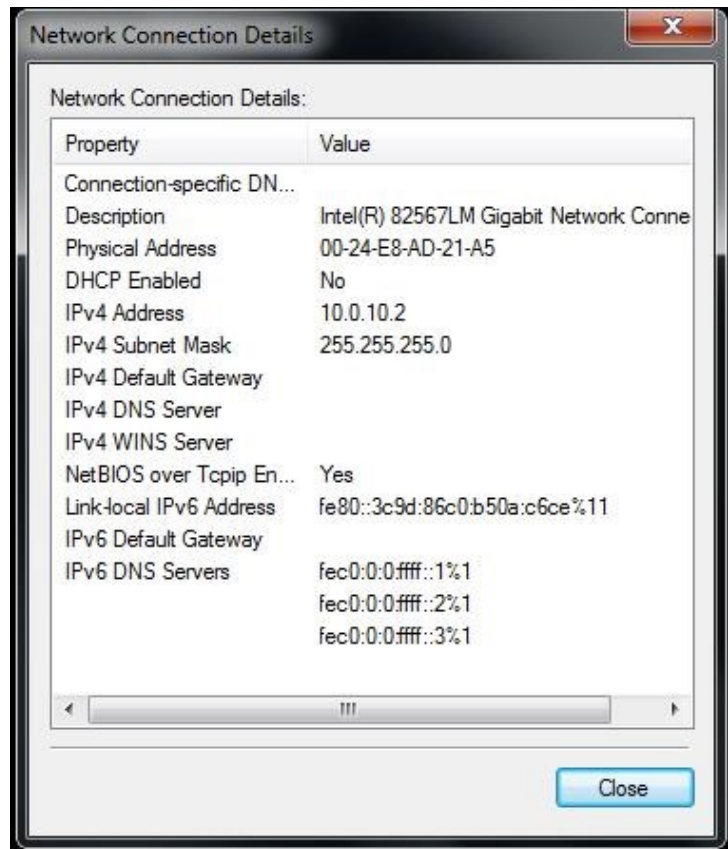
8. On the Local Area Connection Status window, make sure that "Media State" is "Enabled". Then click the "Details" button.





9. For "**Network Connection Details**", make sure that the IPv4 Address is 10.0.10.2 and IPv4 Subnet Mask is 255.255.255.0.

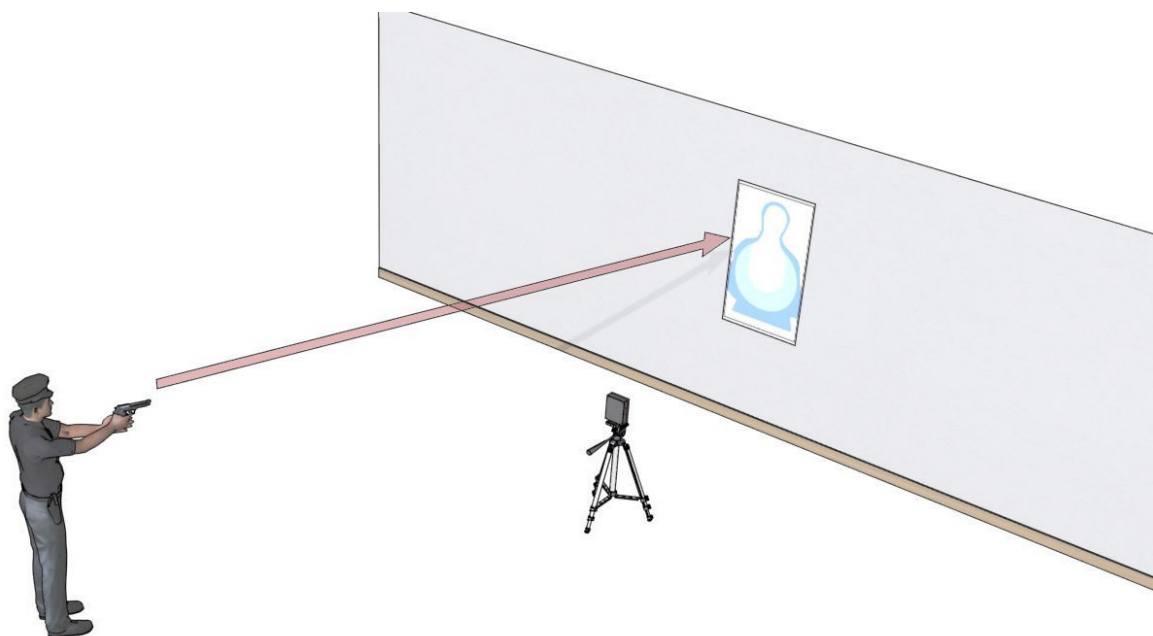
10. Close all windows.



## Hardware Setup - Basic Mode

1. Lay out the training area to accommodate available equipment, space, and training requirements. See page 6 for assistance in identifying training area environmental requirements.

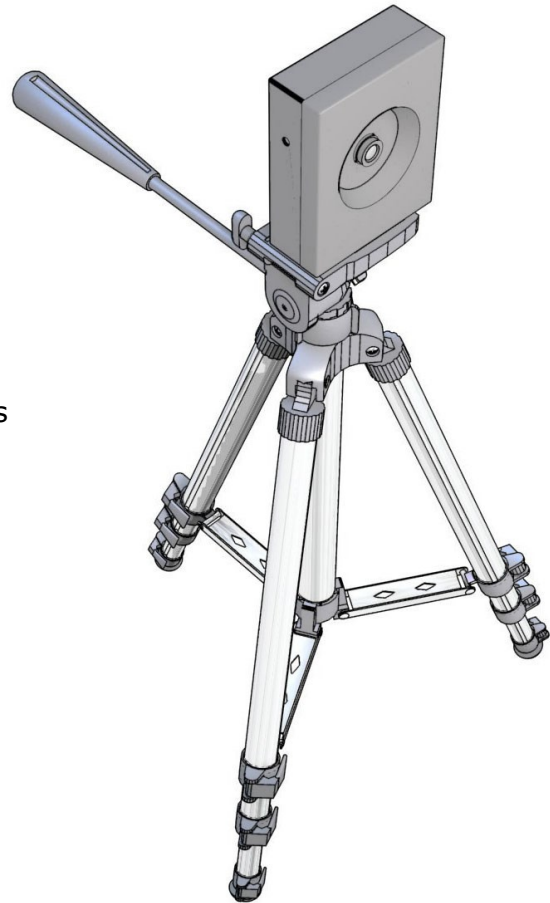
- **Hang the desired target** on the wall with the top of the target about 6ft from the floor. Ensure there is no direct sunlight or a reflection on the target.
- **Establish an LDD line** approximately 4' 6" from the target (2' 0" for scaled targets).
- **Establish a stable platform** (table recommended) for the Computer immediately behind the LDD line.
- **Establish a firing line** behind the LDD line at the appropriate training distance from the target. The shooter may need to be offset somewhat from the table and LDD to enable full view of the target from the kneeling and prone positions.



## 2. Set up the LDD

- Connect the LDD to the tripod, rotating the tripod mounting screw clockwise into the threaded hole in the bottom of the LDD. Hand tighten only.
- Set up the Tripod on the LDD Line facing and centered on the target.
- Point the LDD lens at the center of the target, adjusting the tripod leg height so that the LDD is about table height.
- **Remove the LDD lens cap.**

**NOTE:** If necessary, the tripod may be located up to 45 degrees from the center of the target.

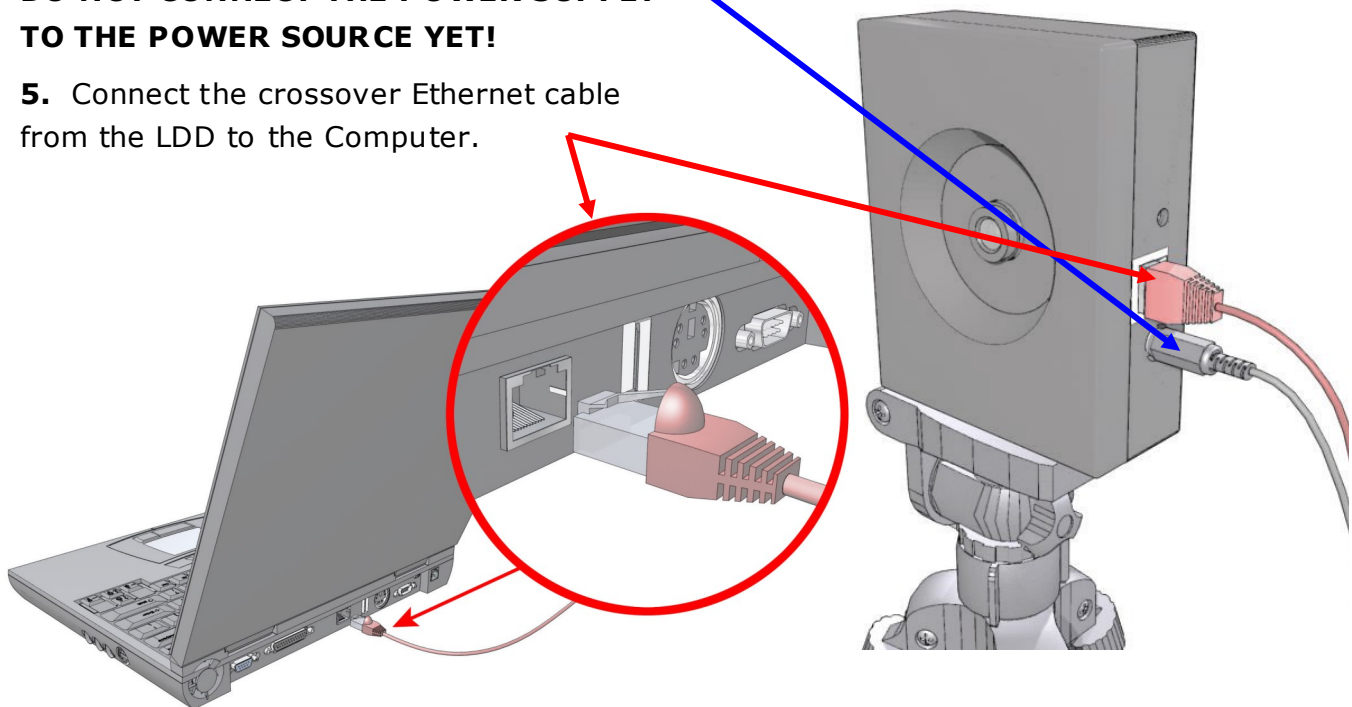


3. Set up the Computer on the stable platform.

4. Connect the power supply to the LDD.

**DO NOT CONNECT THE POWER SUPPLY TO THE POWER SOURCE YET!**

5. Connect the crossover Ethernet cable from the LDD to the Computer.



6. Turn on the Computer.

## Hardware Setup - Basic Mode

7. Connect the LDD power supply to the power source. The LED on the right side of the LDD (as you are facing the target) should blink in the following sequence to validate the initialization process:

- Dim
- Bright
- Blinking
- Off

**NOTE:** After powering up the LDD, wait one minute before starting any other software applications.

The 390 Basic system hardware setup is now complete. Proceed to Software Calibration on the following pages.

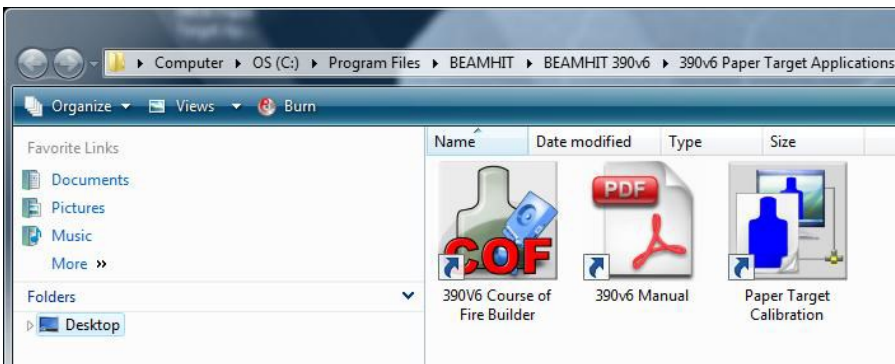
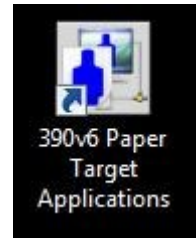
**Calibrate Paper Target Software**

Paper Target exercises allow users to train using the 390 System without the use of a projector. Only paper targets with a corresponding software target image can be used. Complete the calibration procedure before running the Paper Target software. Changing targets , moving the system, or unplugging the LDD will require re-calibration. Follow the instructions below for calibration of the Paper Target to the LDD.

**NOTE:** The 390 System can accommodate most paper targets. However, the target must have distinct mapping marks added along each edge at the mid-point and at the center of the target. Also, a corresponding target image must be available in the software. Check specifications on page 3 for availability of target images. Contact AFG for information regarding development of custom targets.

1. Attach the paper target to the wall with the top of the target approximately 6’-0” from the floor. The target must have all corners intact for the calibration process. Mark the center of the target with a small "+" sign. Place a tack in the center of the + to aid in calibration, remove after calibration is complete. The target does not need to be hung perfectly level. The software/LDD has the ability to compensate for target positioning.

2. Open the Paper Target Applications folder by double clicking the icon on the desktop. The applications folder will open.



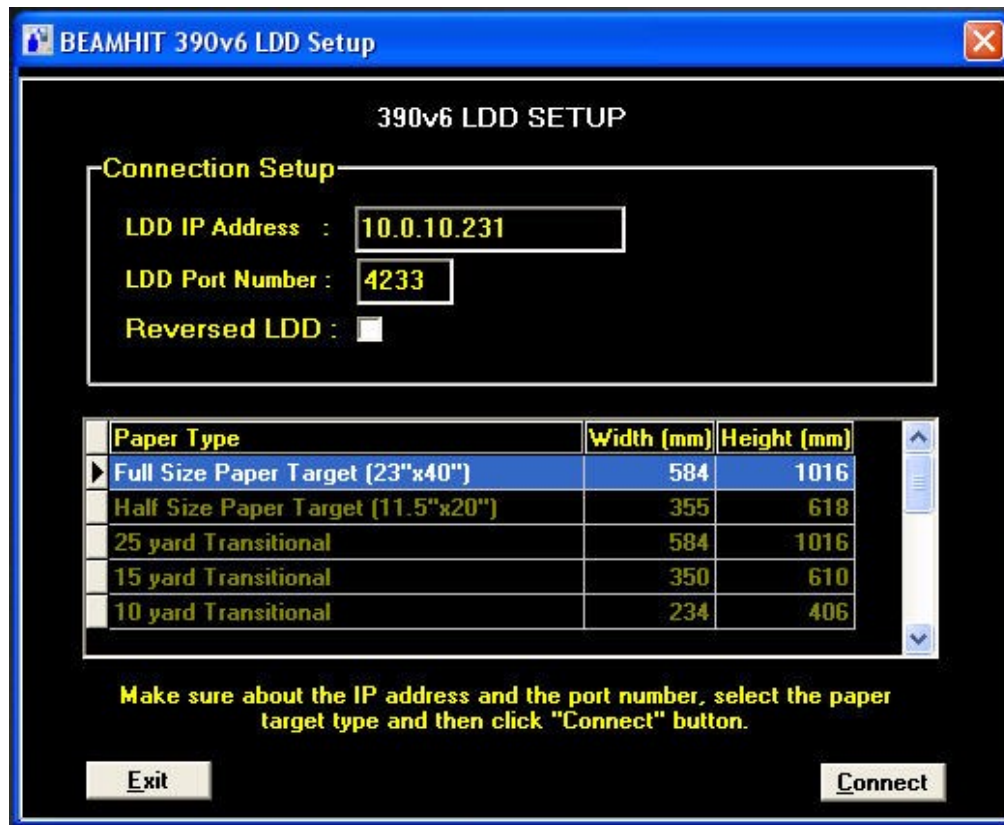
3. Click the “**Paper Target Calibration**” icon to open the calibration software.

4. The 390V6 Network Setup window will open. Click “**Continue**”.



## Target Setup & Calibration - Basic Mode

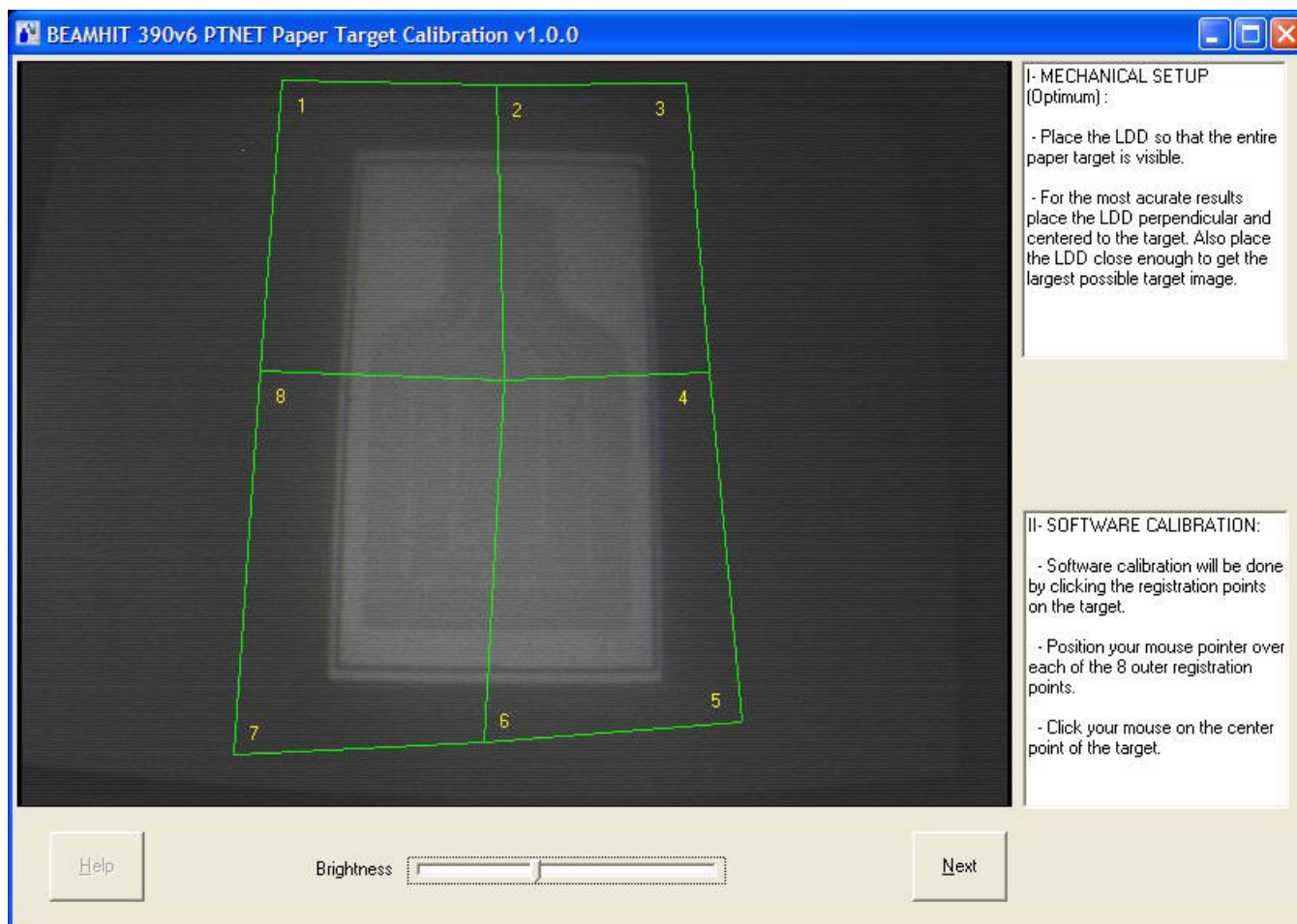
5. The Connection Setup window will open. Check that the LDD IP Address and LDD Port Number match the values printed on the LDD label, and change if needed. The Reversed LDD box should be checked only if the LDD is inverted (mounted on the ceiling). Select the appropriate paper target type from the list and click "**Connect**".



**NOTE:** If an error occurs at this point in the setup, refer to the troubleshooting portion of this manual for troubleshooting information. Note that the most common issues are IP address settings, and physical connectivity issues (cables, LDD power, computer LAN card etc). Once an error occurs, it will be necessary to quit the software and re-start the calibration process.

## Target Setup & Calibration - Basic Mode

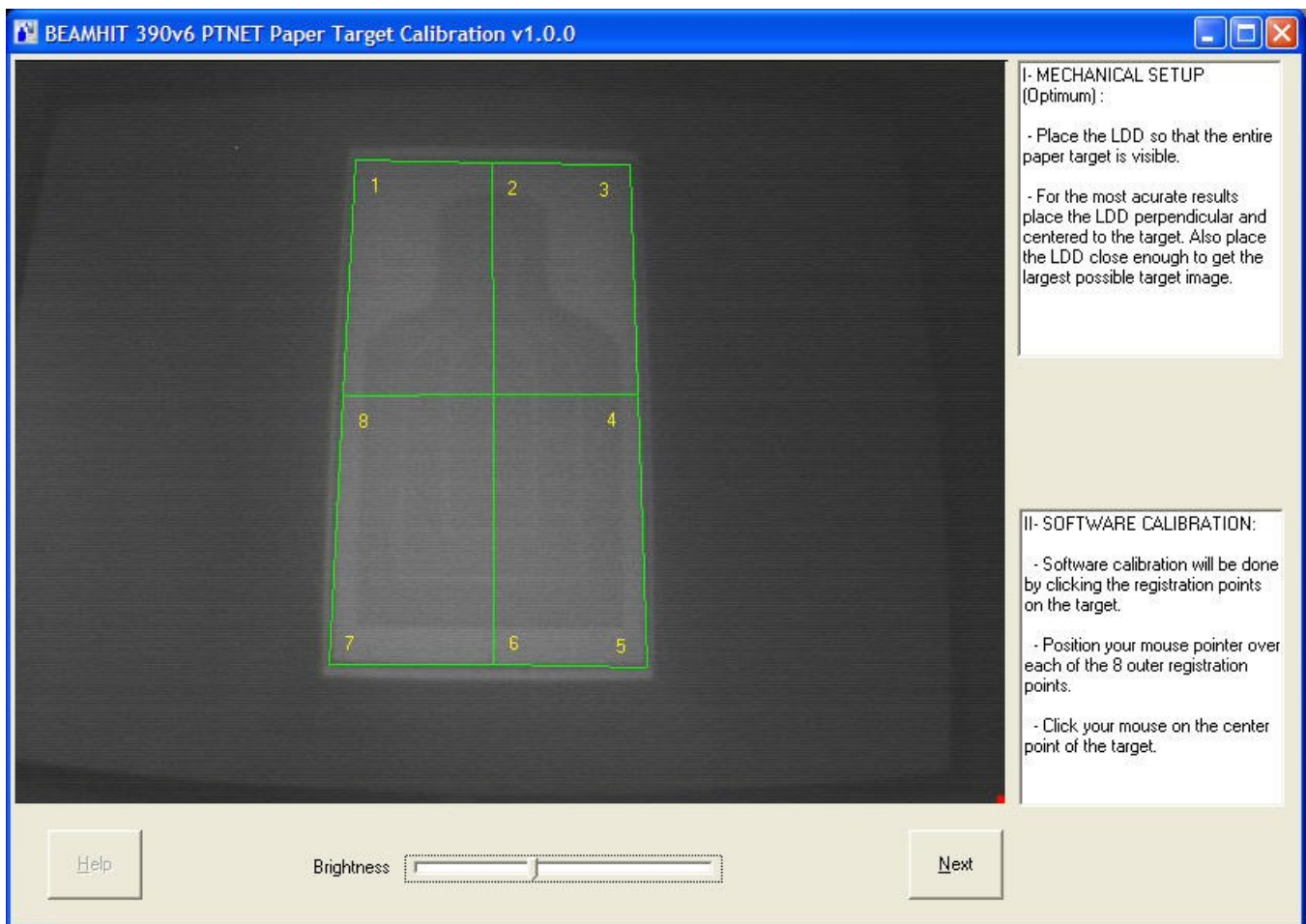
6. The Target Calibration window will open.
  - Verify that the LDD lens cap has been removed.
  - Aim the LDD using the adjustment wand on the tripod head.
  - Adjust the location of the tripod as needed so the entire paper target is visible in the software, filling the frame as much as possible. All four corners of the paper target calibrating frame must be visible.
  - Focus the LDD (inner image) by turning the lens on the LDD.
  - If the target image is not visible, is too bright, or is too dark, make slight adjustments to the brightness by dragging the slide located at bottom center of the screen with the mouse.



## Hardware Setup - Basic Mode

### 7. Calibrate the software:

- Click and drag each of the green corners to the corresponding corner of the target (inner image).
- Click a second time to drop and register the corner.
- Do this for each of the 8 external points.
- Finally, click and drag the center registration point to the center point of the target, click again to drop and register.
- A correctly calibrated paper target will appear similar to the image below. Click **"Next"** to continue.

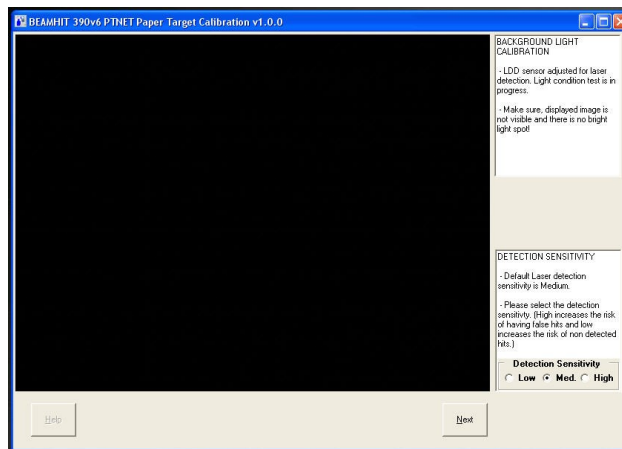




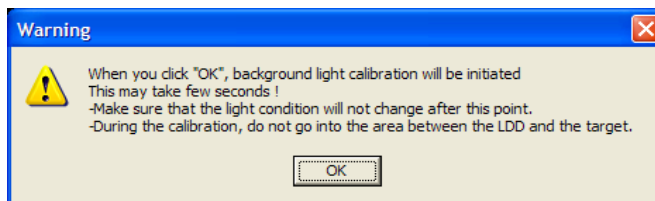
## Target Setup & Calibration - Basic Mode

8. During the Background Light Calibration process, the LDD sensor adjusts to ambient light conditions to facilitate laser detection. Make sure the displayed image is barely visible and there are no bright light spots! If there are, adjust ambient light or LDD position.

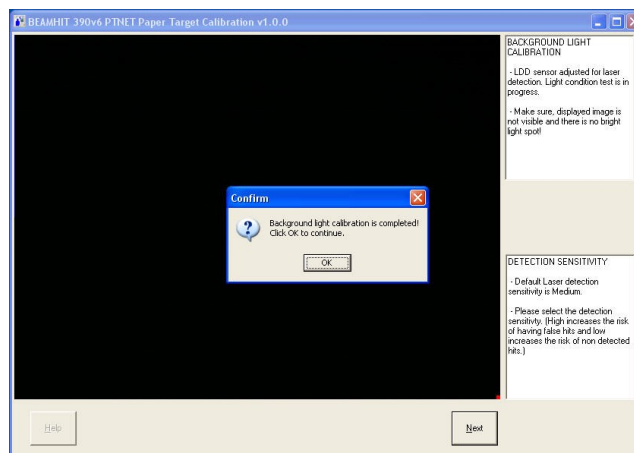
- The default Laser detection sensitivity is Medium.
- High sensitivity (used for very dark areas) increases the risk of having false hits.
- Low sensitivity (used for very bright areas) increases the risk of non detected hits.
- Click **"Next"** to continue.



9. The following warning will appear, click **"OK"**.



10. The following confirmation will appear, click **"OK"**.

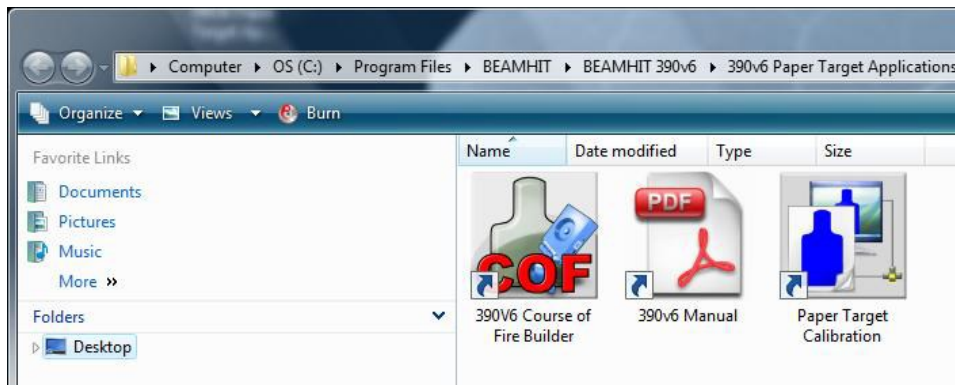


## Paper Target Exercises - Basic Mode



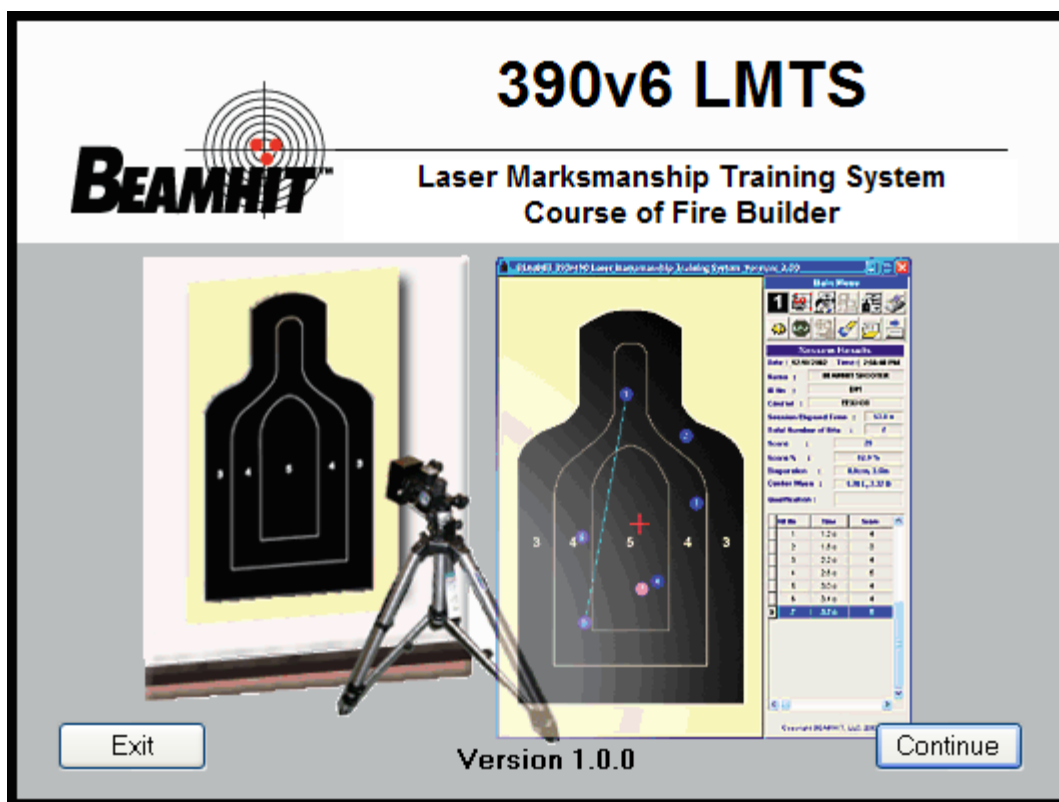
390v6 Paper Target Applications

1. To conduct Paper Target Exercises in the Basic Mode (after completing setup and calibration), first open the Paper Target Applications folder by double clicking the icon on the desktop.

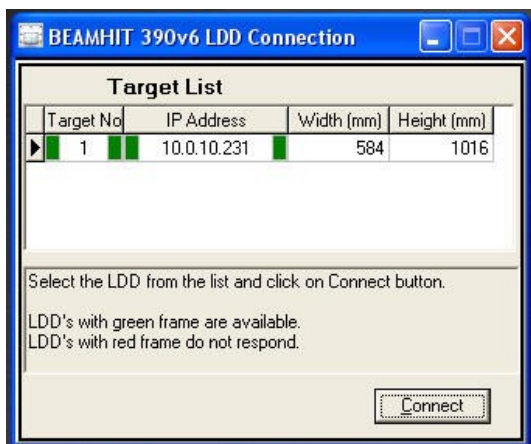
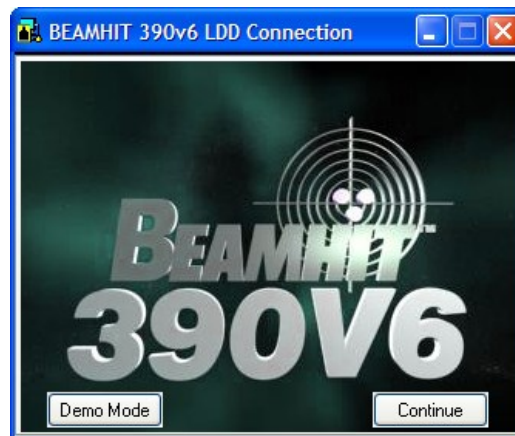


390V6 Course of Fire Builder

2. Click the "390V6 Course of Fire Builder" icon to open the paper target software. This software will allow you to create and save custom courses of fire for any of the paper targets in your 390 inventory. The following screen will appear, click "Continue".

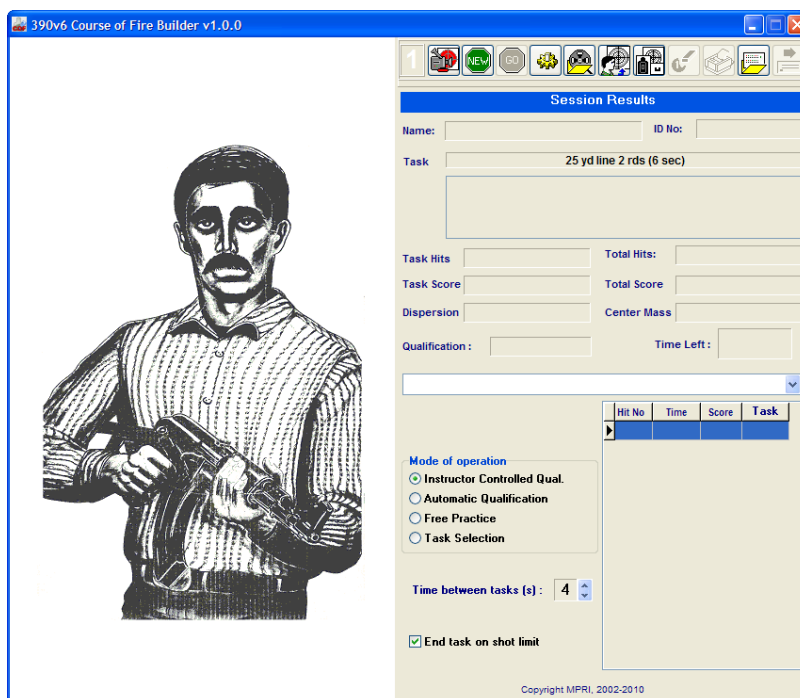


3. The 390V6 LDD Connection screen will open. Click **Continue** to proceed with an active session or **Demo Mode** to practice with the software or build Courses of Fire.

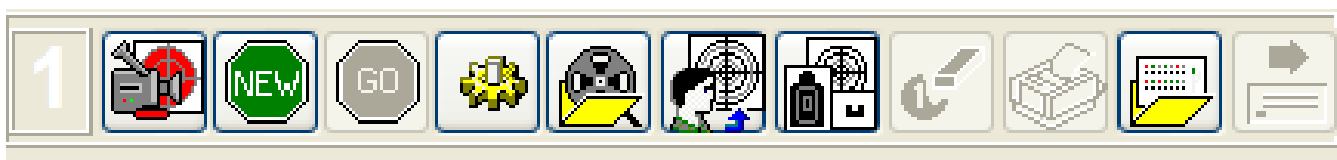


4. The Target List screen will open as an active session with LDD connected. Click **Connect**.

5. The software main screen will open.



The main action bar is located at the top of the screen. This bar contains buttons for accessing and operating the main features of the program. The appearance and availability of the buttons will change depending upon current status of the program.



## Paper Target Exercises - Basic Mode



**Target Number** - Indicates the Laser Detection Device (LDD) number. This is grayed out unless using Linked Software.



**Off-line/ On-line Indicator** - When the target appears, the system is on-line. Certain functions may or may not be accessed depending on Off-line/On-line status.



**New Session**- Starts a new session using the selected Course of Fire.



**Run Task** - Starts a task.



**Stop** - Stops the task. This replaces the "Go" button when the task is running.



**Stop** - Stops the session.



**Option** - Access the program's options (shot size, enable/disable sound).



**Scenario Builder** - Access the Scenario Builder functions.



**Shooter Operations** - Assign a shooter to the target; add, update, and delete shooters from the list.



**Change Target Types** - Change existing target image or add new target images from target database.



**Delete Hit** - Erases a shot from the Data Table (session must be stopped).



**Printer** - For printing, previewing, or saving a PDF report of the session. Printing requires a printer (not included) to be connected to the 390 Computer.



**Load Saved Sessions** - For loading a saved session into the software for printing, previewing, or saving as a PDF report of the session.



**Save Session to the Disk** - Saves the current session to the Computer.

### Create a New Course of Fire



1. To create a new Course of Fire, open the Course of Fire Builder by clicking the icon in the main control bar. The Course of Fire Builder will open to a screen with 3 tabs:

- **General Settings**
- **Task Settings**
- **Overlay and Score Settings**

New COF

2. Click the “**New COF**” button. If a previous Course of Fire was already loaded, it’s data at the bottom of the window will clear.

3. Begin by filling in the information on the “**General Settings**” Tab.

- Enter Course of Fire Name.
- Enter Version.
- Enter a Description.
- List all Qualification Settings (or standards). In the simple example below, 0-9 hits are Unqualified and 10-14 hits are Qualified. For this example, enter **Unqualified** in the Qualification field, **0** in the Min Score field, and **9** in the Max Score field, then click “**Add**”. Next, enter **Qualified** in the Qualification field, **10** in the Min Score field, and **14** in the Max Score field, then click “**Add**”.

Qualification	Min Score	Max Score
Expert	31	100
Sharpshooter	21	30
Marksman	11	20
Unqualified	0	10

## Paper Target Exercises - Basic Mode

- Next, click the **"Task Settings"** Tab.
- For each task in the Course of Fire, enter a Name, Time Limit, Shot Limit, Position, and Description.
- Click "Add Task" to save that information.

The screenshot shows the 'Course of Fire' application window with the 'Task Settings' tab selected. The window contains a table of tasks, two buttons ('Add Task' and 'Delete Task'), and a form for editing a task. The table lists six tasks with columns for Task No, Task Name, Time Limit, Shot Limit, and Position. Task 6 is selected. Below the table, the 'Add Task' and 'Delete Task' buttons are visible. The form below shows the details for Task 6, including its name, time limit, shot limit, and position. A description field is also present, containing the text 'Shooter fires 7 rounds in supported position, in 12 seconds.' At the bottom of the window, there are four buttons: 'Open', 'Save', 'New COF', and 'Close'.

Task No	Task Name	Time Limit	Shot Limit	Position
1	Task-1	3	5	Supported
2	Task-2	5	7	Supported
3	Task-3	12	5	Unsupported
4	Task-4	20	10	Unsupported
5	Task-5	25	12	Kneeling
6	Task-6	12	7	Supported

Buttons: Add Task, Delete Task

Task No	Task Name	Time Limit	Shot Limit	Position
6	Task-6	12	7	Supported

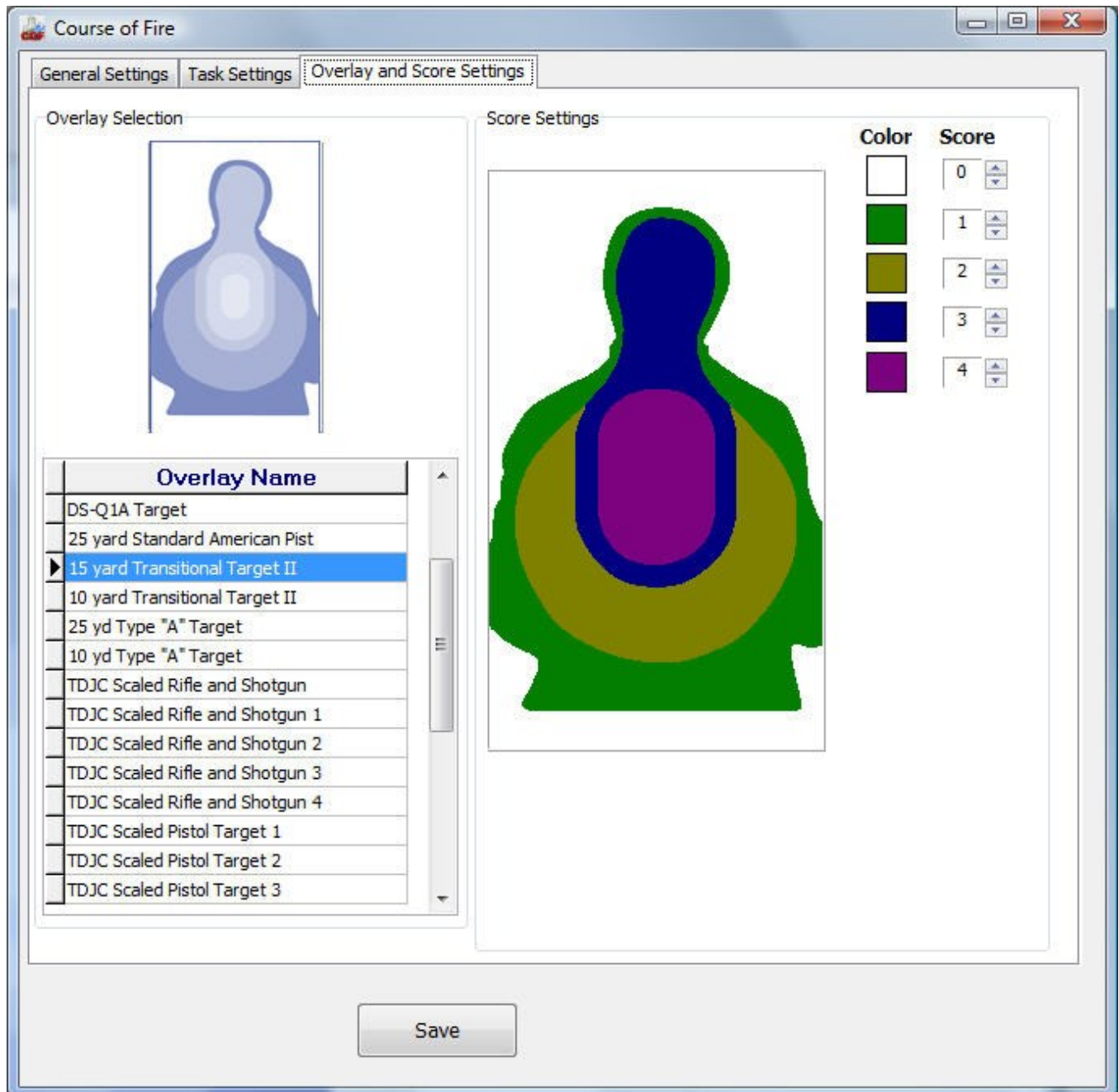
Description: Shooter fires 7 rounds in supported position, in 12 seconds.

Buttons: Open, Save, New COF, Close

**NOTE:** To edit any Qualification Settings or Tasks, select the field you wish to edit from the list, then enter new data into the input fields below.

5. Next, click the “**Overlay and Score Settings**” Tab. Select the appropriate overlay from the list.

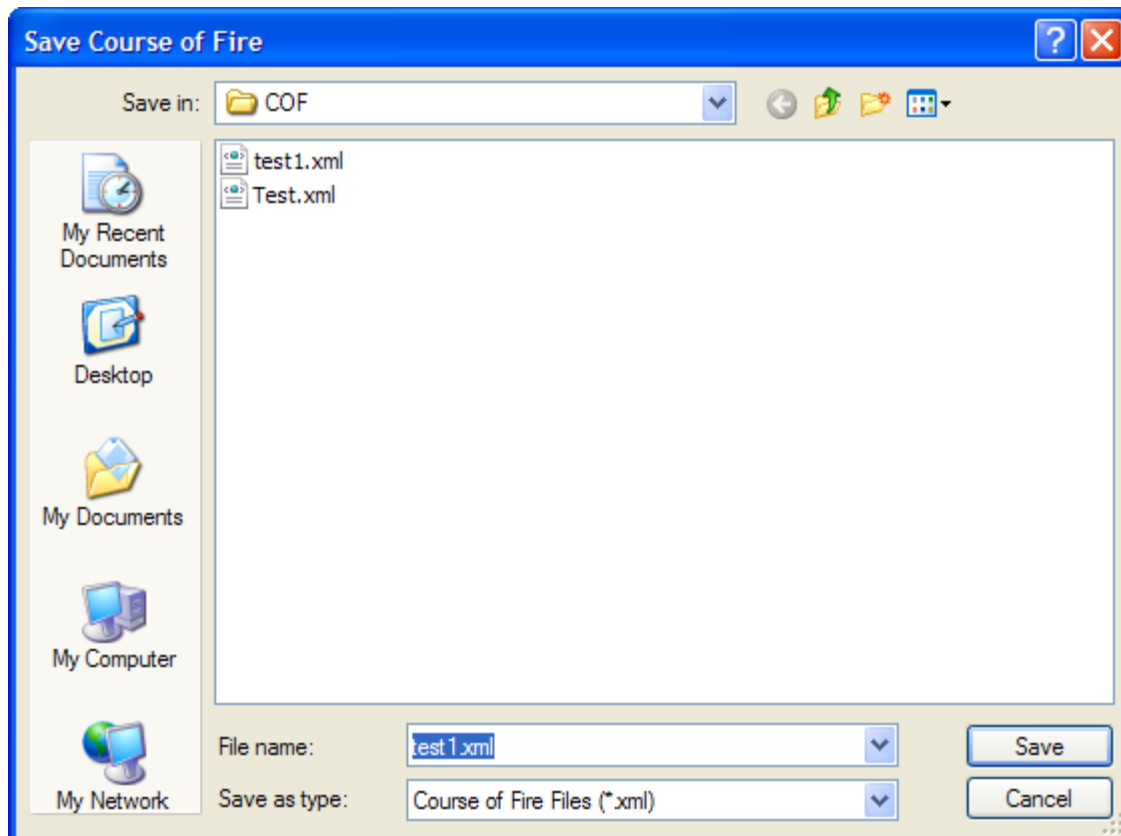
Select the appropriate scoring value for each color represented.



## Paper Target Exercises - Basic Mode

Save

6. To save your Course of Fire, click the **“Save”** button. A browse window to the COF folder will open. Enter a filename for your Course of Fire and click **“Save”**.



**NOTE:** This “Save” process also works when you need to perform a “Save As” process, such as when you modify one Course of Fire to create another.



### Load a Course of Fire



1. To conduct a session, first load a Course of Fire. Click the icon in the main control bar to access the Course of Fire Builder.

Qualification	Min Score	Max Score

Open

2. To load a previously created Course of Fire, click the “**Open**” button. This will open a browse window to the COF folder, showing all available Courses of Fire (format for Course of Fire files is XML). Make a selection and click “**Open**”. The selected Course of Fire will load into the Course of Fire Builder.

## Paper Target Exercises - Basic Mode

Close

3. Data for the selected Course of Fire will populate the fields in the tabs. Click the "Close" button to load the Course of Fire into the session.

Course of Fire

General Settings | Task Settings | Overlay and Score Settings

Course of Fire Name: Test Course of Fire

Version: 1.0

Description: This course of fire is for test purposes only.

Qualification Settings

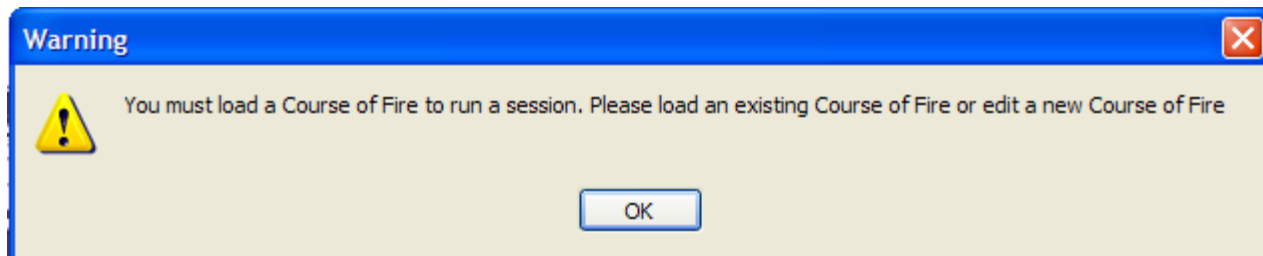
Qualification	Min Score	Max Score
Expert	15	30
Marksman	10	14
* UnQualified	0	9

Add Delete

Qualification: UnQualified Min Score: 0 Max Score: 9

Open Save New COF Close

**NOTE:** If you attempt to begin a session and a Course of Fire has not been loaded, the following message will appear.



4. Select a Mode of Operation

- **Instructor Controlled Qual** allows the instructor to step through the tasks, one at a time.
- **Automatic Qualification** runs the selected Course of Fire and automatically advances through tasks with a delay between tasks equal to the selected **time between tasks** (1 - 50 sec).
- **Free Practice** allows you to shoot freely on the target with no times or tasks.
- **Task Selection** allows you to select individual tasks from the chosen Course of Fire.
- Checking the box beside **"End task on shot limit"** ends the task when the total shots set for that task are recorded, regardless of time.

Mode of operation

Instructor Controlled Qual.

Automatic Qualification

Free Practice

Task Selection

Time between tasks (s) : 4

End task on shot limit

**The following process is for Instructor Controlled Qual.**



1. Click the "New" button to start the session. The Ready message will appear with information about the forthcoming task.

**NOTE:** Sessions have a 99 shot limit. The session will stop at the 99th shot.

Ready !

NEW SESSION

Next Task : Task-1

Click GO button for next task or STOP button to stop

OK

Session Results

Name:  ID No:

Task

Shooter shots 3 rounds over barricade in 10 seconds.

Task Hits  Total Hits:

Task Score  Total Score

Dispersion  Center Mass

Qualification :  Time Left : **10.0**

Task-1

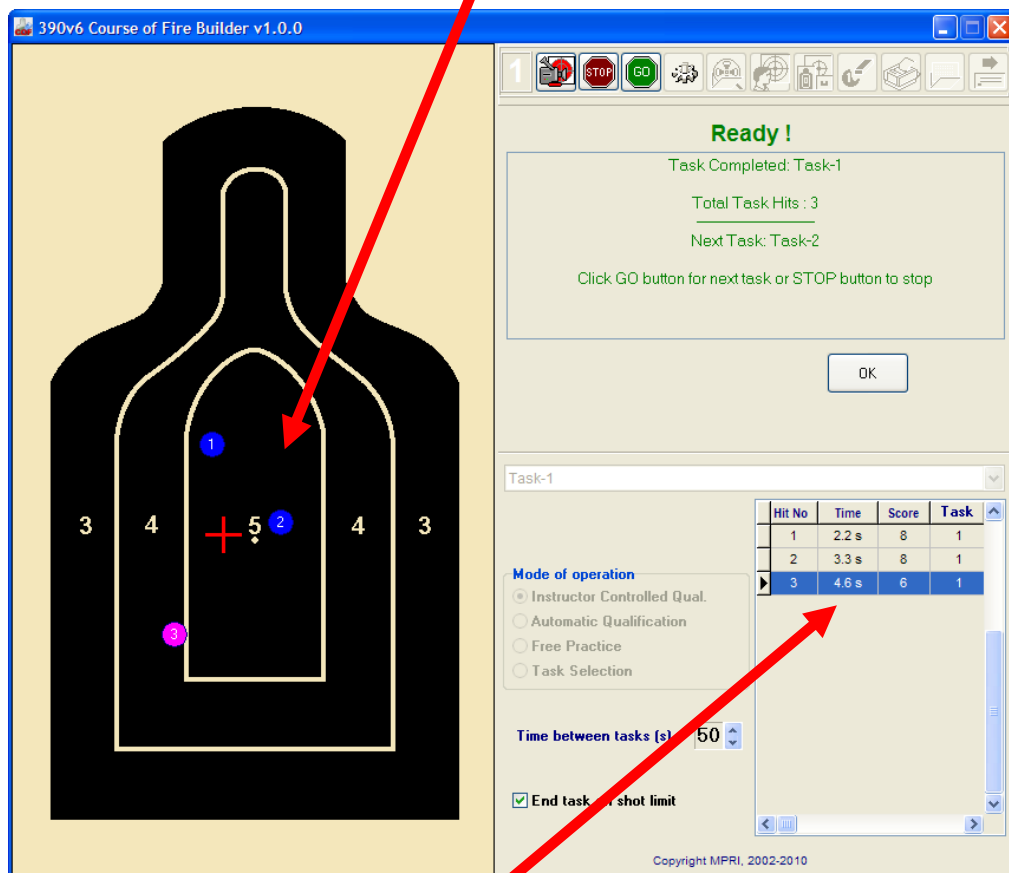
2. Click "OK". Task data will display in the Session Results area.

## Paper Target Exercises - Basic Mode



3. Click "GO". The task will start. The task will end after the prescribed time in the Course of Fire (or the shot limit is reached if that box is checked) and an updated Ready message will appear with a hit summary for the past task and information about the next task.

Hits will appear in the target area.



Hit data will appear in the hits table.

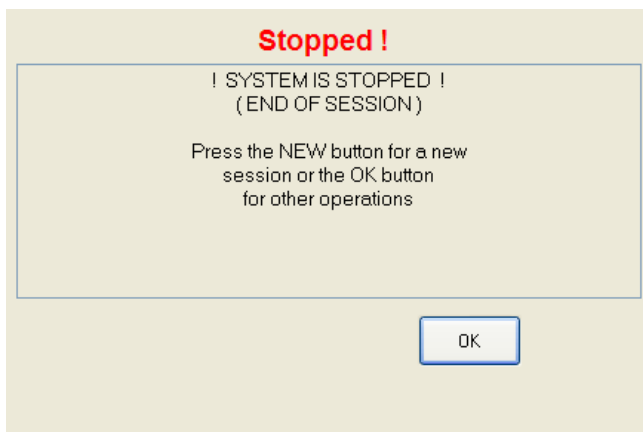
4. Click "OK". Task and performance data will display in the Session In Progress area.

5. Click "GO" to start the next task. The above process will repeat until all tasks are completed.

Session In Progress..... Se			
Name:	<input type="text"/>	ID No:	<input type="text"/>
Task	Task-1		
Shooter shots 3 rounds over barricade in 10 seconds.			
Task Hits	3	Total Hits:	3
Task Score	22	Total Score	22
Dispersion	23.5cm, 9.2in	Center Mass	3.70 L, 8.60 D
Qualification :	<input type="text"/>	Time Left :	0.0

## Paper Target Exercises - Basic Mode

6. After the last task is completed, the following message will appear. Click "OK".



All hits will appear in the target area, numbered sequentially. The Session Results area will show performance for the last task and total. Hit data for all hits will appear in the hits table.

390v6 Course of Fire Builder v1.0.0

**Session Results**

Name: \_\_\_\_\_ ID No: \_\_\_\_\_

Task: Task-6

Shooter shots 3 rounds over barricade in 10 seconds.

Task Hits: 4 Total Hits: 33

Task Score: 26 Total Score: 230

Dispersion: 61.6cm, 24.2in Center Mass: 1.20 L, 3.20 D

Qualification: Expert Time Left: 0.0

Task-6

Hit No	Time	Score	Task
22	8.5 s	8	4
23	1.2 s	6	5
24	2.0 s	8	5
25	2.8 s	6	5
26	3.6 s	8	5
27	4.5 s	8	5
28	5.3 s	8	5
29	6.2 s	8	5
30	1.0 s	6	6
31	2.1 s	6	6
32	2.9 s	6	6
33	3.7 s	8	6

Mode of operation

Instructor Controlled Qual.

Automatic Qualification

Free Practice

Task Selection

Time between tasks [s]: 50

End task on shot limit

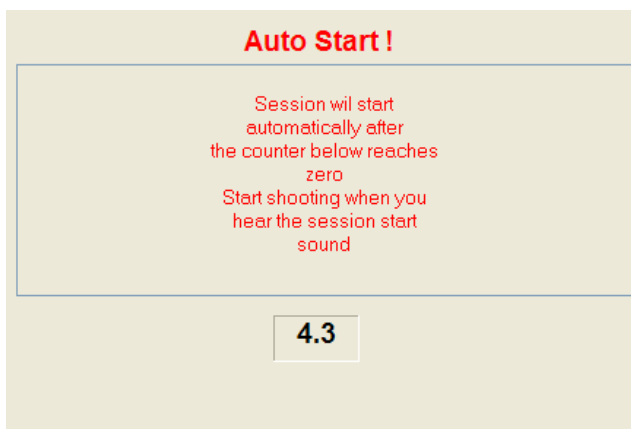
Copyright MPRI, 2002-2010

A session report may now be printed, previewed, or saved as a PDF. The session may also be saved for later recall and review. See instructions on following pages.

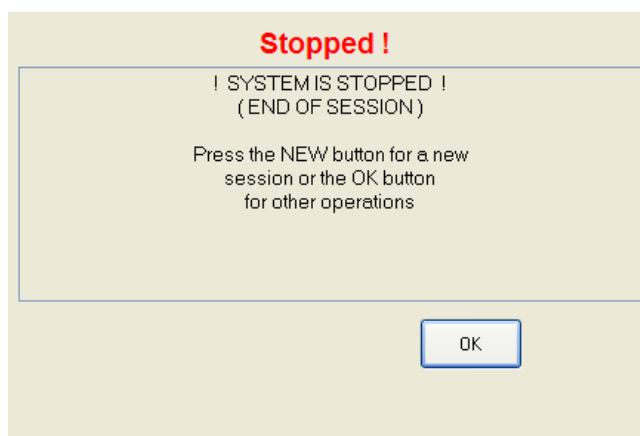
**The following process is for Automatic Qualification**



1. Click the "New" button to start the session.
2. The Auto Start message will appear with instructional information. The task will start automatically after the elapsed time set in "Time between tasks".



3. The software will sound a beep when each task begins and ends.
4. The session will automatically progress through the tasks, pausing after each task time prescribed in the Course of Fire (or after the shot limit is reached if that box is checked).
5. After the last task is completed, the following message will appear. Click "OK".



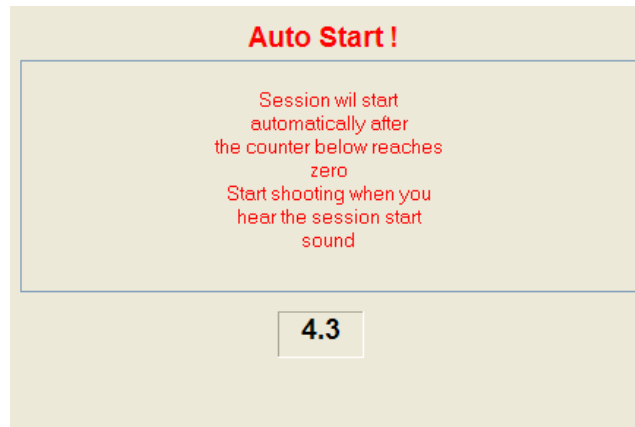
As with the previous mode, all hits will appear in the target area, numbered sequentially. The Session Results area will show performance for the last task and totals. Hit data for all hits will appear in the hits table.

A session report may now be printed, previewed, or saved as a PDF. The session may also be saved for later recall and review. See instructions on following pages.

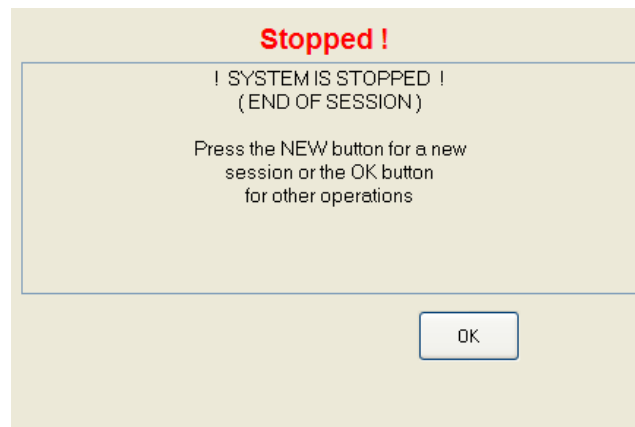
**The following process is for Free Practice**



1. Click the "New" button to start the session.
2. The Auto Start message will appear with instructional information. The task will start automatically after the elapsed time set in "Time between tasks".



3. Press the "Stop" button to stop the session. The following message will appear. Press "OK".



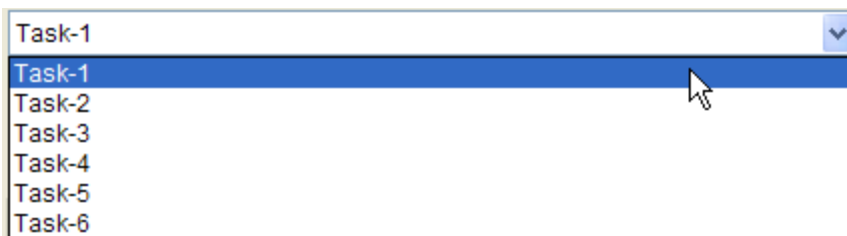
As with the previous modes, all hits will appear in the target area, numbered sequentially. The Session Results area will show total performance. Hit data for all hits will appear in the hits table. The Time Left window will display elapsed time.

A session report may now be printed, previewed, or saved as a PDF. The session may also be saved for later recall and review. See instructions on following pages.

## Paper Target Exercises - Basic Mode

### The following process is for Task Selection

1. Select the desired task from the drop-down menu.

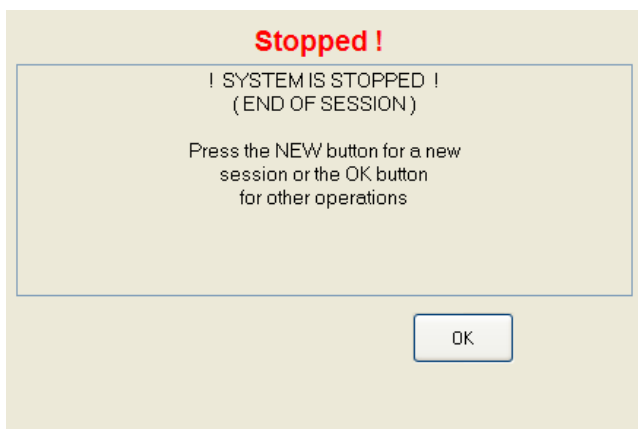
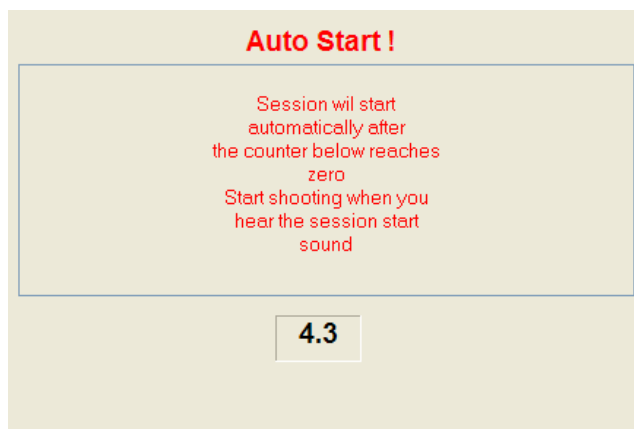


2. Click the "New" button to start the session.



3. The Auto Start message will appear with instructional information.

The task will start automatically after the elapsed time set in "Time between tasks".



3. The task will end after the prescribed time in the Course of Fire (or the shot limit is reached if that box is checked) and this message will appear.

As with the previous modes, all hits will appear in the target area, numbered sequentially. The Session Results area will show performance for that task. Hit data for all hits will appear in the hits table.

A session report may now be printed, previewed, or saved as a PDF. The session may also be saved for later recall and review. See instructions on following pages.



### Delete Hits

1. This process is the same for any mode. To delete a hit, the session must be stopped. First select the hit to be deleted by clicking the hit in the target area or hits table.

Task Hits	4	Total Hits:	33
Task Score	26	Total Score	230
Dispersion	61.6cm, 24.2in	Center Mass	1.20 L, 3.20 D
Qualification :	Expert	Time Left :	0.0

Hit No	Time	Score	Task
22	8.5 s	8	4
23	1.2 s	6	5
24	2.0 s	8	5
25	2.8 s	6	5
26	3.6 s	8	5
27	4.5 s	8	5
28	5.3 s	8	5
29	6.2 s	8	5



2. Click the **"Delete Hits"** button in the control Bar. The following message will appear:

**Deleting !**

! DELETE HIT !

You cannot undelete !

Are you sure ?

Yes

No

3. Click the **"Yes"** to delete the hit, or **"No"** to cancel.

## Paper Target Exercises - Basic Mode

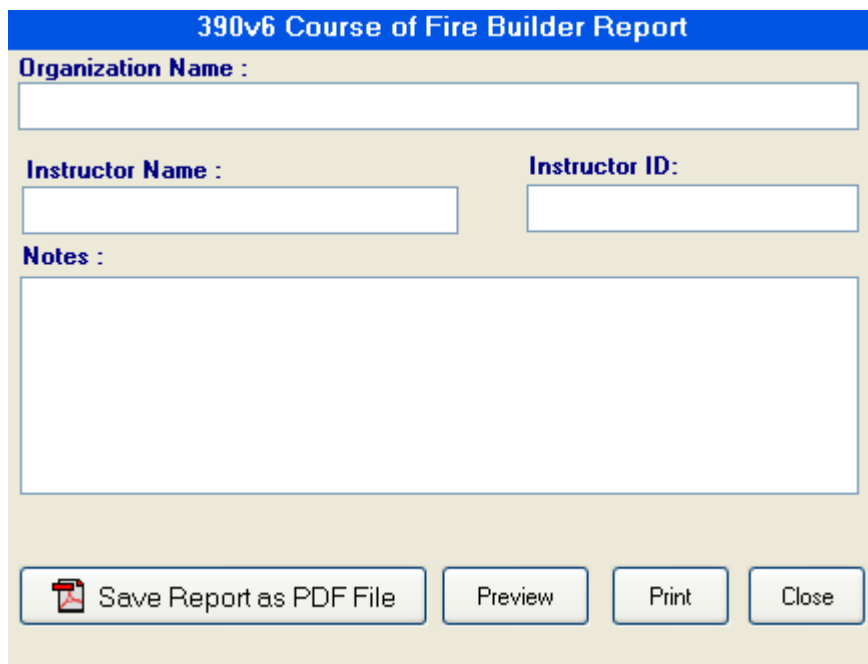
### Print Session Report



To print a session report the session must be stopped, and should be completed. Click the "**Printer**" button in the control bar. The Report window will appear. Reporting options include:

- **Save Report as PDF File** - This option opens a Save window to the COF folder. Simply type in a filename and click "**Save**", or browse to another location and save the report there. A sample report is shown on the next page.
- **Preview** - This option opens a Print Preview window with the same information as shown in the PDF example on the next page.
- **Print** - This option allows you to print a paper report to the installed default printer (not included). The paper report has the same information as shown in the PDF example on the next page.

You can enter Organization Name, Instructor Name, Instructor ID, and any Notes about the session you wish to include. This information will be included on the report.



The screenshot shows a software window titled "390v6 Course of Fire Builder Report". The window has a blue header bar with the title. Below the header, there are several input fields: "Organization Name" with a single-line text box, "Instructor Name" and "Instructor ID" each with a single-line text box, and "Notes" with a large multi-line text area. At the bottom of the window, there are four buttons: "Save Report as PDF File" (with a printer icon), "Preview", "Print", and "Close".

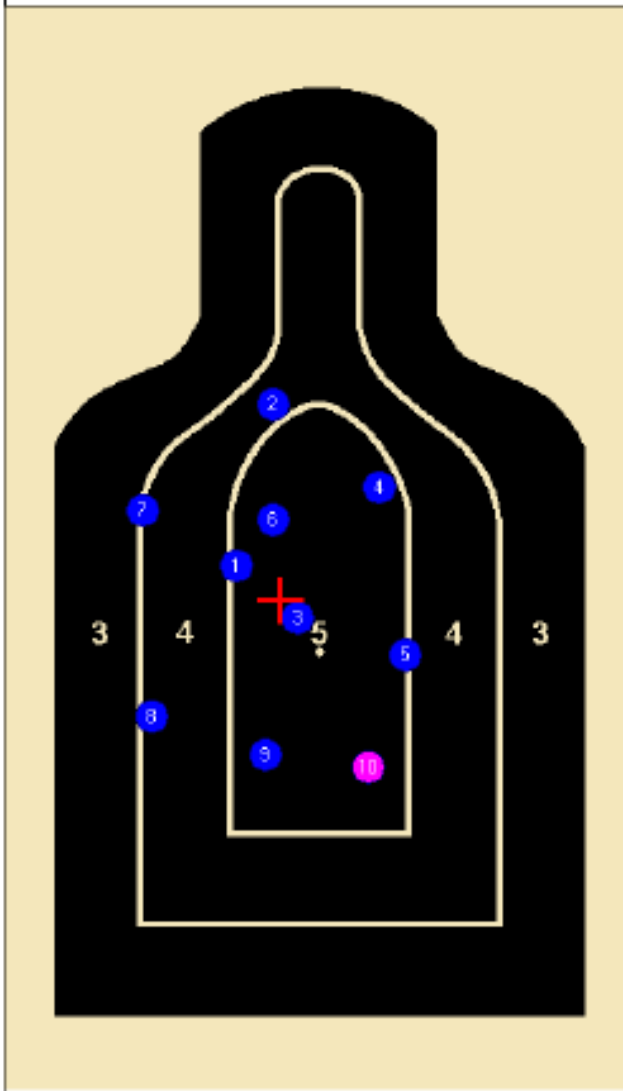
390v6 Course of Fire Builder Report

Organization Name :	Course :	Target No
Instructor Name :	Date : 4/2/2010	1
Instructor ID No :	Time : 10:06:28 AM	
Shooter Name :	Shooter ID :	

Notes:

Total Number of Hits : 10  
 Dispersion ( om, in.) : 34.8om, 13.7in  
 Mean Point (L/R in om) : 3.60 L om  
 Mean Point (U/D in om) : 4.60 D om  
 Total Session Score : 74

Hit No	Time	Score	Task
1	0.9 *	0	1
2	1.4 *	0	1
3	1.9 *	0	1
4	2.2 *	0	1
5	2.6 *	0	1
6	3.1 *	0	1
7	3.6 *	0	1
8	4.0 *	0	1
9	4.4 *	0	1
10	5.1 *	0	1



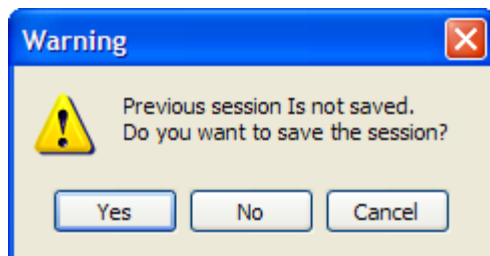
## Paper Target Exercises - Basic Mode

### Load Session

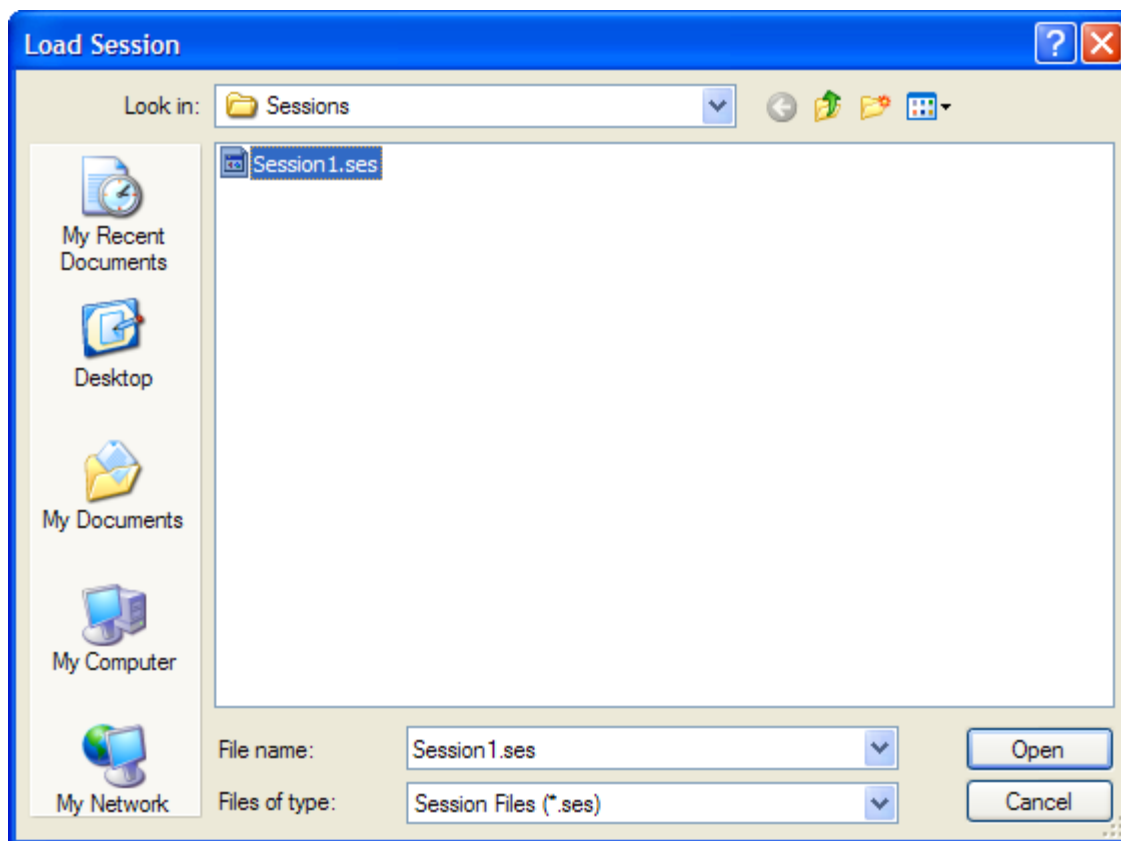


To load a previously saved session, the current session must be stopped. Click the **“Load Session”** button in the control bar.

If you have not saved the current session, you will receive the following prompt.



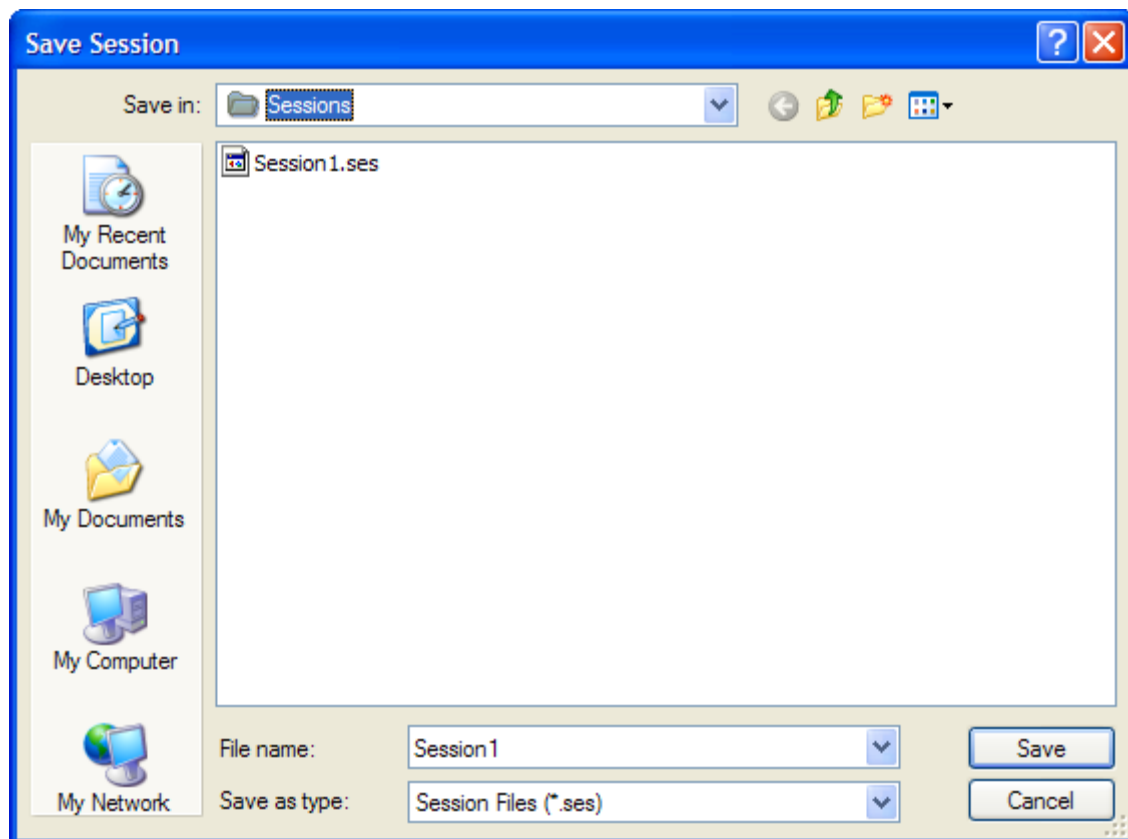
A Load Session window will open to the Sessions folder. Select the session you wish to load and click **“Open”**. The session information will load into the software. You can then view performance data or print a session report.



## Save Session



To save a session for future recall, the current session must be stopped and should be completed. Click the "**Save Session**" button in the control bar. This will open a Save Session window to the Sessions folder. Simply type in a file-name and click "**Save**". You can also browse to another location and save the session there.



## Shooter Data

The software allows for entry, editing, and storage of shooter data for later recall to facilitate assignment of shooters to specific targets, for display, printing, and storage of related performance data.

**NOTE:** Entry of shooter data is not required for operation of the software. It is required only for display of actual shooter info for assigned targets and printing of shooter info on scorecards. Check local security policy before entering data that may be personal in nature.



To enter shooter data, click on the '**Assign Shooters**' icon. The Shooter Assignment Screen appears.

390 Linked System - Shooter Assignment

SELECT SHOOTER FROM THE LIST		ASSIGN TO →	SELECTED TARGETS	
ID No	First and Last Name	Selected Targets	1	Name : ID No :
B01	BEAMHIT SHOOTER-1	All Targets	2	Name : ID No :
		Clear Sel. Assignment	3	Name : ID No :
		Clear All Assignment	4	Name : ID No :
		Export Shooters	5	Name : ID No :
		Import Shooters	6	Name : ID No :
			7	Name : ID No :
			8	Name : ID No :

B01      BEAMHIT SHOOTER-1

Add New Shooter      Delete Shooter      All      None      OK

## Shooter List Operations

**Add New Shooter**

### Add New Shooter

Click the '**Add New Shooter**' button to add a new shooter. This will enable the screen for entering shooter names.

Click inside the first field in the entry area and enter a shooter ID.

Hit the **Tab** key to move to the next field and enter the shooter's name.

ID No	First and Last Name
B01	BEAMHIT SHOOTER-1
B02	Beamhit Shooter-2
B03	Beamhit Shooter-3a
B04	Beamhit
B05	Shooter05

B05 Shooter05

Add New Shooter Delete Shooter

### Edit Shooter

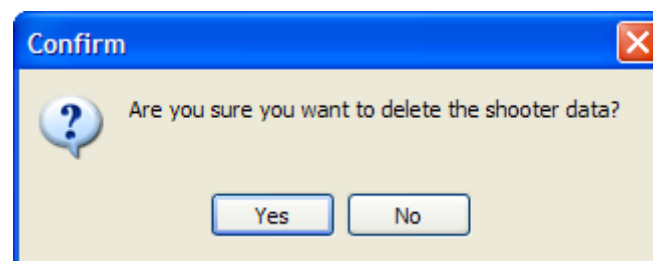
Click the shooter's name in the Shooter List that you wish to edit. Edit the appropriate fields in the entry area. Hit the **Tab** key to move between data fields.

### Delete Shooter

**Delete Shooter**

Select the shooter's name from the Shooter List that you wish to delete.

Click '**Delete Shooter**' to delete the shooter from the Shooter List. If you are sure you want the shooter name deleted, click '**Yes**' in the confirmation box.

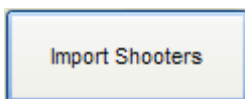


## Shooter Data

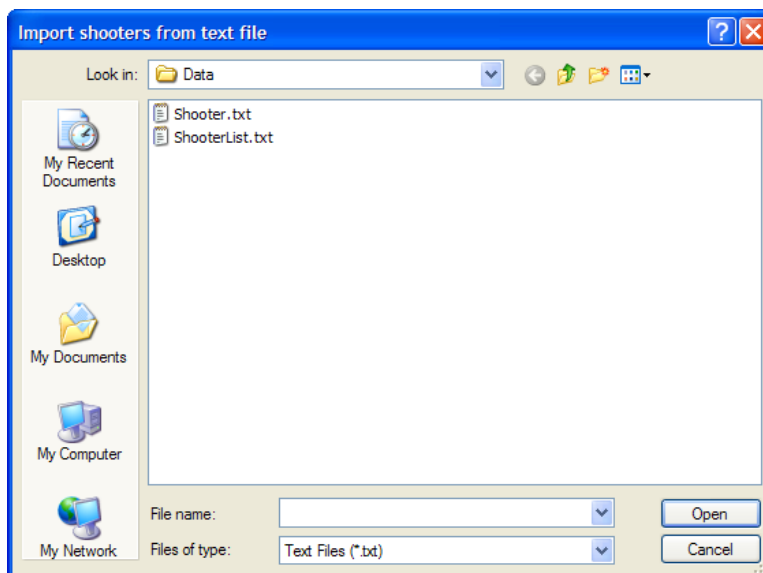
### Import Shooter Data

Previously saved shooter data may be imported into the Shooter List. The software looks for saved shooter data (.txt file) in a default directory called:

**C:\Program Files\Beamhit\390v6 Linked COF Builder\Data**



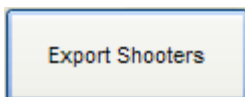
Click the '**Import Shooters**' button to import shooter data. Select the filename and click '**Open**'.



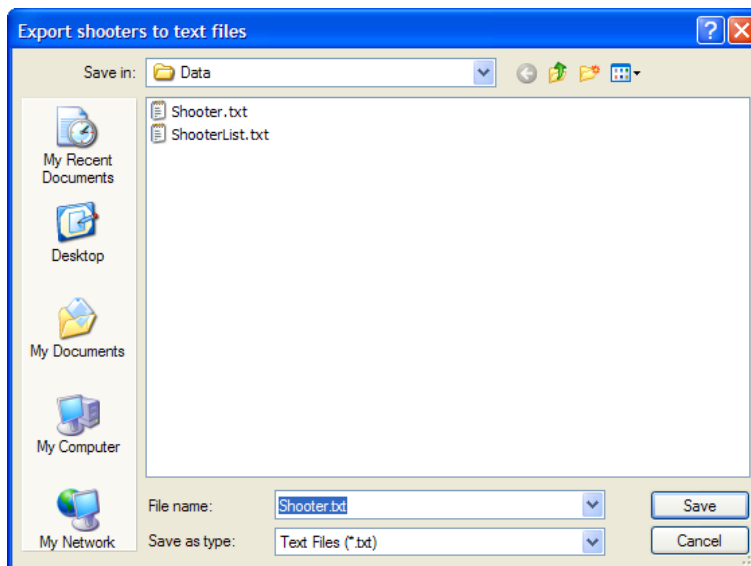
### Export Shooter Data

Shooter data entered into the shooter list may be exported and saved as a .txt file. The software defaults export data to a directory called:

**C:\Program Files\Beamhit\390v6 Linked COF Builder\Data**



Click the '**Export Shooters**' button and identify where you want the data stored (i.e., hard drive, thumb drive, etc). Name the file, and click '**Save**'.

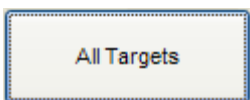


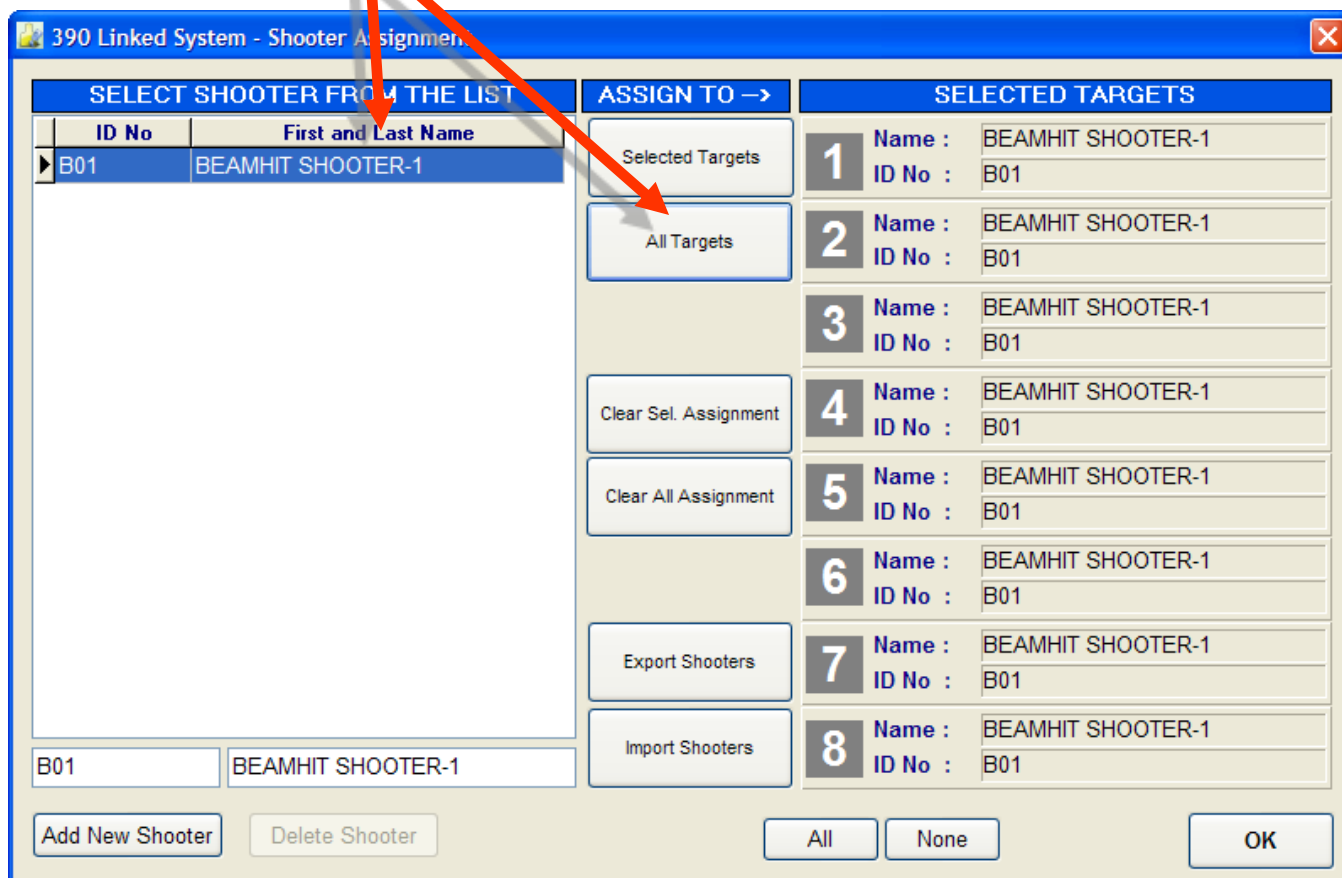


### Shooter Assignment

This process allows shooter and course of fire data to be assigned to specific targets. When first entering the Shooter Assignment screen, all target numbers are grayed out indicating no targets are selected.

#### Assign One Shooter to All Targets

 To assign one shooter to all of the targets, first select the shooter. Then click the line "All Targets" button.



## Shooter Data

### Assign Shooters to Individual Targets

Selected Targets

To assign one shooter to one or more targets, first select the shooter. Then select the targets you wish to assign this shooter to. The target number will turn from grey to blue. Finally, click the “**Selected Targets**” button. The shooter will then be assigned to all the selected targets.

390 Linked System - Shooter Assignment

SELECT SHOOTER FROM THE LIST		ASSIGN TO ->	SELECTED TARGETS	
ID No	First and Last Name	Selected Targets	1	Name : ID No :
B01	BEAMHIT SHOOTER-1	All Targets	2	Name : BEAMHIT SHOOTER-1 ID No : B01
		Clear Sel. Assignment	3	Name : ID No :
		Clear All Assignment	4	Name : ID No :
		Export Shooters	5	Name : BEAMHIT SHOOTER-1 ID No : B01
		Import Shooters	6	Name : ID No :
			7	Name : ID No :
			8	Name : ID No :

B01 BEAMHIT SHOOTER-1

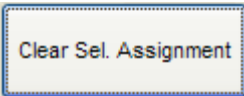
Add New Shooter Delete Shooter All None OK

### Edit Target Assignments

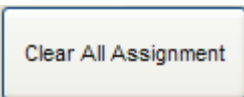
A rectangular button with a dashed border and a light grey background, containing the text "Selected Targets".

To edit target assignments, select a shooter name in the Shooter List, then click the new target(s) to which the shooter will be assigned. Click **'Selected Targets'** to assign the shooter to all the selected targets.

### Clear Shooter Assignment

A rectangular button with a dashed border and a light grey background, containing the text "Clear Sel. Assignment".

Select targets where you wish shooter assignment cleared. Click **'Clear Sel Assignment'** to clear shooter data for the selected targets.

A rectangular button with a solid border and a light grey background, containing the text "Clear All Assignment".

Click **'Clear All Assignment'** to clear shooter data for all active targets.

### Target Selection

A rectangular button with a dashed border and a light grey background, containing the text "None".

Clicking the **'None'** button de-selects all targets. The target numbers will turn grey.

A rectangular button with a solid border and a light grey background, containing the text "All".

Clicking the **'All'** button selects all targets. The target numbers will turn blue.

### Exit Shooter Data Screen

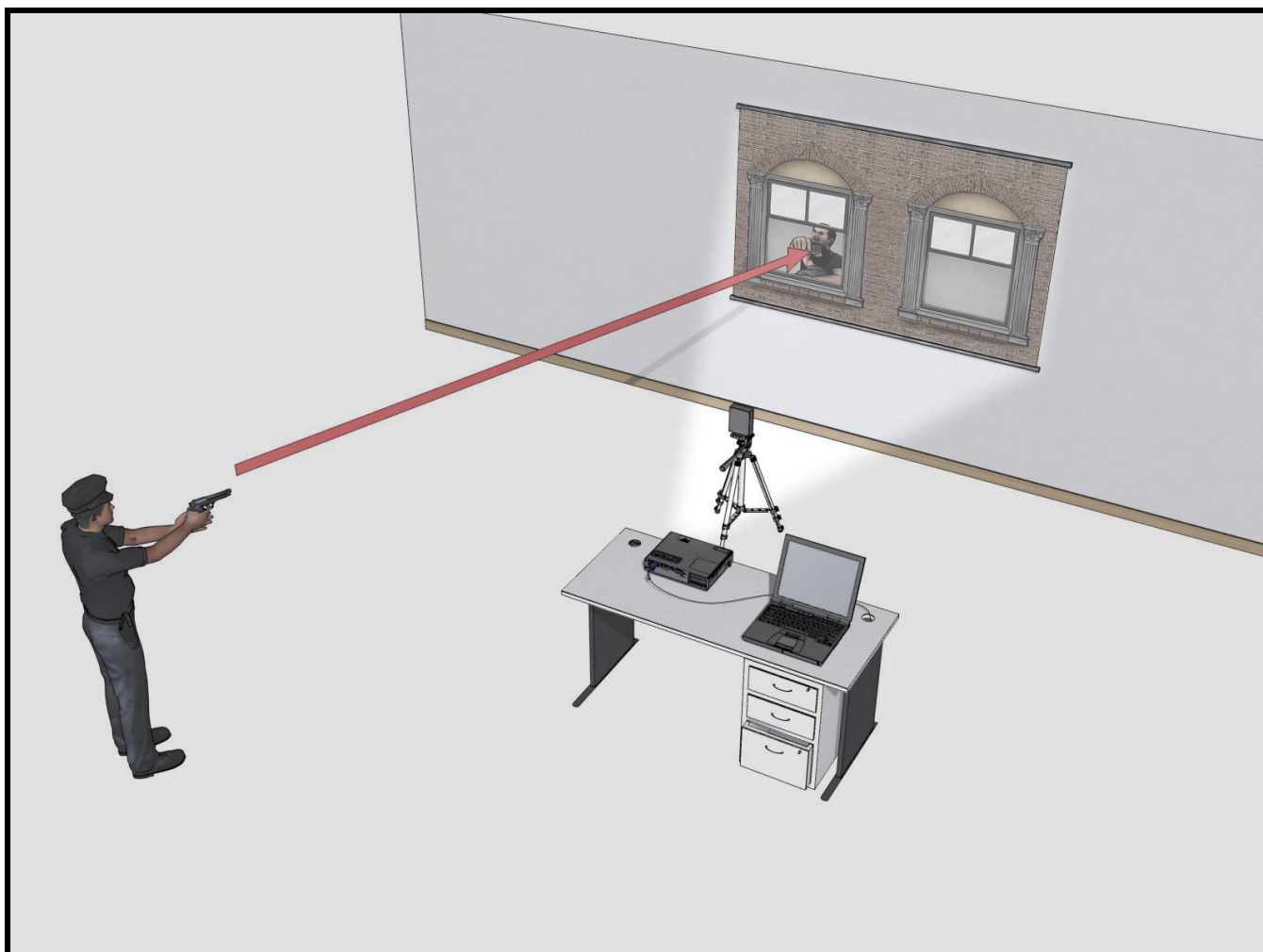
A rectangular button with a solid border and a light grey background, containing the text "OK".

When you have finished entering shooter and course data, click **'OK'** to save the data and exit the screen.

## Hardware Setup - Advanced Mode

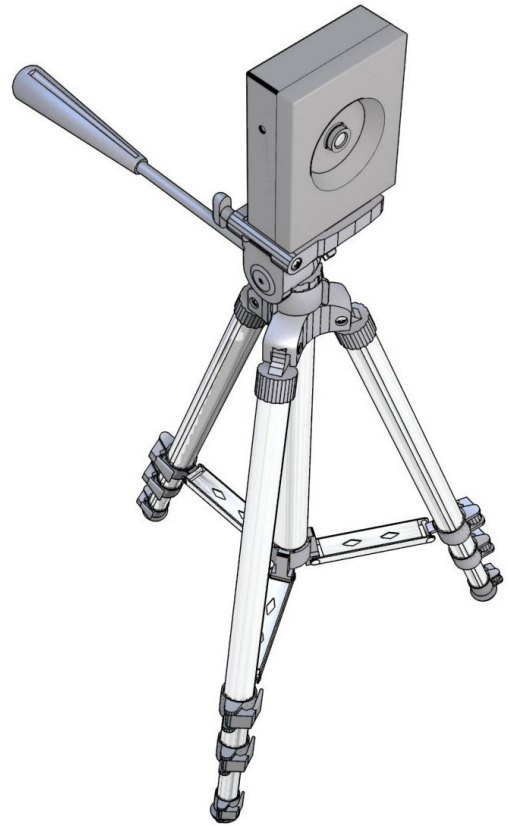
**1. Lay out the training area** to accommodate available equipment, space, and training requirements. See page 6 for assistance in identifying training area environmental requirements.

- **Establish a projection surface.** This is ideally a projection screen or light colored smooth wall. The projector requires a 6' 8" wide x 5' 0" high (203cm x 152cm) projection surface centered horizontally on the projector. Ensure there is no direct sunlight or a reflection on the projection surface.
- **Establish an LDD line** approximately 6' 8" (203cm) from the projection surface.
- **Establish a stable platform** (table or desk recommended) for the Projector and Computer 8' 4" (254cm) from the projection surface.
- **Establish a firing line** behind the LDD line at the appropriate training distance from the projection surface. The shooter may need to be offset somewhat from the table to enable full view of the target from the kneeling and prone positions.



## 2. Set up the LDD

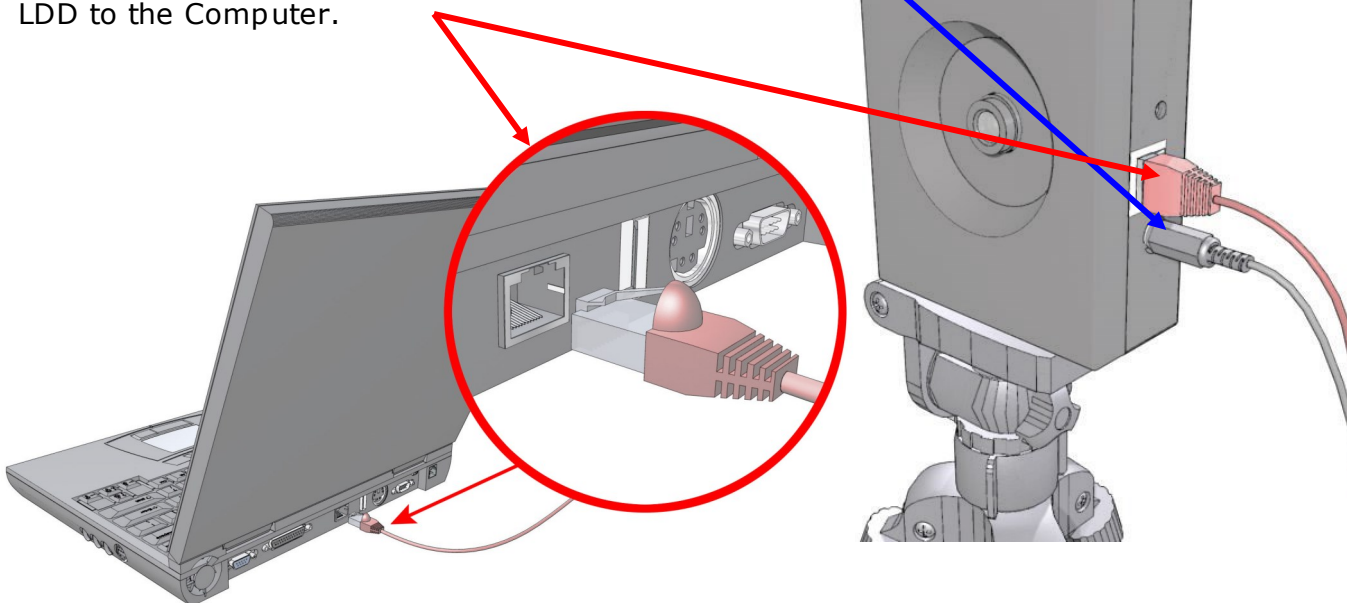
- Connect the LDD to the tripod, rotating the tripod mounting screw clockwise into the threaded hole in the bottom of the LDD. Hand tighten only.
- Set up the Tripod on the LDD Line facing the Projection Surface.
- Point the LDD lens at the center of the projection surface, adjusting the tripod leg height so that the LDD is about table height.
- **Remove the LDD lens cap.**



**3.** Set up the Projector and Computer on the stable platform, with the lens pointed toward the projection surface and in line with the LDD. **Remove the Projector lens cap.**

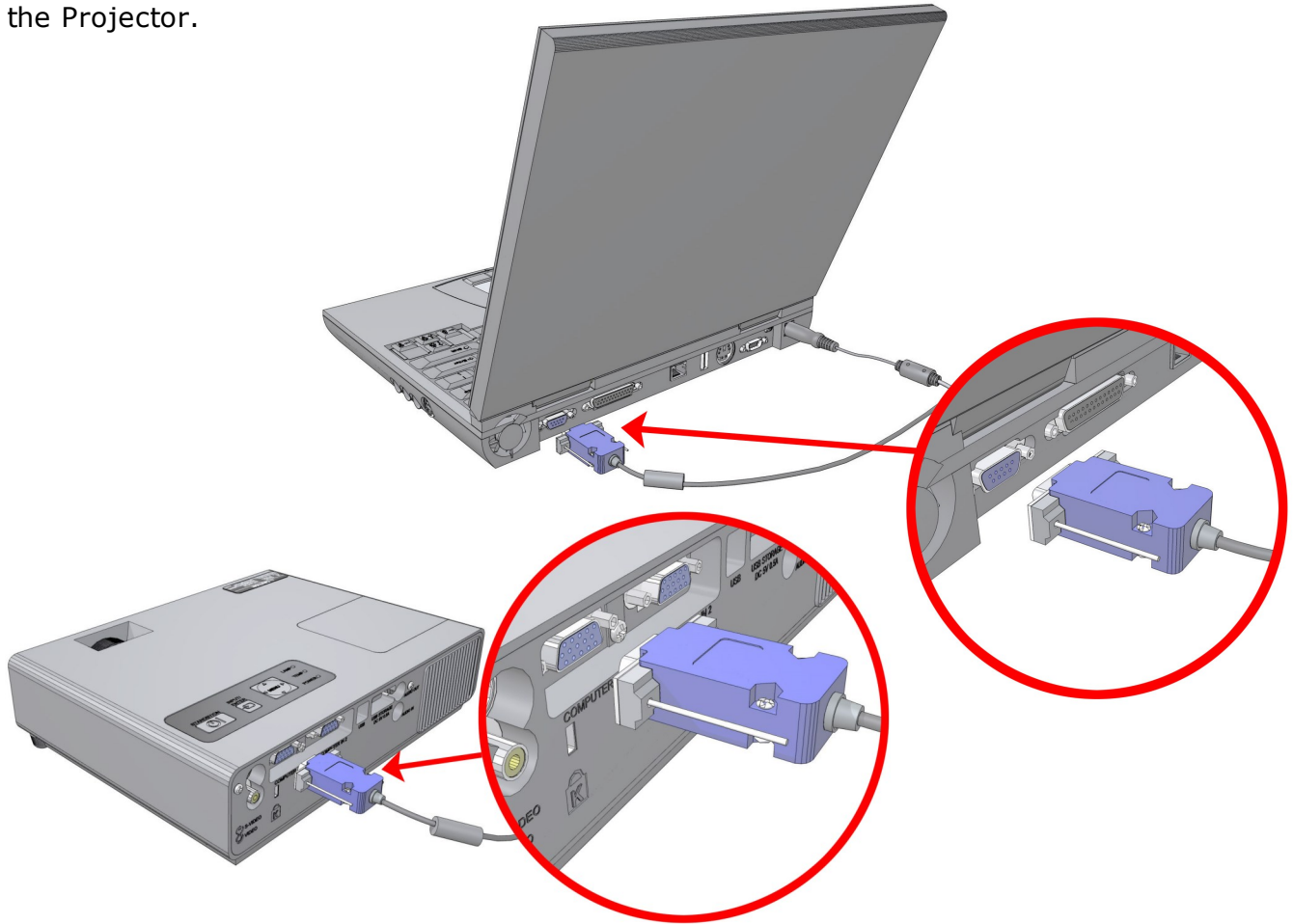
**4.** Connect the LDD Power Supply to the LDD. **DO NOT CONNECT THE POWER SUPPLY TO THE POWER SOURCE YET!**

**5.** Connect the crossover Ethernet cable from the LDD to the Computer.



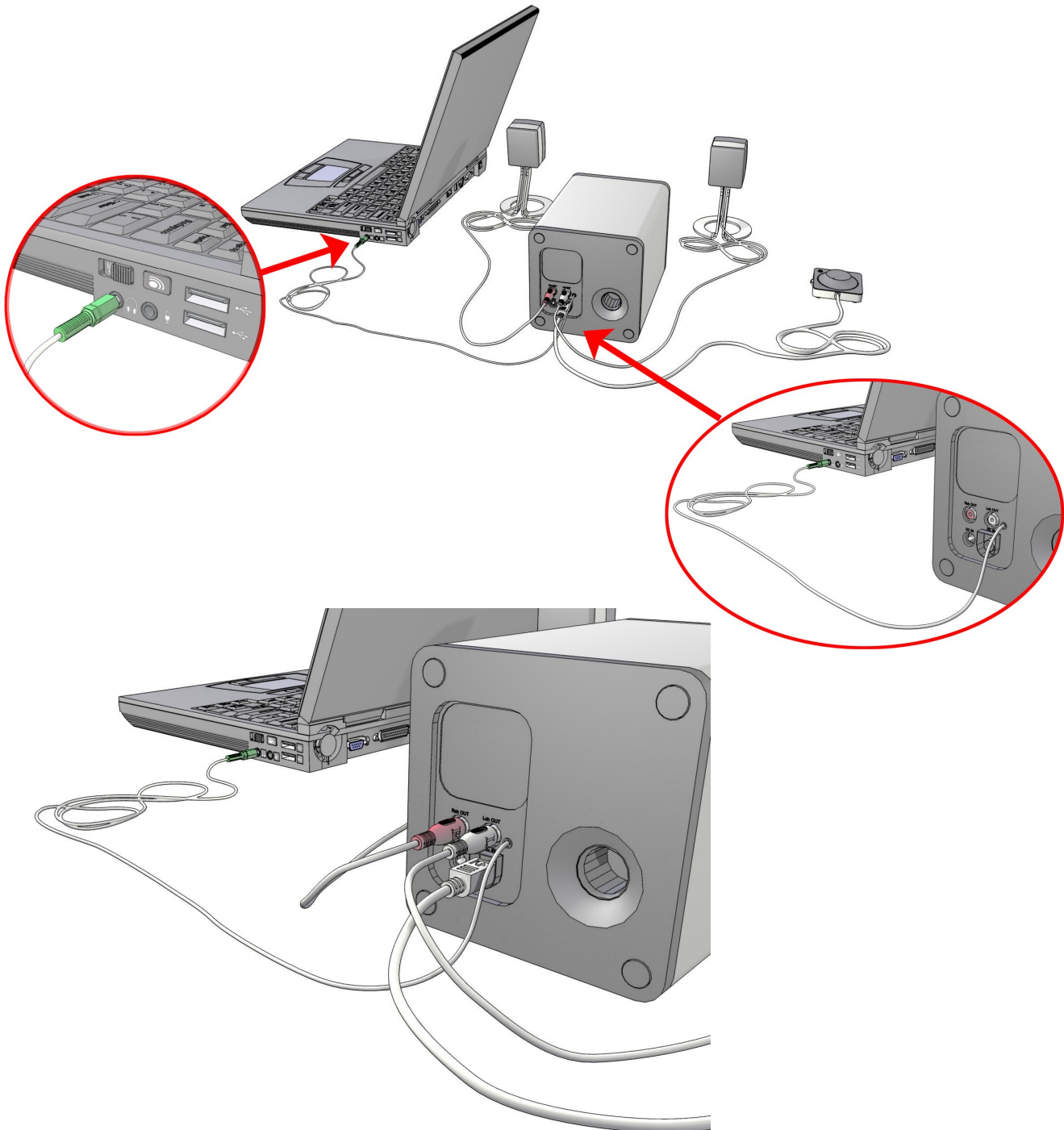
## Hardware Setup - Advanced Mode

**6.** Connect the projector cables to the VGA port on the Computer and the RGB 1 port on the Projector.



**7.** Connect Computer, Projector and Sound System (if available) power cables to the power source. Use the power cable for the Computer rather than battery power for optimal performance.

**8.** Connect Sound System speaker cables to the central unit and connect the central unit speaker cable to the headphone jack of the Computer (see below for illustrations). Consult speaker system instructions for additional information if needed. Turn the speaker system ON.



## Hardware Setup - Advanced Mode

9. Turn on the projector (it may take 30 seconds or more for the projector to warm up). Press the standby/on button on top of the projector. The fan is activated and a light followed by an image should project onto the screen.

10. Turn on the Computer.

**NOTE:** The Computer screen should be blank (no icons or task bar). Desktop icons should display on the projected image. If the Computer desktop does not appear properly on the projected screen, first check cable connections and projector input button to ensure it is set to RGB 1. You may also need to check your Windows screen settings (see Display Settings section).

11. Center the projected image to ensure that it is symmetrical on the projection surface and enlarge the image size to the maximum for the Projector. Make sure the full image is visible, centered, focused, and symmetrical. Adjust the size and focus of the image as directed in the instructions accompanying your projector.

**NOTE:** Depending upon the vertical angle at which the Projector is aimed at the screen or wall, it may be necessary to adjust the 'keystone' of the image. A keystone image will have more of a pyramid appearance rather than the desired rectangle. Refer to the Projector instruction manual for instructions on how to correct this problem.

12. Connect the LDD power supply to the power source. The LED on the right side of the LDD (as you are facing the target) should blink in the following sequence to validate the initialization process:

- **Dim**
- **Bright**
- **Blinking**
- **Off**

### **IMPORTANT!**

After powering up the LDD, wait one minute before starting any other software applications.

**NOTE:** Systems are shipped with the correct IP address settings. Refer to the instructions in the IP Address section if adjustments are necessary.

The 390 Advanced system hardware setup is now complete. Proceed to Software calibration on the following pages.

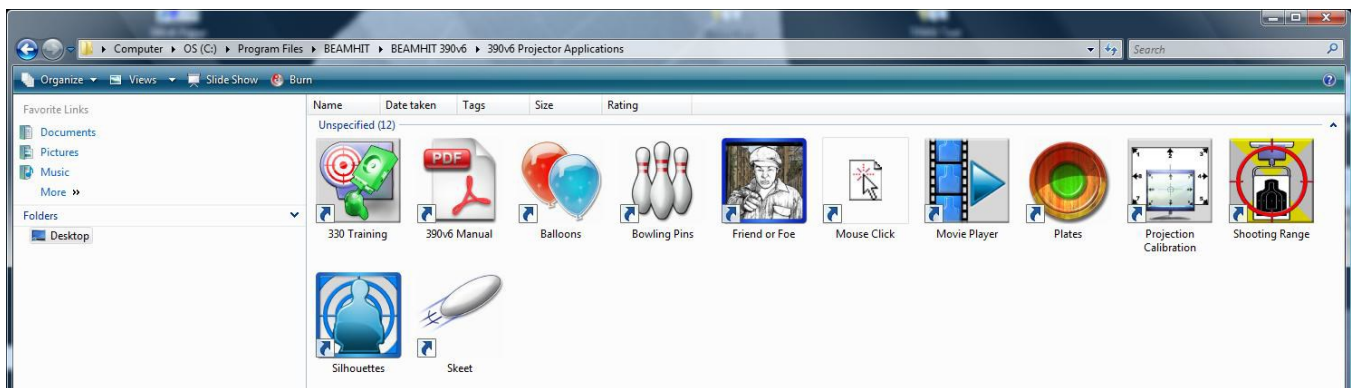


### Calibrate the Projection Software.

The projector and software must be calibrated before running any 390 projection applications (Balloons, Bowling Pins, Silhouettes, JVSP, etc.). After calibrating the system you can operate any projection software unless you move the system or unplug the LDD. Ensure the lens cover for both the projector and the LDD have been removed and that both units are operating properly.



1. Open the Projector Applications folder by double clicking the icon on the desktop. The applications folder will open.



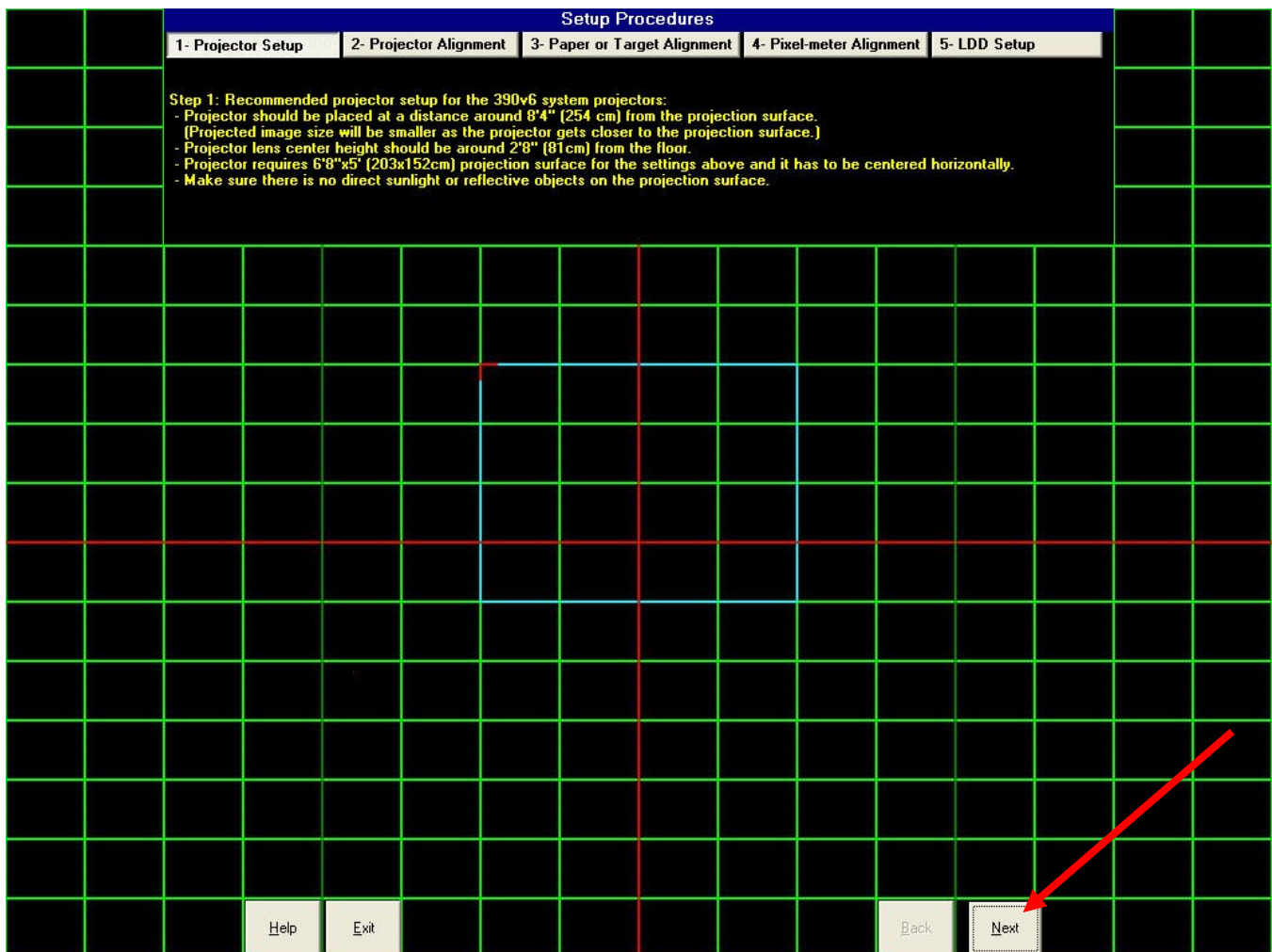
2. Click the "Projection Calibration" icon to open the calibration software.

3. The 390V6 Network Setup window will open. Click "Continue".

## Software Setup - Advanced Mode

### Step 1: Recommended projector setup for the 390 system projectors:

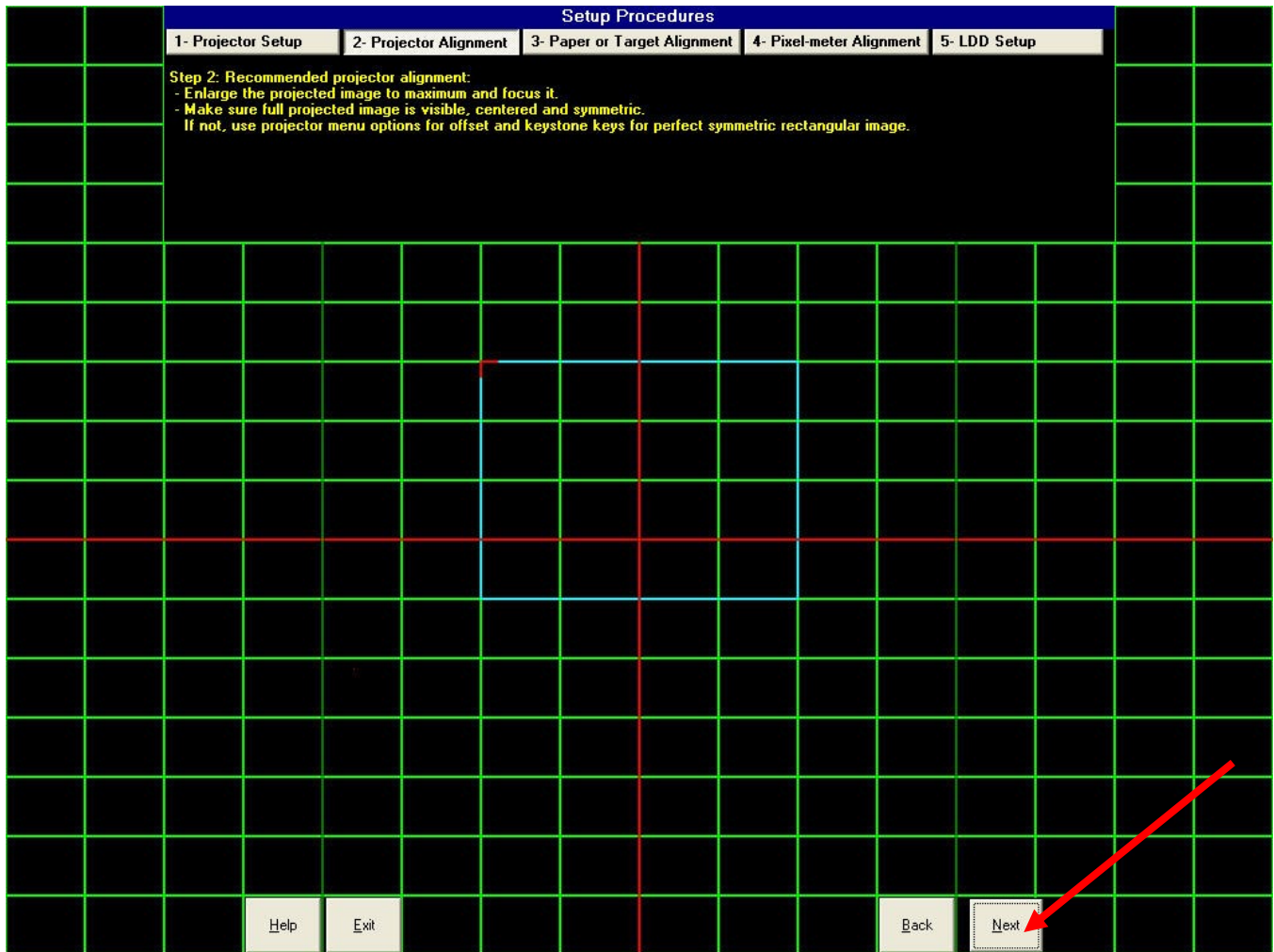
- Projector should be placed at a distance around 8'-4" (254 cm) from the projection surface. Projected image size will be smaller as the projector gets closer to the projection surface.
- Projector lens center height should be around 2'-8" (81cm) from the floor.
- Projector requires 6'-8"x5'-0" (203x152cm) projection surface for the settings above and it has to be centered horizontally.
- Make sure there is no direct sunlight or reflective objects on the projection surface.



Click "**Next**" for Step 2. Projector Alignment.

**Step 2: Recommended projector alignment:**

- Enlarge the projected image to maximum and focus it.
- Make sure the full image is visible, centered and symmetric.
- If not, use projector menu options for offset and keystone keys for perfect symmetric rectangular image.



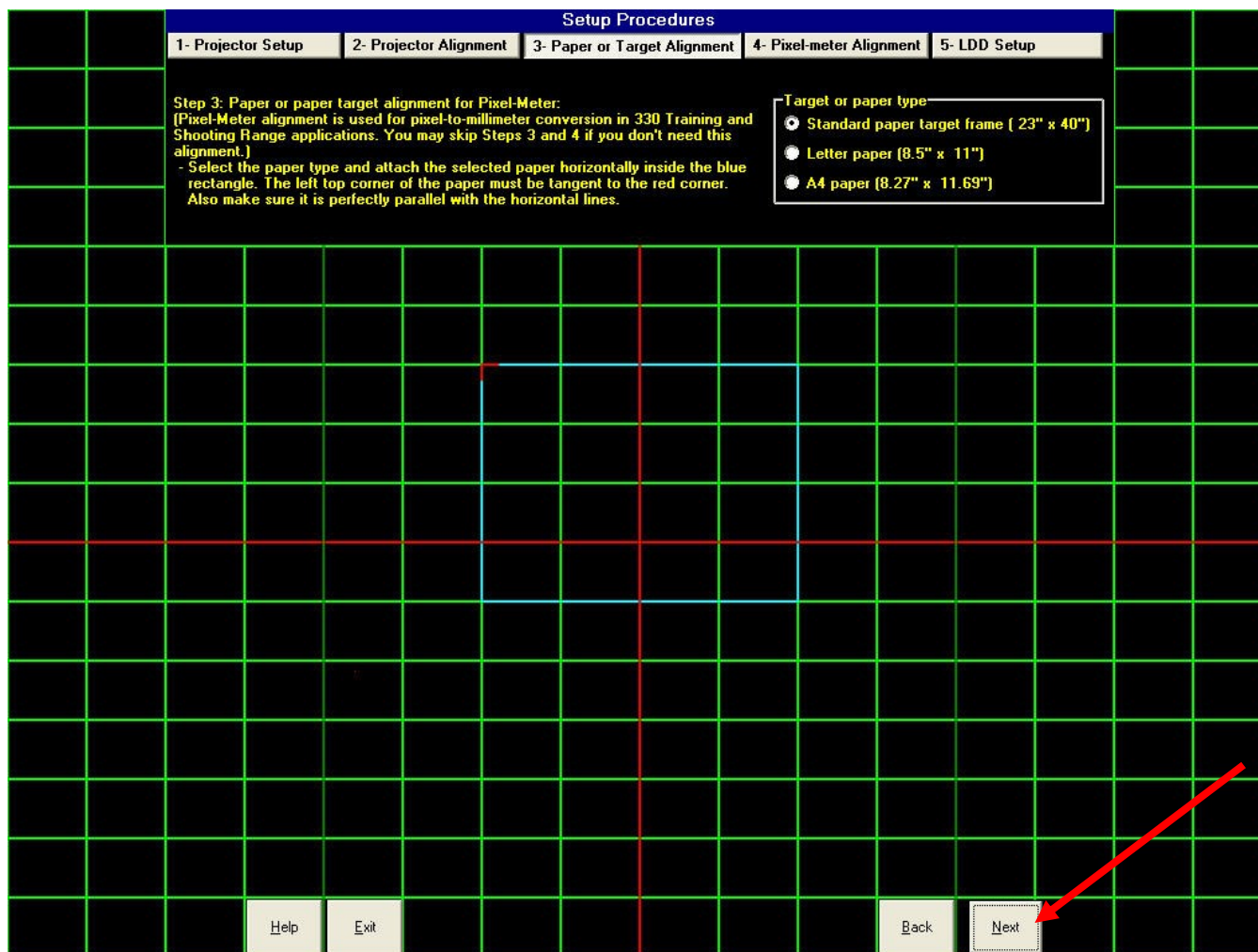
Click "**Next**" for step 3, Paper or Target Alignment.

## Software Setup - Advanced Mode

### Step 3: Paper or paper target alignment for Pixel-Meter:

(Pixel-Meter alignment is used for pixel-to-millimeter conversion in 330 Training and Shooting Range applications. You may skip Steps 3 and 4 if you do not need this alignment.)

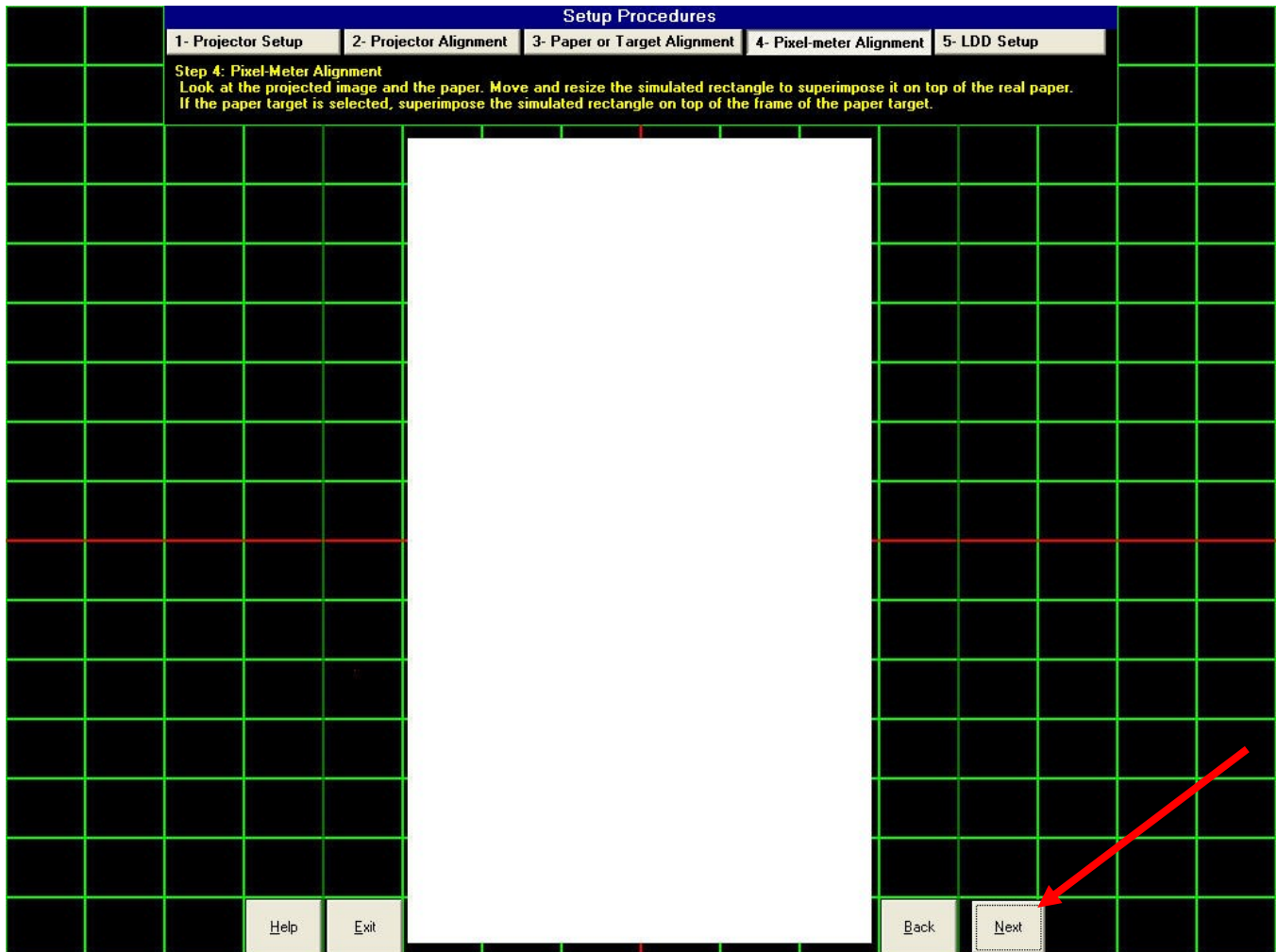
- Select the paper type and attach the selected paper horizontally inside the blue rectangle. The left top corner of the paper must be tangent to the red corner. Also make sure it is perfectly parallel with the horizontal lines.



Click "**Next**" for step 4, Pixel-Meter Alignment.

**Step 4: Pixel-Meter Alignment**

- Look at the projected image and the paper. Move and resize the simulated rectangle to superimpose it on top of the real paper.
- If the paper target is selected, superimpose the simulated rectangle on top of the frame of the paper target.

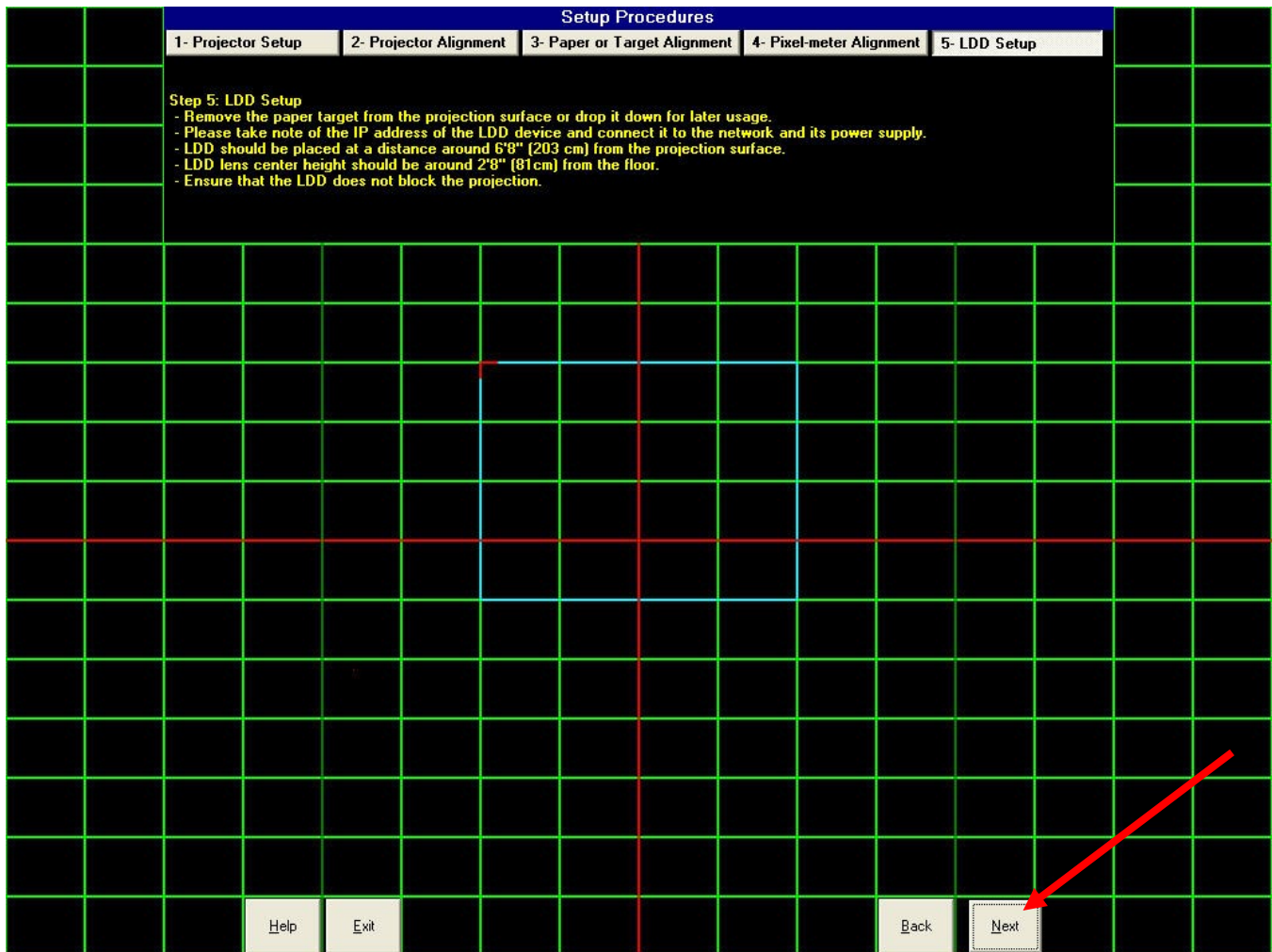


Click "**Next**" for step 5, LDD Setup.

## Software Setup - Advanced Mode

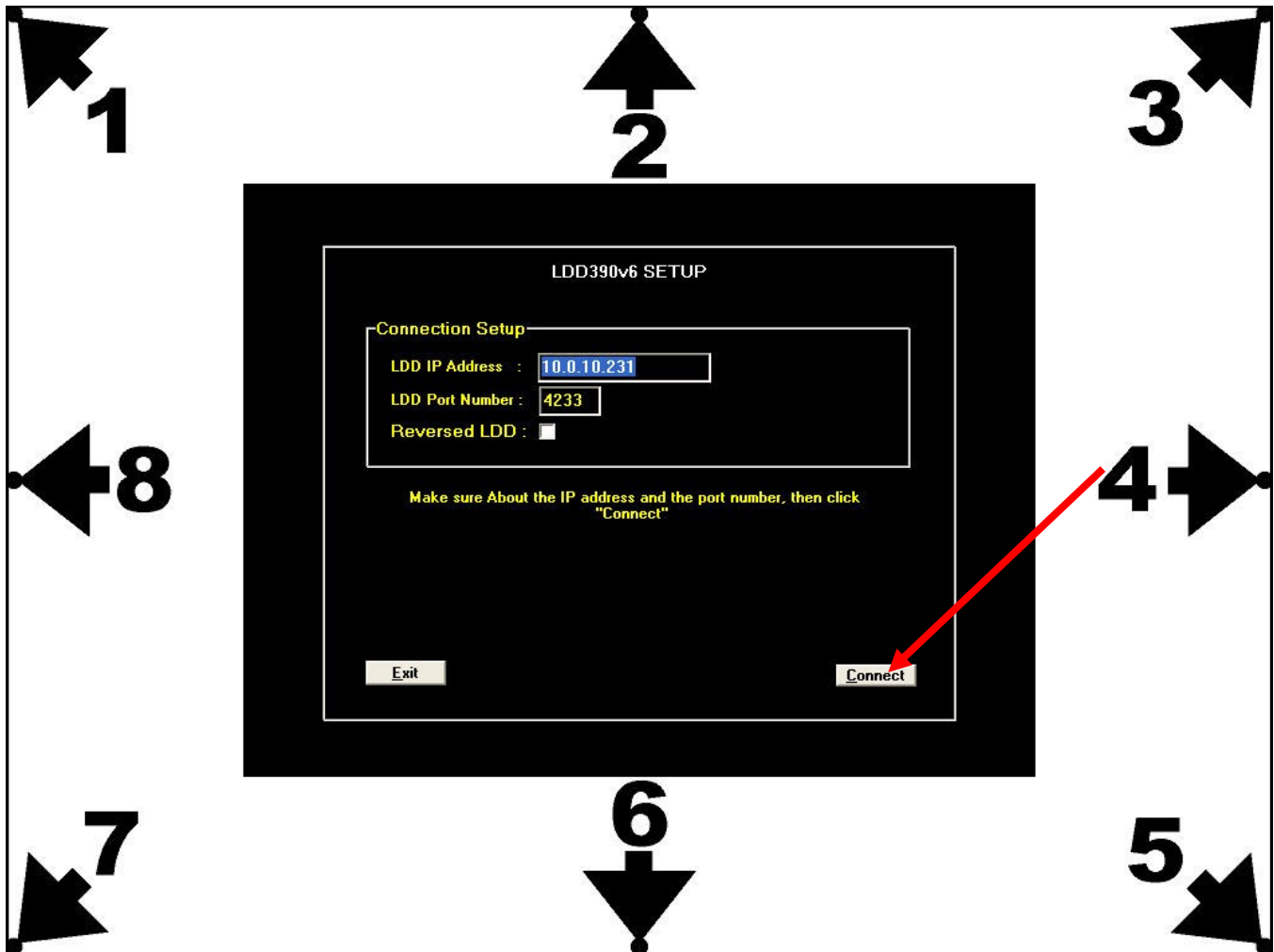
### Step 5: LDD Setup

- Remove the paper target from the projection surface or drop it down for later usage.
- Please take note of the IP address of the LDD device and connect it to the network and its power supply.
- LDD should be placed at a distance around 6'-8" (203 cm) from the projection surface.
- LDD lens center height should be around 2'-8" (81cm) from the floor.
- Ensure that the LDD does not block the projection.



Click "Next".

6. The Connection Setup window will open. Check that the LDD IP Address and LDD Port Number match the values printed on the LDD label; change if needed. The Reversed LDD box should be checked only if the LDD is inverted (mounted to the ceiling). Click "**Connect**".



**NOTE:** If an error occurs at this point in the setup, refer to the troubleshooting portion of this manual. Note that the most common issues are IP address settings and physical connectivity issues (cables, LDD power, computer LAN card etc). Once an error occurs, it will be necessary to quit the software and re-start the calibration process.

## Software Setup - Advanced Mode

7. Verify that the LDD lens cap has been removed. The Video Gain slide bar allows more or less light into the LDD inner image. Please make slight adjustments to achieve the image depth displayed below. Aim the LDD using the adjustment wand on the tripod head. The LDD should 'see' what the projector is displaying on the projection surface. Focus the LDD (inner image) by turning the lens on the LDD.

When focusing, note the inner image clarity on the computer, not on the image projection. Many laser detection issues can be avoided by taking time to assure proper LDD focus.

**I- MECHANICAL SETUP (Optimum):**

- LDD should be placed at a distance around 6'8" (203 cm) from the projection surface.
- LDD lens center height should be around 2'8" (81 cm) from the floor.
- For the most accurate results, adjust LDD location so that the entire projection surface is visible and the LDD is perpendicular and centered to the projection surface.
- Ensure that the LDD does not block the projection.

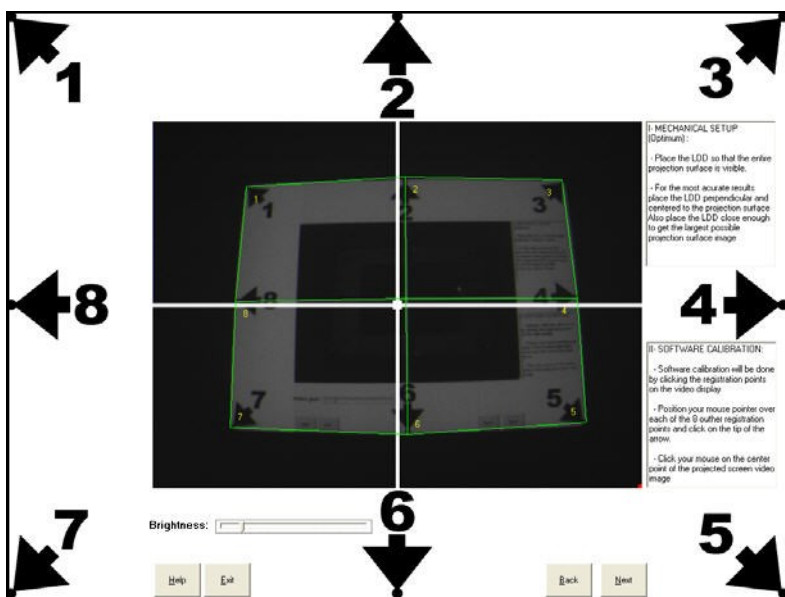
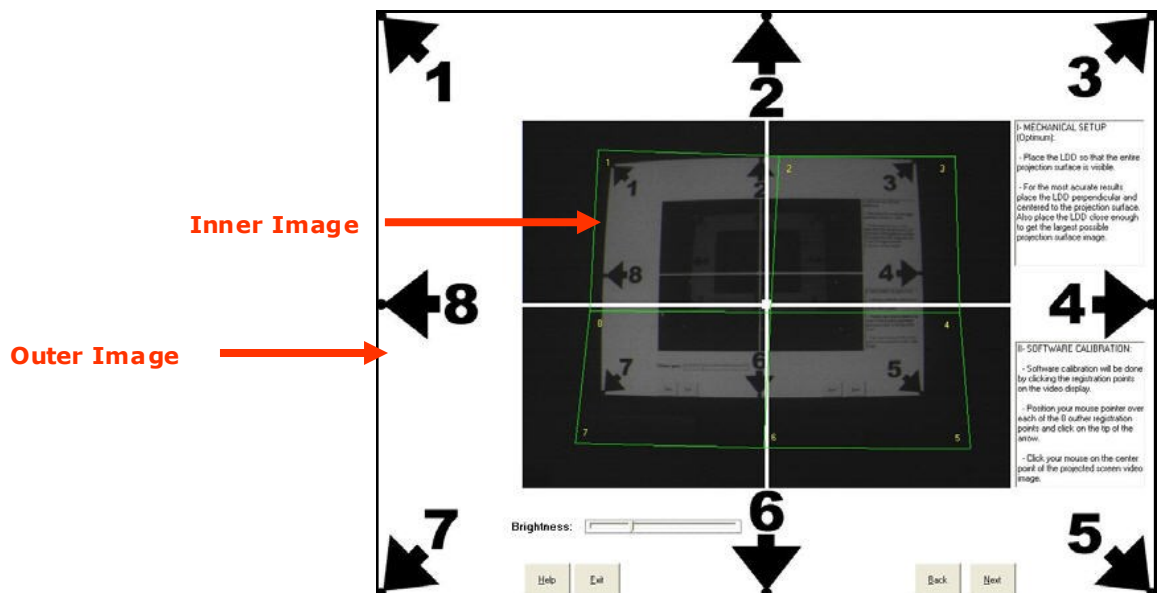
**II- SOFTWARE CALIBRATION:**

- Software calibration will be done by clicking the registration points on the video display.
- Position your mouse pointer over each of the 8 outer registration points and click on the tip of the arrow.
- Click your mouse on the center point of the projected screen video image.



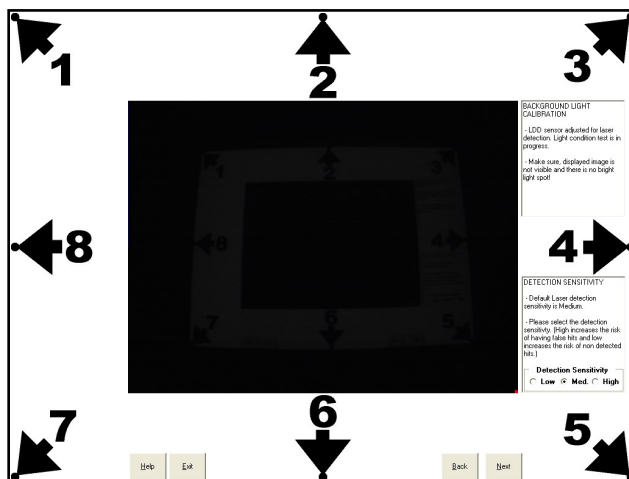
8. Calibrate the target to the software.

- Click and drag each of the green corners to the corresponding corner of the target (inner image).
- Click a second time to drop and register the corner.
- Do this for each of the 8 outer points.
- Finally, click and drag the center registration point to the center point of the target, click again to drop and register.
- A correctly calibrated target will appear similar to the bottom image below. Click "Next" to continue.



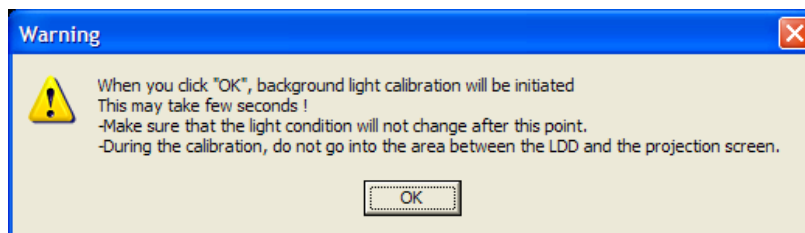
## Software Setup - Advanced Mode

The “inner image” should be barely visible on both the Computer screen and the projected image.



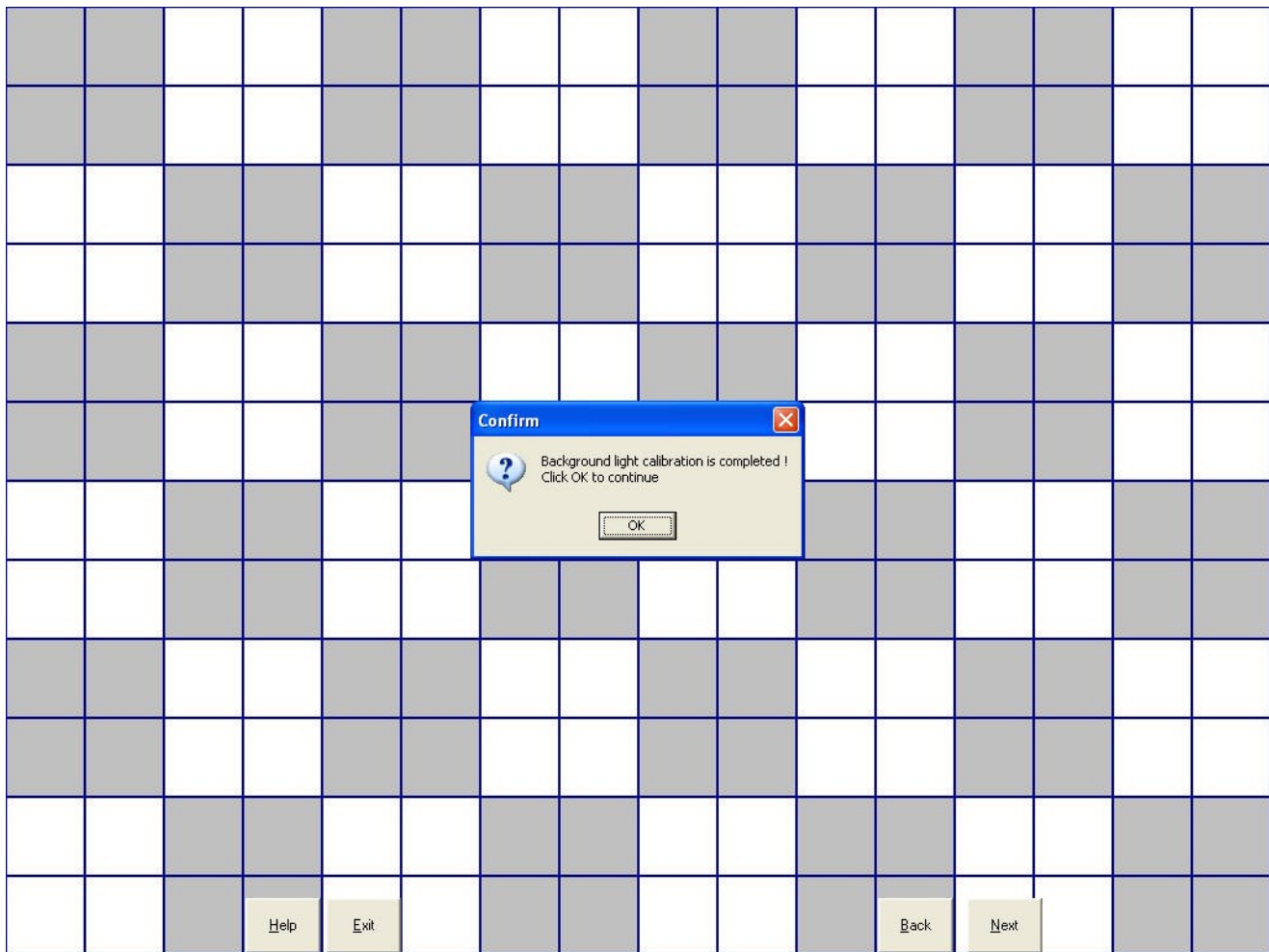
9. During the Background Light Calibration process, the LDD sensor adjusts to ambient light conditions to facilitate laser detection.

- Ensure the displayed image is not visible and there are no bright light spots! If there are, adjust ambient light or LDD position.
- The default Laser detection sensitivity is Medium. High sensitivity (used for very dark areas) increases the risk of having false hits and low (used for very bright areas) increases the risk of non detected hits.
- Click “**Next**” to continue.
- The following warning will appear, click “**OK**”.



**NOTE:** Changing LDD position or ambient light will require re-calibration.

**10.** Confirmation Screen - Calibration settings can be tested at this point by firing the LTX-Z in-barrel laser at the projected screen. See Appendix A for LTX-Z laser setup instructions. A cursor symbol should match each laser dot closely. If there is a noticeable error (outside the crosshair of the cursor), repeat the calibration process. Click "**OK**" at the confirmation screen to run projection software.













**NOTE:** If lighting conditions change significantly during your training session, you may start to experience false hits. This may require a recalibration.

## Skill Builder Exercises - Advanced Mode

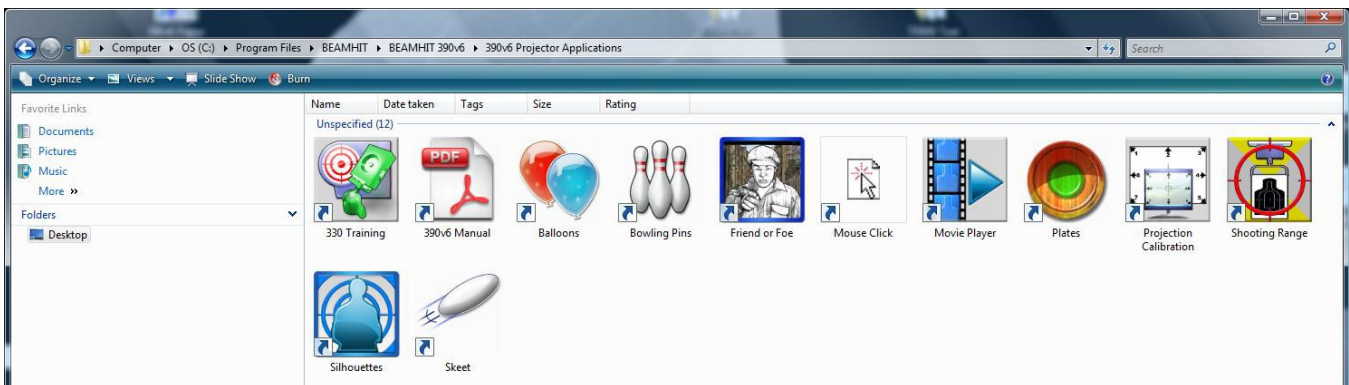
### Projection Based Applications (Skill Builder exercises)

A number of Projection-based "Skill Builder Exercises" are provided with the software.

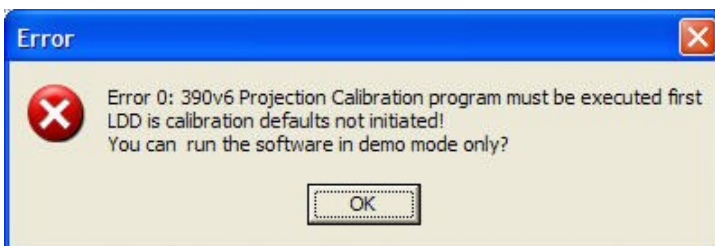
 <p>330 Training</p>	<p><b>330 Training:</b> Pistol or rifle marksmanship on a selection of targets.</p>	<p><b>Balloons:</b> Engage multiple moving targets of varied size and shape.</p>	 <p>Balloons</p>
 <p>Bowling Pins</p>	<p><b>Bowling Pins:</b> Engage multiple stationary targets at varying distances, size, and exposure time. Distance can be varied from pin to pin.</p>	<p><b>Plates:</b> Engage multiple stationary plate targets in a timed exercise.</p>	 <p>Plates</p>
 <p>Skeet</p>	<p><b>Skeet:</b> Engage moving clay pigeons.</p>	<p><b>Shooting Range:</b> Simulates an indoor range with a selection of several target faces and varied engagement distances.</p>	 <p>Shooting Range</p>
 <p>Silhouettes</p>	<p><b>Silhouettes:</b> Simulates a field fire range.</p>	<p><b>Friend or Foe:</b> Engagement of multiple hostile and non-hostile timed targets in a timed session.</p>	 <p>Friend or Foe</p>
 <p>Movie Player</p>	<p><b>Movie Player:</b> Operates judgmental scenarios with playback indicating shot location.</p>	<p><b>Mouse Click:</b> Enables you to use third party applications with the 390 System to interact with your own projected targets.</p>	 <p>Mouse Click</p>



1. Open the Projector Applications folder by double clicking the icon on the desktop. The applications folder will open. Double click the desired application icon to begin training. To exit exercises at any time, press the **'ESC'** Key.



2. Click the icon for the desired Projection Application.
3. The 390V6 Network Setup window will open. Click "**Demo Mode**" to run software without hardware connected (for familiarization and training), or "**Connect**" to run projection software in active session.



This error message will display if you attempt to run any applications prior to calibration.

**Skill Builder Exercises - Advanced Mode**



**330 MARKSMANSHIP TRAINING:** Training on a selection of targets that emulate the functions of the BEAMHIT® 330 system.

**START SCREEN**

**SESSION IN PROGRESS**

Hit No	Time	Score
1	1.1 s	5
2	1.5 s	8
3	1.6 s	8
4	2.5 s	8

**Main Menu Buttons**

The Main Menu bar contains buttons for accessing or operating the main features of the program. The appearance and availability of the buttons will change depending upon current status of the program.



**Assign, add, delete, update users** - Allows shooter name and Course of Fire to be assigned to target.



**Print** - For printing a copy of the session or print previewing a session. For printing a printer (not provided) must be connected to the Computer.



**Change Target Types** - Change existing target or add new target images from the overlay database. New target images may be obtained through L-3 EOTech.



**Exit** - Exits the current application.



**Option** - Accesses the program's options: target timeout, target auto start, caliber size, shot limit and enable/disable sound.



**Load Saved Sessions** - Opens a previously saved session.



**Save Session to the Disk** - Saves the current session to the Computer.



**Delete Hit** - Erases a shot from the Data Table (Off-line mode only). Select the appropriate shot within the table to be deleted.



**Start/Stop session** - Toggles between On-line and Off-line modes.

**Session Results/Information Display**

Located in the upper right corner below the Action Bar, contains shooter and session status data. Click "OK" to clear any system messages and return to session information display mode.

Session Results	
Date :	6/23/2004
Time :	12:38:22 PM
Name :	Johnny Smith
ID No :	C00
Course :	030303
Session Elapsed Time :	3.3 s
Total Number of Hits :	6
Score :	27
Score % :	90.0 %
Dispersion :	25.4cm, 10.0in
Center Mass :	0.30 R, 1.00 U

## Skill Builder Exercises - Advanced Mode

**Mode Selection** - Selects what is displayed on the target area:

- **Shot** - (Default Mode) Records shot location to the screen in blue with the last shot in magenta.
- **Trace** - With laser in constant 'ON' Mode, displays small red square on the screen that tracks the laser dot on the target (see diagram below).



**NOTE:** Trace mode requires the use of a laser transmitter with constant ON mode. These units may be added as accessories to the 390.

### SHOT MODE

The SHOT MODE interface displays a target with 11 hits. The hits are represented by blue circles, with the most recent hit in magenta. A red crosshair is visible at the center of the target. To the right of the target is a data table and a control panel.

Hit No	Time	Score
1	2.5 s	5
2	3.1 s	10
3	3.5 s	6
4	3.9 s	0
5	4.4 s	1
6	4.8 s	5
7	5.2 s	6
8	5.6 s	6
9	6.0 s	4
10	6.4 s	8
11	6.8 s	6

Additional data shown in the interface:  
 Date: 4/7/2010 Time: 3:00:31 PM  
 Name:   
 ID No:   
 Course:   
 Session Elapsed Time: 9.4 s  
 Total Number of Hits: 11  
 Score: 57  
 Score %: 51.8 %  
 Center Mass: 1.40 L, 6.11 U  
 Dispersion: 68.2cm, 26.8in

Control panel includes: Mode (Shot selected), Trace, and Exit buttons.

### TRACE MODE

The TRACE MODE interface displays a target with a red laser trace. The trace is a small red square that moves across the target as the laser is used. To the right of the target is a data table and a control panel.

Hit No	Time	Score

Additional data shown in the interface:  
 Date: 4/7/2010 Time: 2:59:53 PM  
 Name:   
 ID No:   
 Course:   
 Session Elapsed Time: 16.2 s  
 Total Number of Hits: 0  
 Score:   
 Score %:   
 Center Mass:   
 Dispersion:

Control panel includes: Mode (Trace selected), Shot, and Exit buttons.



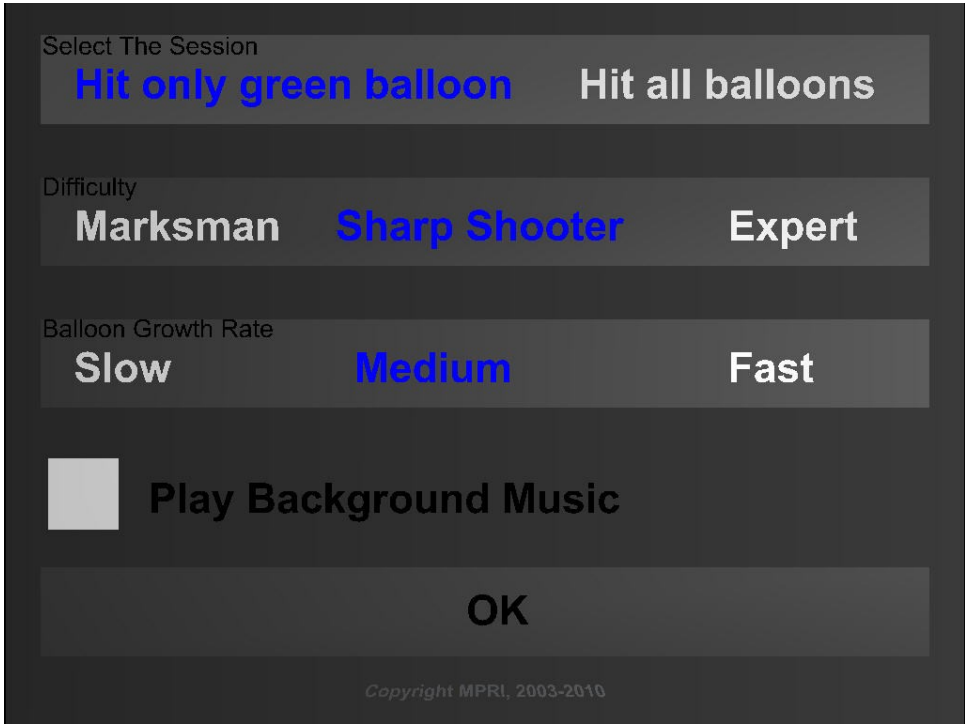


**BALLOONS:** Engage multiple moving targets that change size and shape. This program reinforces the skills of shooting at moving targets or judgment drills if a single target is selected. Follow the on screen instructions to navigate within the Balloons application.

**BALLOONS LIVE SESSION**



**BALLOONS OPTION SCREEN**



## Skill Builder Exercises - Advanced Mode



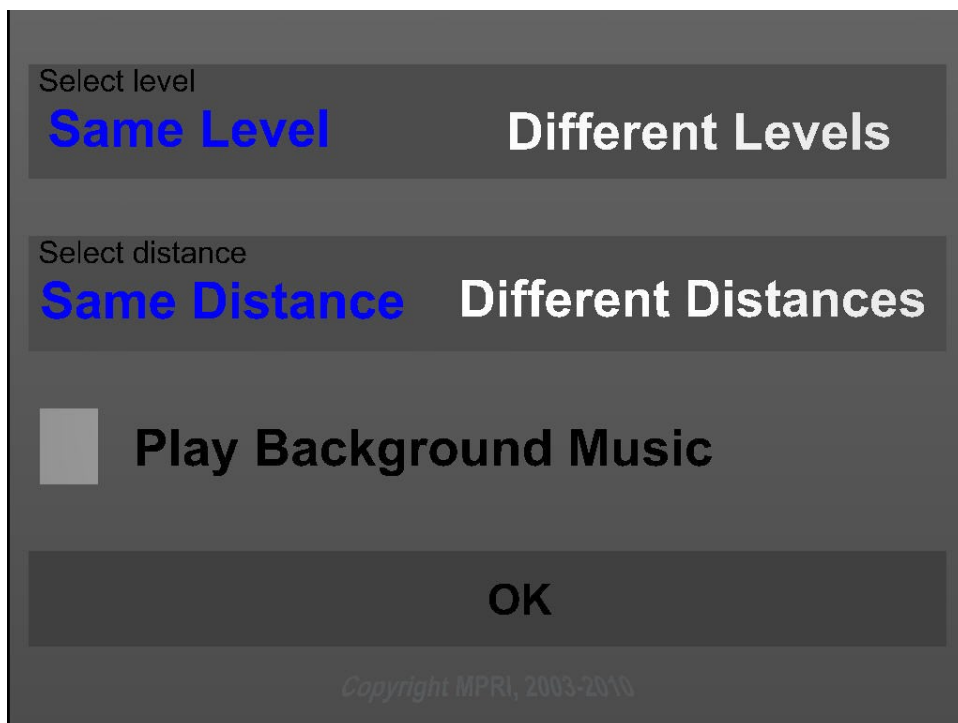
Bowling Pins

**BOWLING PINS:** Engage multiple stationary targets at varying distances and size. Distance can be varied from pin to pin. Follow the on screen instructions to navigate within the Bowling Pins application.

### BOWLING PINS LIVE SESSION



### BOWLING PINS OPTION SCREEN



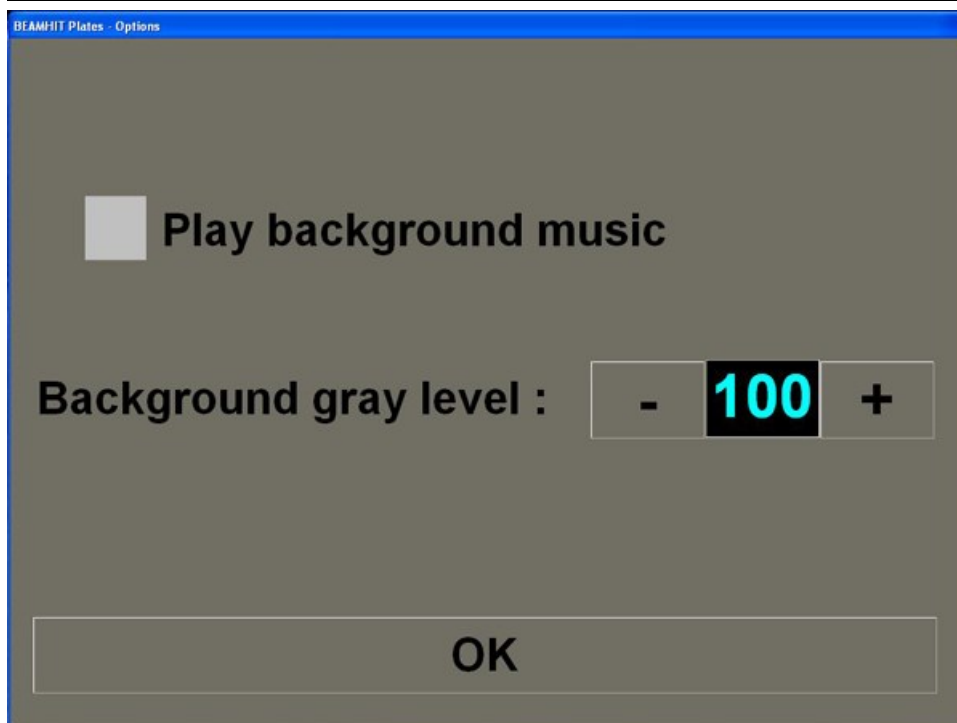


**PLATES:** Engage multiple stationary targets in a timed exercise. The exercise is designed to increase speed and accuracy while reinforcing trigger control and proper follow through. The timer begins when you shoot "SHOOT HERE TO START" and stops only after you shoot all plates.

PLATES START SCREEN



PLATES OPTION SCREEN



## Skill Builder Exercises - Advanced Mode



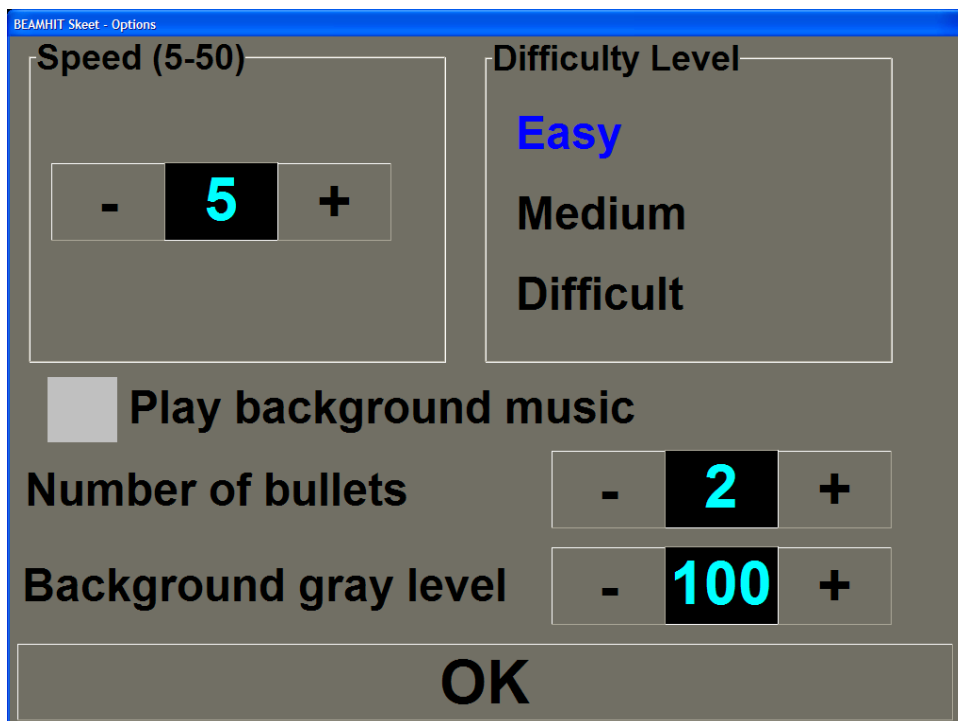
**SKEET:** Engage moving clay pigeons.

### SKEET SESSION IN PROGRESS



### SKEET OPTIONS SCREEN

Adjustable options include changing the speed and level of difficulty as well as the number of shots allowed for each target.





Shooting Range

**SHOOTING RANGE:** Simulates an indoor range with a selection of several target faces and varied engagement distances. This exercise supports quick fire techniques and low light firing.

**SHOOTING RANGE CONNECT SCREEN**

Select shooting distance (shooter to projection surface) and click “**Demo Mode**” or “**Connect**” to begin using the Shooting Range software.



**SHOOTING RANGE CONTROLS**

- ‘**T**’ = change overlay (while session stopped)
- **ESC** = exit program
- Arrow keys (up, down) = move target (out, in)
- Green sphere = start session
- Blue sphere = stop session
- **1, 5, 10** = target movement increments (i.e. – by pressing ‘**5**’ then the up arrow key once, the target will move out ‘5 yards’)



## Skill Builder Exercises - Advanced Mode



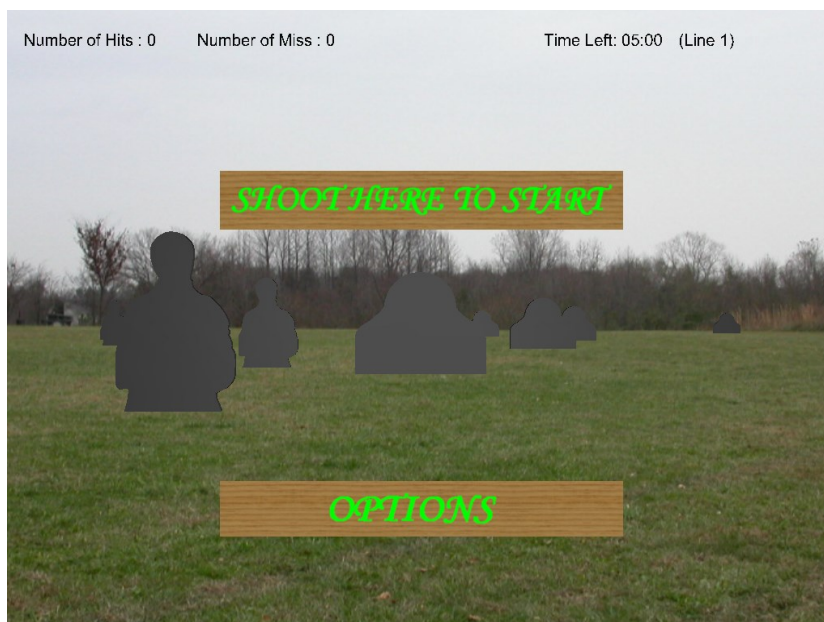
Silhouettes

**SILHOUETTES:** Simulates a field fire range.

### SILHOUETTES START SCREEN

Use the mouse to select options or shoot "**SHOOT HERE TO START**" to begin a session. The software records the total number of hits and misses for each session.

Before starting a session, target color may be changed by pressing the "**C**" key on the keyboard and target size may be adjusted by pressing the "**plus (+)**" or "**minus (-)**" keys on the keyboard.



### SILHOUETTES SCENARIO OPTIONS SCREEN

(NEXT PAGE)

- Scenarios may be created and saved to designate targets for distance and duration (4 to 40 seconds exposure, set from a drop-down list).
- On screen arrow keys are for browsing between lines.
- "+" Adds a new line to the scenario, "-" deletes a line.
- Active target for a given distance is set by selecting "E" or "F" for that distance and position. For each distance there are five positions (1 being left most). You may select only one of each target type for each distance. If that drop-down list is blank, it means that the target is not active.
- Save the scenario by clicking on "**Save Scenario**" button and load a saved scenario using the "**Load Scenario**" button.

SILHOUETTES  
SESSION IN  
PROGRESS

BEAMHIT Silhouettes - Scenario Editor

300m	F				E
250m	F			F	E
200m	F				E
150m			F		E
100m	F				E
50m	F	E			E

Save Scenario

Load Scenario

Time: 2 Line No: 1

Navigation: [Back] [Forward] [Home] [End] [Plus] [Minus]

OK

Number of Hits,  
number of misses,  
and targets  
missed are dis-  
played at the top  
of the screen.

Number of Hits : 0    Number of Miss : 0    Time Left: 00:28 (Line 1)

## Skill Builder Exercises - Advanced Mode



Friend or Foe

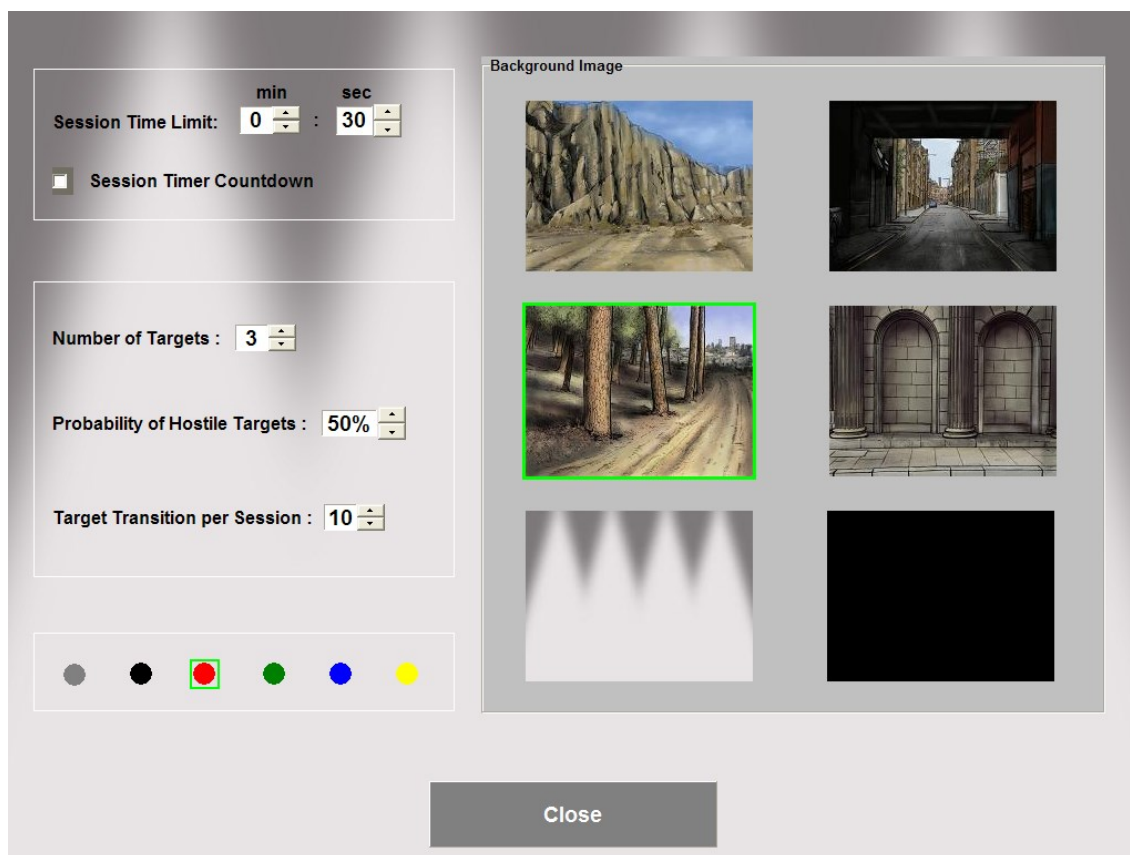
**FRIEND OR FOE:** Engagement of multiple hostile and non-hostile timed targets in a timed session

1. Click the "**Friend or Foe**" Icon to start the software.
2. When the Session Screen appears, click "**Options**".





3. When the Options Screen appears, set session options using the following controls:
  - **Session Time Limit** - This controls the total session time (maximum 10 min 59 sec).
  - **Session Timer Countdown** - Checking the box will display a countdown timer on the Session Screen. Leaving it unchecked will display elapsed time.
  - **Number of Targets** - This controls the number of target frames displayed at one time on the Session Screen (minimum 1, maximum 3).
  - **Probability of Hostile Targets** - This controls the probability that any given target will be hostile (maximum 100%).
  - **Target Transition per Session** - This controls the number of target changes per frame during the session.
  - **Hit Indicator Color** - The colored dots control the color of the laser hits displayed on the target frames.
  - **Background Image** - This allows you to select from several background images to display on the Session Screen.
4. Click **“Close”** to return to the Session Screen.

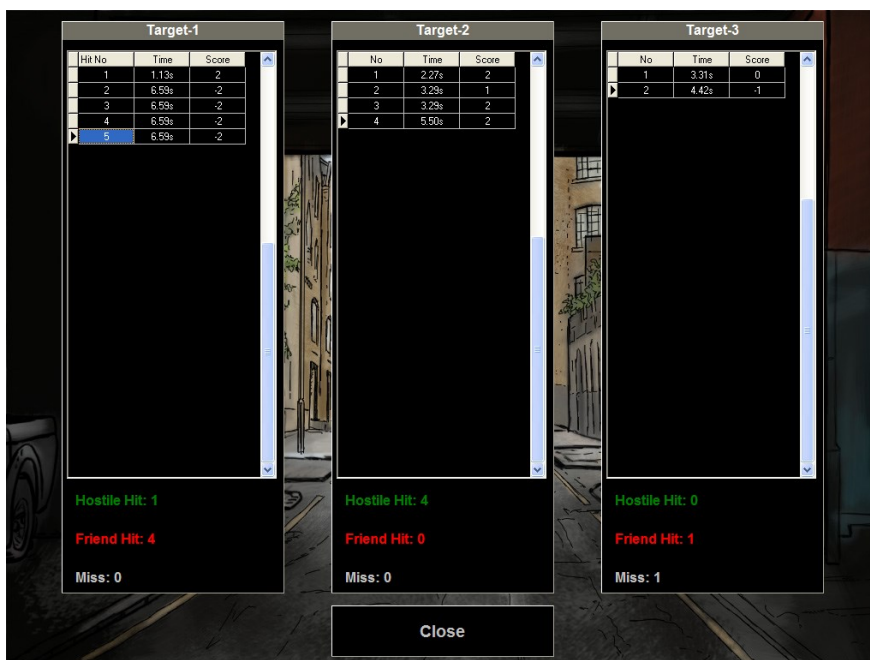


## Skill Builder Exercises - Advanced Mode

5. The Session Screen will appear with the first set of targets. Shoot on the **"Start Session"** button to begin the session. If you need to stop the session for any reason, hit the **"S"** key.



6. At the end of the session, the Scoring Screen will appear.



7. Click **"Close"** to return to the Session Screen to conduct another session. The **"Esc"** key exits the software at any time.

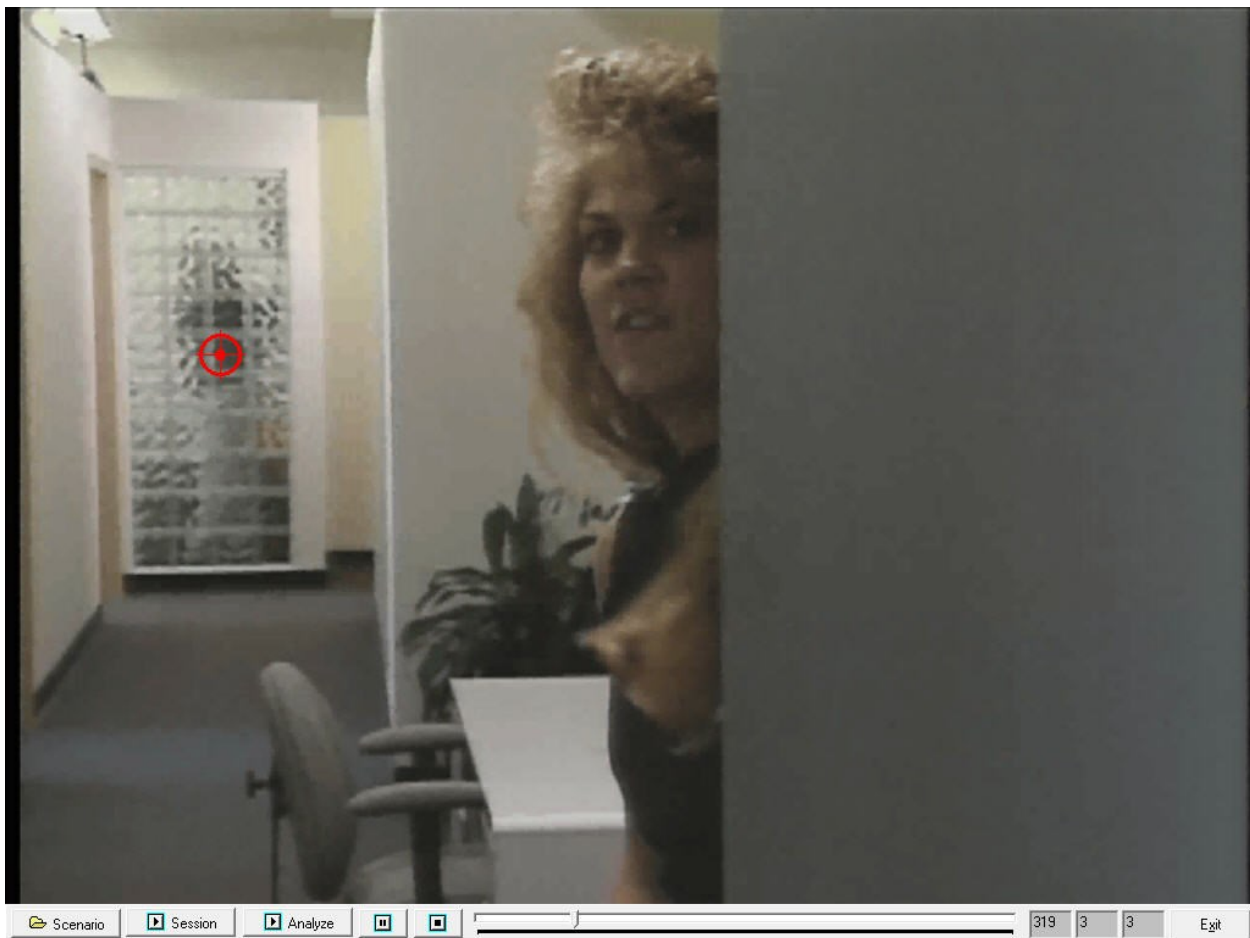


Movie Player

The **Movie Player** operates judgmental scenarios with playback indicating shot location. The software includes a selection of pre-recorded scenarios and allows the creation of custom scenarios by the user.

**NOTE:** The Movie Player does not provide for branching as does the Judgmental Video Scenario Player, but it does allow you to create your own custom videos and record shot locations.

1. Click the Scenario button in the menu bar located along the bottom of the screen.
2. Select the scenario to be run. The scenario may be selected from the included library or a custom creation from the user.
3. The scenario will run and should be interacted with by the user appropriately.
4. At the end of the scenario, click "**Analyze**" to playback the interaction of the user. The software will automatically pause after each recorded shot. Clicking "**Analyze**" again will continue the playback to the next recorded shot.



## Movie Player - Advanced Mode

### Create Custom Video Scenarios

1. Record the scenario desired with your digital video camera.
2. Import the movie to your computer as a digital movie file (Mpeg-1, Mpeg-2, Mpeg-4, AVI, WMV, Quicktime) by connecting the video camera directly to the Computer through the USB port. Camera manufacturers often provide proprietary software that will allow you to import the movie as a digital movie file.
3. After the digital movie file is imported, copy it to the following directory:  
**C:\Program Files\BEA MHIT\BEA MHIT390V6\MoviePlayer\Sample\_Video**
4. Double click the Movie Player Icon on your desktop.
5. Select "**CONNECT**" (or DEMO mode) and proceed.
6. Click the button labeled "**Scenario**".
7. Select the desired file from the "**Open File**" dialog box, and double click to open.
8. The newly created video will now run automatically on the 390 System.

**NOTE:** If your movie file is not one of the formats listed above, the file must be converted. The 390V6 program will not convert it automatically. Refer to the video editing software provided with your camera or device for specific conversion instructions.



Mouse Click

The **“Mouse Click”** software enables you to use third party applications with the 390 System to interact with your own projected targets (on a 1024x768 projection screen) by translating a laser pulse into a “mouse click event”. A simple example follows:

1. Double-click the “Mouse Click” icon. The LDD setup screen will appear.

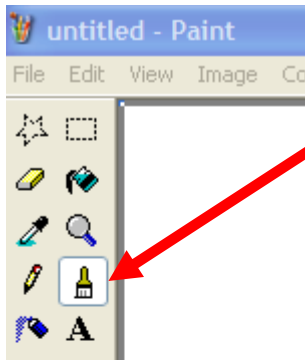


2. **“Mouse Down Time”** is the only selection available. It can be set to a millisecond value between 0 and 2,000 (in graduations of 50 milliseconds). When the software receives data from the LDD (a laser hit on the 1024x768 projected screen), the software creates a mouse click event at that location. The event is a mouse down event, delay (set by the mouse down time parameter) and mouse up event. If you want to have a fast click, mouse down time number should be small. If you want to have a slow click, it must be high.

3. As soon as the LDD connection is established by clicking the **“Connect”** button, the MouseClick software window is minimized. As long as MouseClick is running, a mouse click event will be created for any laser hit on the projection area. You need to be careful about using a laser in constant on mode or any bright light reflection towards the projection, which may cause a consequent mouse click at certain locations. You can close the software by maximizing it and then clicking **“X”** on the upper right corner.

**NOTE:** Do not run Mouse Click software while another 390 application is running.

## Mouse Click - Advanced Mode

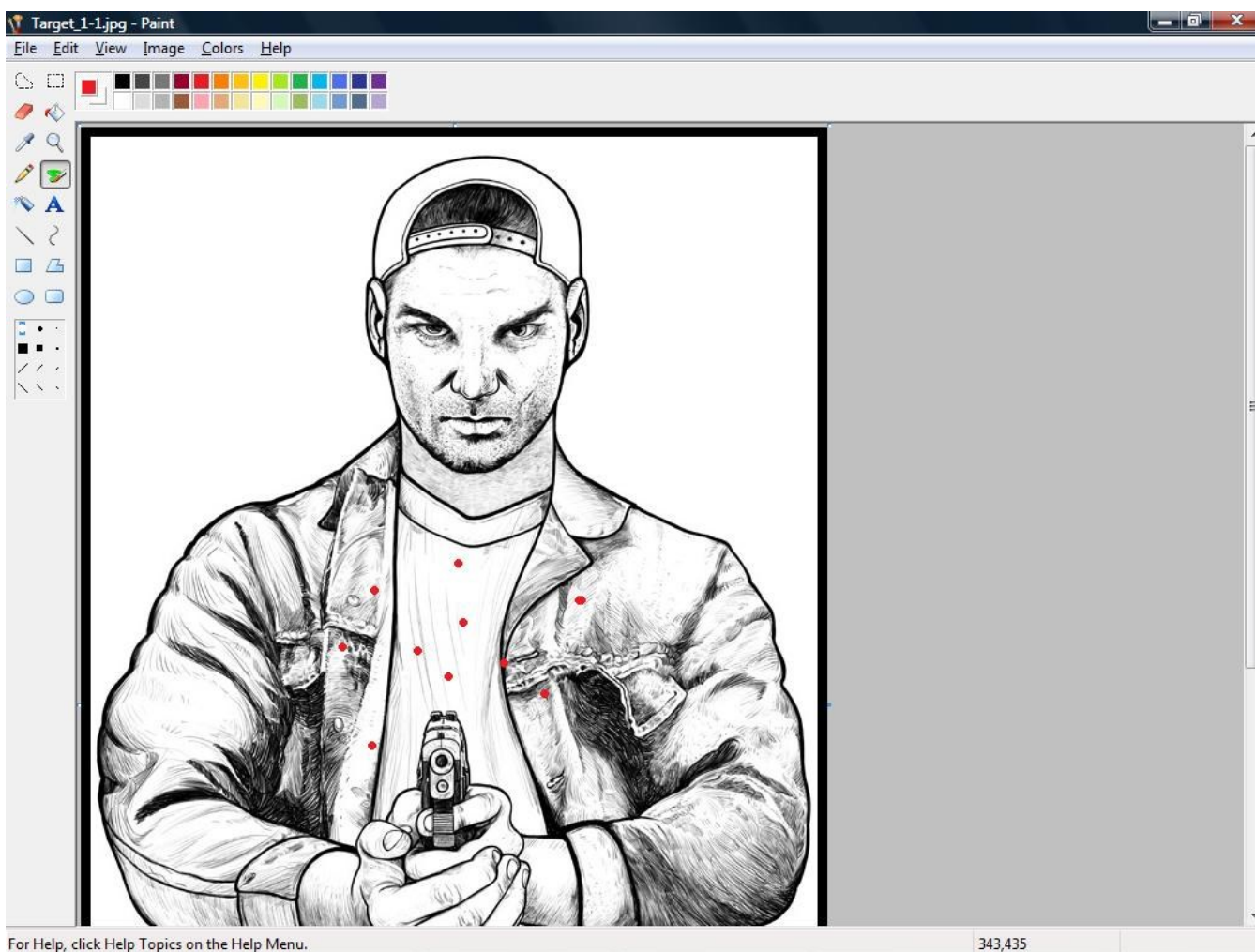


4. Open MS Paint and then open the image you wish to project as a target.

Select the brush and red color.



5. Now any laser hit on the projected target will appear as a red dot.



**SAFETY PRECAUTIONS**

Your system includes a Laser Transmitter compliant with FDA Safety Standards for Laser Products under 21 CFR chapter 1, subchapter j.

Before using this system, please read these operating instructions carefully. Follow all safety precautions and warnings.

Never use the Laser Marksmanship Training System (LMTS) with live ammunition!

Clear your firearm before using the LMTS. Always store ammunition separately.

Never look directly at the laser beam.



**CAUTION** - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure

### Laser Controls



- 1- Battery Access**
- 2- Mode Selection Toggle Switch**
- 3- Mode Display LED**
- 4- Zeroing Adjustment ( 2 axis, 4 screws—UP /DOWN /LEFT /RIGHT)**
- 5- Laser Output**
- 6- Label**
- 7- Transmitter Rod Attachment**

### Basic Functional Description

- Compatible with all BEAMHIT LMTS targets.
- External Laser with zeroing adjustment - Emits visible Red Laser for zeroing the laser to the firearm sights easier.
- Adaptable to most common pistols and rifles with proper Laser Transmitter Rods included with the system.
- The LS101 laser is activated by sensing the vibration caused by the trigger fall of the firearm. The laser will emit a pulse at each subsequent pull of the trigger allowing a real-time simulation of a bullet being fired.
- The LS101 Laser is for indoor training or limited outdoor training.

**NOTE:** Minimal use of the “zero” or constant on mode will maximize battery life.



## Mode of Operations

The mode of operation of the LS101 laser can be selected by using the mode selection toggle switch. The laser toggles between modes; OFF -> Train -> Zero -> Back to OFF and so on.



**OFF:** Mode selection display LED is OFF. No laser output. This is not a storage mode. it is recommended to take the batteries out before storage.



**Train:** Mode selection display LED is Red (may not be easily visible under high environment light, such as outdoors). The LS101 emits a single laser pulse per vibration generated by the firearm trigger fall. This is the training mode.



**Zero:** Mode selection display LED is Green (may not be easily visible under high environment light). The LS101 emits constant laser output for zeroing the laser to the firearm sights using zeroing adjustment screws.



***Do not look directly into the laser light or aim at anyone in the zeroing mode.***

### Preparing the Laser for Use

1. Three (3) type LR-44 or equivalent batteries are used to power the LS101.

#### **BATTERY PRECAUTIONS**

- *Batteries must be inserted with correct polarity.*
- *Do not mix different types of batteries.*
- *Do not charge, short circuit, disassemble, heat or dispose of batteries in fire.*
- *Always replace all three batteries at the same time.*
- *Always remove batteries prior to storage to eliminate the possibility of corrosion due to damage from leaking batteries.*



2. Remove the battery cap by turning it Counter clockwise.

3. Check the battery springs on the cap and inside the laser for possible deformation from previous usage.

4. Insert the batteries (3) with the correct polarity as it is shown (negative goes in, positive on the cap).





**5.** Close the battery cap by turning it clockwise. The cap should turn smoothly. Hand tighten, ensuring not to cross-thread. Do not use a tool to tighten the battery cap.

**6.** Function test the Laser

- Toggle the mode selection switch and ensure the laser transmitter emits a constant beam when in the **Zero** mode.
- Toggle the mode selection switch to the **Train** mode and gently tap on the back of the laser. Ensure the laser emits a pulse when tapped.
- If you have any functional problems, try replacing the batteries and check for any deformation on internal battery springs. Visit our website [www.beamhit.net](http://www.beamhit.net) for further assistance.

**7.** Select the proper caliber rod for the firearm you will be attaching the laser.

Note: MCR-ML will be used as an example in this user manual to describe the firearm attachment process.



**MCR-SM-L (.22 to .32 Caliber Rifle)**



**MCR-SM (.22 to .32 Caliber)**



**MCR-ML (.357 to .45 Caliber)**

## Appendix A: LS-101 Laser



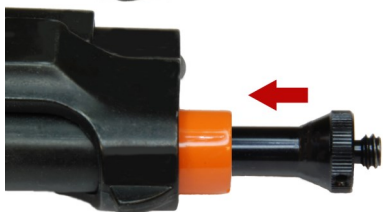
**8.** Expand the selected multi-caliber rod slightly larger than the firearm barrel diameter by turning the back piece clockwise.

Please use your fingers. Do not try to use tools.

**NOTE:** BEAMHIT Multi-Caliber rods are designed from soft aluminum and plastic to prevent any damage to the firearm barrel. Do not force, bend or expose the multi-caliber rods to high temperature. This will increase the life of the rod and prevent damage to firearm barrel.

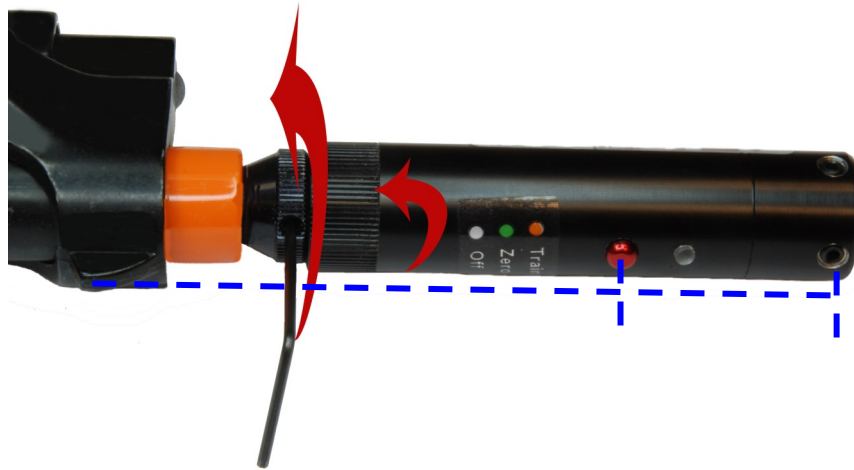


**9.** Place the rod to the tip of the barrel. While slightly pushing the rod into the barrel turn the rod in counter clockwise direction until the rod starts to move in to the barrel. Then, stop turning the rod but continue pushing.



**10.** When the rod is completely seated in the barrel, turn the rod in clockwise direction to expand the plastic extension and secure the rod in to the barrel. DO NOT OVER TIGHTEN!

**11.** Use the Allen wrench included with the system to keep the rod from turning while attaching the laser to the rod by turning in clockwise direction. When the laser is securely attached to the rod, turn the rod in clockwise direction using the Allen wrench until the top of the laser is aligned with the firearm front sight. Do not turn the rod more than 1 turn and overly tighten the rod to the barrel. This will prevent damaging the rod.



**Zeroing the LS101 laser to the firearm sights :**

The zeroing process is required for each selected training distance. Because of the parallax, this process must be repeated with an alternate aiming point as the training distance changes.

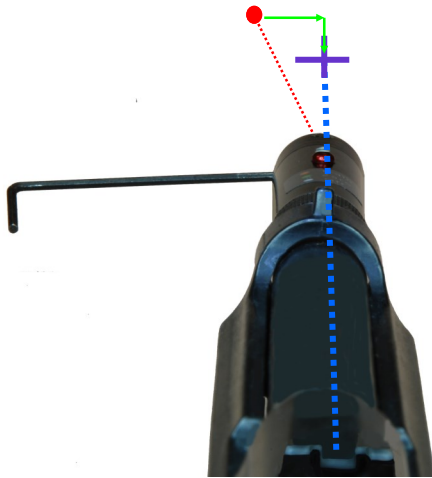


There are 4 zeroing adjustment screws located at the front of the laser. The adjustment screws are also designed to hold the laser diode locked in place and keep the zero.

## Appendix A: LS-101 Laser

To be able to move the laser in any direction, all 4 zeroing adjustment screws need to be loosened using the Allen key included with the system. This will allow the internal laser diode to move angularly when any of the 4 adjustment screw is tightened. Be careful not to loosen the set screws excessively to avoid loss should they come out.

**NOTE:** The above example will be used to describe the zeroing process (The laser is pointing to the left and higher than the aiming point).



**NOTE:** After initial zeroing, minimal changes, if any will be need for future training sessions.



The goal is to move the laser spot to the aiming point. The picture on the left shows the properly zeroed laser to the sight picture or the aiming point.

- 1.** Identify your training distance. Set the laser mode to Zeroing then aim the laser to the selected target at training distance (white background is preferable to be able to see the laser spot comfortably).
- 2.** Look through firearm sights and identify which direction you need to move the laser spot. For our example we are assuming it needs to move right and down.
- 3.** Loosen all 4 zeroing adjustment screws by turning them CCW direction for complete one turn.
- 4.** While loosening the right adjustment screw, tighten the left screw until the laser spot roughly zeroed for the horizontal axis.

**NOTE:** During zeroing process the laser can turn off if the screws are loosened more than needed. Tighten the screw back, turn on the laser and continue.



## Appendix A: LS-101 Laser

5. Make sure that left and right screws are not very tight and the laser diode is free to move up and down.
6. While loosening the bottom adjustment screw, tighten the top adjustment screw until the laser spot is roughly zeroed for the vertical axis.
7. **Fine adjustment:** By loosening and tightening all four adjustment screws finalize the zeroing process. All four screws should be tight, locking the laser diode in place at the end of this process. Do not over tighten, instead firmly seat the locking screws.



8. Confirm your sight picture.
9. Set the laser to Training mode and confirm that the laser is generating a single laser pulse for every trigger pull.

**The firearm is ready for Training !**



## Appendix B: Troubleshooting & Maintenance

LMTS products are manufactured to provide years of dependable use. If for some reason the product needs to be repaired and is still under warranty, please contact AFG Training Technology, LLC at [www.beamhit.net](http://www.beamhit.net) for a return authorization (RMA) number. Remove the batteries and return the product securely packaged. In the event the product is not covered by warranty, you will be notified as to the nature and cost of the necessary repair.

**For technical support**  
**[www.beamhit.net](http://www.beamhit.net)**

	<b>ERROR</b>	<b>PROBABLE CAUSE</b>	<b>CHECK</b>	<b>CORRECTIVE ACTION</b>
<b>1</b>	Connection Error Incorrect IP Address Error Msg 10060	X-Over Ethernet cable failure	Verify correct cable and serviceability	Replace with correct X-Over cable
		LDD IP address incorrect	Verify IP address on LDD	Re-calibrate with correct IP address
		LDD Power supply failure	Check Power supply and verify LDD power light illuminated	Replace power supply if needed
<b>2</b>	Error Msg 10061	Port Connection problem	Verify LDD Power source	Replace power supply if needed
		X-Over Ethernet cable disconnected	Verify cable connections	Power down LDD and reconnect X-Over cable. Wait 30 seconds and restart.
		Momentary power loss to LDD	Verify LDD Power source	
		Multiple 390 software packages running	Verify no other 390 programs running	Shutdown all programs and wait 30 seconds before starting other programs
		Anti-Virus or firewall blocking program port 4233-4235	Check to see if Anti-Virus or firewalls have been installed	Check with system Administrator

## Appendix B: Troubleshooting & Maintenance

	ERROR	PROBABLE CAUSE	CHECK	CORRECTIVE ACTION
3	Hits not displayed	LDD Lens cover not removed	Check LDD	Remove Lens cover and re-calibrate
		LDD out of focus	Check calibration screen	Re-calibrate
		Laser power low or not working	Is laser pulse visible to naked eye?	Test laser on another BEAMHIT target and/or replace battery
4	System stops receiving hits	Improper calibration due to changes in lighting conditions	Have extreme changes occurred since initial calibration?	Re-calibrate
5	System received machinegun fire hits without a laser	Improper projector set-up		Allow projector to attain full brightness before calibration of system
		Outside light source striking hit detection area	Observe screen for bright spots or speckling on ESD screen indicating an outside light source	Adjust training area to eliminate outside light source and re-calibrate
		System is too close to the projection surface	Verify tripod is within acceptable range	Place LDD/Projector 8' 4" from the projection surface
6	System stops responding	Communication error	Observe the computer function light for activity ( <i>Note: This may take up to 30 seconds to complete a shutdown of</i> )	Wait to see if an error msg is displayed. Re-start the system
7	Videos freeze	Inadequate Video card	Verify Graphics memory is min 128MB (XP) or 256MG (Vista and	Replace with correct card

## Appendix B: Troubleshooting & Maintenance

	<b>ERROR</b>	<b>PROBABLE CAUSE</b>	<b>CHECK</b>	<b>CORRECTIVE ACTION</b>
<b>8</b>	System locks up or has frequent crashes	Computer speed and memory not sufficient	Verify Computer has 1.5 GHZ Processor with 512MB RAM with Win XP; 2.0 GHZ with 1GB RAM with Vista or Win 7	Up-Grade Computer as required
<b>9</b>	Hits appear off center Hits appear off center	Using projector with a paper target program	Verify correct software program is running	Use correct software
		LDD out of adjustment or poor calibration	Verify LDD connections are tight and calibration is accurate.	Re-tighten and Re-calibrate 9-point calibration as necessary.

**CAUTION:** Repairs should be completed only by our Technical Support Team.



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**Technical Support**

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