

3.D.S Ltd.
Interactive Solutions



uMote™

TOUCH SCREEN PROXIMITY & GESTURE DETECTION KITS

uMote™ INSHOP - INTERACTIVE SHOP FLOOR APPLICATION KIT

uMote™ SHOPFRONT - INTERACTIVE SHOP FLOOR & DISPLAY WINDOW
APPLICATION KIT

Installation & Configuration Guide

uMote™ turns any existing 22-64 inch display into an interactive display solution.

You can have either a large interactive through-the-window, or internal touch screen proximity display, without having to touch the actual display screen.

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July 2009

Manufacturer: 3.D.S Ltd.

Models: uMote Window Display and Shop Floor.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This Class A/B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A/B est conforme à la norme NMB-003 du Canada.



Changes or modifications not expressly approved by 3.D.S Ltd could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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Introduction

Congratulations on choosing uMote™ as your interactive display solutions kit.

Scope of this Document

This document is intended for the purpose of installing and configuring the uMote system. The system however has been designed specifically to be simple enough to be installed by any technically minded person.

What is uMote?

uMote is a unique touch-screen proximity hand gesture detection kit, enabling you to use finger pointing or hand gestures instead of the standard computer mouse, without ever having to actually touch the screen.

The kits can be attached to any 22 to 64 inch standard LCD / PLASMA screen, providing the customer with a non obtrusive touch screen solution which does not interfere with the original design of the LCD / Plasma screen. You can install uMote behind a shop front window or inside the customer's premises on the shop floor. If installed on the shop floor an optional glass screen is used to safeguard the display screen.

You can either use an internal PCI video capture card or two external USB video grabber dongles, as your computer may not have an extra PCI slot available.

uMote is an attractive product that gives an excellent ROI (Return on Investment) that can transform any standard display window into a source of interest and fun.

Where you can use uMote?

Retail

shopFront

uMote shopFront turns your shop window into an interactive sales assistant and able to generate incremental revenues overnight. uMote shopFront is ideal to communicate with people passing your store window every day. Deliver your important messages and special deals to a fascinated audience causing them to enter the store.

inShop

Set your store apart from the rest of your competitors and maximize the opportunity to sell your products using uMote while customers are strolling through the store.

Digital Signage

Deploy uMote inShop or shopFront digital signage solutions to enhance your sales and marketing activities.

Business:

uMote can deliver important messages to customers, suppliers and staff.

On Campus:

Place uMote in busy locations to manage and keep an updated source of information for faculty members, staff, students and visitors on the campus.

Public Locations

Exhibition:

uMote is an excellent tool to draw potential customers to your exhibition stand and encourage visitors to browse the contents even when the stand is unattended.

Information Points:

uMote shopFront is ideal to communicate with people passing your information point every day. Deliver your important messages and special deals to a fascinated audience.

Unique Features

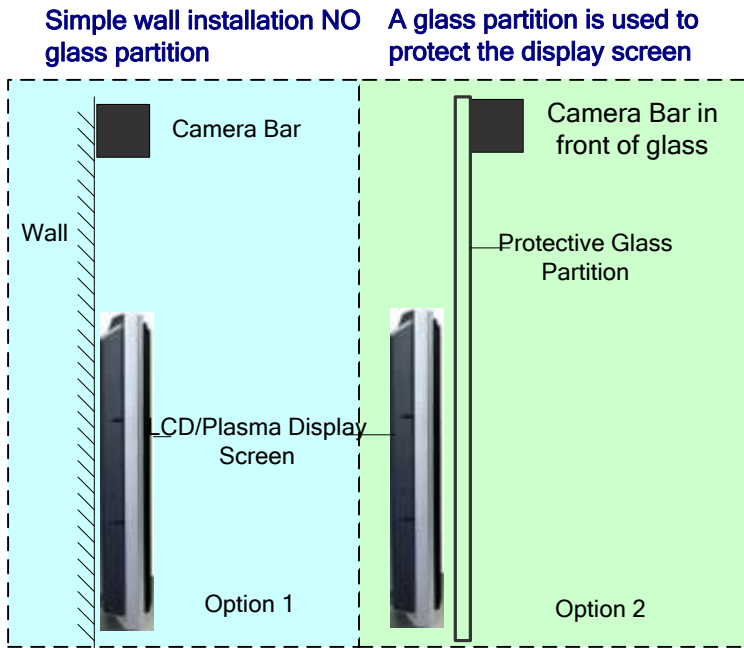
- ⊕ Proximity finger pointing (touching the screen is not required) & hand gesture detection technology
- ⊕ Natural air-touch interaction (not a Touch Screen)
- ⊕ uMote is environmentally safe as no physical contact with the display screen or window is required
- ⊕ Simply attached to any LCD/Plasma display
- ⊕ Ideal for upgrading existing LCD/Plasma displays into Touch-screen displays
- ⊕ Custom camera bar simplifies camera installation and setup

Main Features

- ⊕ Round-the-clock (24/7) interactive display
- ⊕ The uMote kit can work with a wide range of screen sizes (22 to 64 inch) with any aspect ratio screen format
- ⊕ Easy installation
- ⊕ No external wires or components are required as all uMote kit components are located safely and neatly behind the window/glass (uMote shop-Front kit only)
- ⊕ Uses either an internal PCI video capture card or two external USB video grabber dongles

uMote Installation Examples

uMote inShop



NOTE
The Camera Bar must be installed both parallel and centered over the display screen

The IR Illumination bar must be centered on the top of the display screen

uMote shopFront

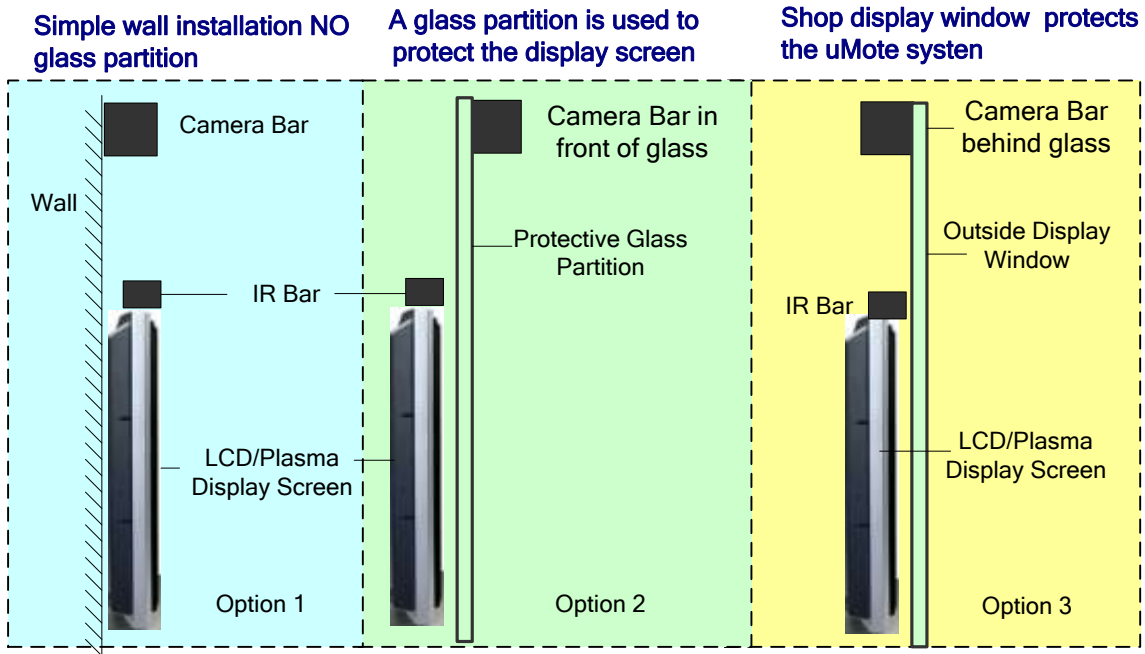


Figure 1: uMote Installation Examples

How to Contact Us

Support

sales@3DS-tech.com

Website

www.3DS-tech.com

Minimum Requirements

Minimum PC Requirements

NOTE

The processor and display card described below are only examples of the minimum requirements. Your computer can use any other similar or better processor or display card.

Hardware

Item	Minimum Requirement
Processor and Memory	
Processor	Intel(R) Core(TM)2 Duo CPU E8400 @ 3.00GHz (Dual CPUs)
Memory	2 GB RAM
Display Card	
Card Name	NVIDIA GeForce 8500 GT
Manufacturer	NVIDIA
Chip Type	GeForce 8500 GT
Display Memory	512 MB

Operating System

Windows XP or VISTA

Display Screen Requirements

You can use any make or size of LCD and Plasma screens.

Installing the Hardware

Packing List

There are two different types of kits you can order that includes the following items:

PCI Based Parts List

- ⊕ Camera Bar (containing two video cameras and 2 x 6m cables)
- ⊕ PCI video capture card
- ⊕ IR led illumination bar (uMote shopFront kit ONLY)
- ⊕ 12Vdc power adaptor for the cameras and IR bar
- ⊕ Installation CD

USB Based Parts List

- ⊕ Camera Bar (containing two video cameras and 2 x 6m cables)
- ⊕ Two USB video grabbers with required cables
- ⊕ USB flash drive dongle
- ⊕ IR led illumination bar (uMote shopFront kit ONLY)
- ⊕ 12Vdc power adaptor for the cameras and IR bar
- ⊕ Installation CD

The CD contains:

- ⊕ uMote runtime Application
- ⊕ uMote Demo Applications
- ⊕ PCI video capture card drivers
- ⊕ USB video grabber dongle drivers
- ⊕ AMCap video testing application
- ⊕ Installation Manual (copy of this manual)
- ⊕ uMote Datasheet
- ⊕ uMote Video Clips

Installing the Video Capture Hardware

NOTE

For the sole purpose of making this system easy to install and configure you can only run the system using the 3.D.S supplied video capture hardware.

There are two types of video grabbers available, an internal PCI capture card or two external USB video grabber dongles.

Installing the PCI Video Capture Card and Drivers

If you intend to install external USB grabber dongles instead of an internal PCI capture card, go to [Installing the External USB Video Grabbers](#) on page 8.

WARNING - ESD (Electro Static Discharge)

Do NOT remove the video capture card from its ESD packet until told to do so in the instructions below.

◆ **To install the video capture card:**

1. Ensure that the installation CD is in the CD reader.
2. Power-off the computer.
3. DO NOT remove the computer power cable.
4. Remove the left-hand side PC cover.
5. Place the ESD packet containing the video capture card against the metal frame of the PC to ensure no static electricity is present when removing the card from the packet.
6. Install the video capture card in an empty PCI slot.
7. Power-on the computer.

Installing the Video Capture Card Drivers

The wizard installs the multiple video capture card drivers eight times to support the multi real time capture characteristics of the video capture card.


IMPORTANT NOTE

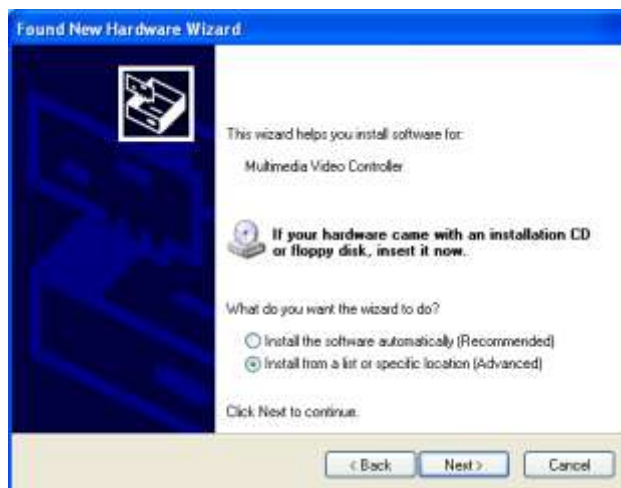
Because the video capture card is able to handle four audio and four video channels the following procedure may be performed from two to eight times depending on your PC environment.


◆ **To install the video capture card driver:**

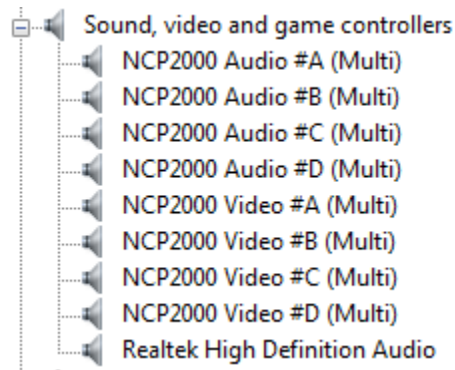
1. After installing the video capture card and powering on the computer you should receive this screen automatically.



2. Select **No, not this time**.
3. Click the  button.



4. Select **Install from a list or specific location**.
5. Ensure that the uMote installation CD is in the CD reader or that you know the path to the folder containing the drivers.
6. Click the  button
7. Follow the on-screen prompts to complete the driver installation.
8. The Device Manager should show the eight drivers as installed.



The drivers were installed successfully.

9. Go to [Installing the Display Screen](#) on page 10.

Installing the External USB Video Grabbers (Dongles) and Drivers

The USB based installation consists of two USB video grabbers and an USB Flash drive (dongle) containing important configuration information.

IMPORTANT NOTES

You can use a 3 or 4 port USB (2.0) hub if there aren't enough USB slots available on your computer.

◆ To install the USB grabber dongles:

1. Unwrap the two USB video grabbers.



2. Connect each of the USB video grabbers into a free USB slot.

You may have to use a USB hub if you do not have enough USB slots available.

3. Connect the supplied USB Flash drive (dongle) into a free USB slot.

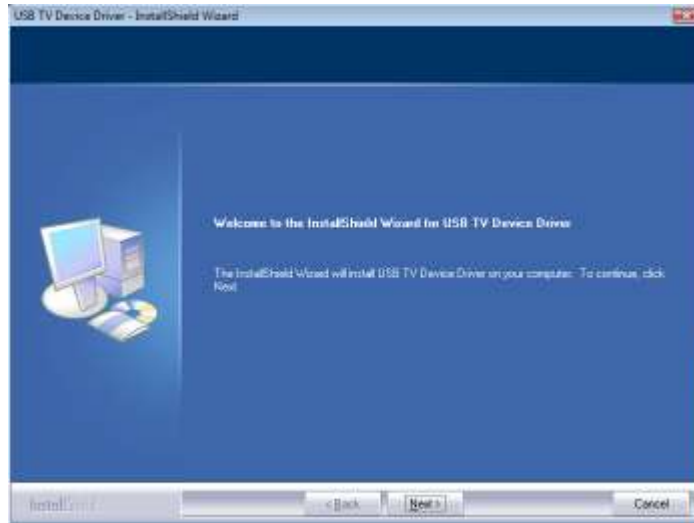


Installing the USB Video Grabber Drivers

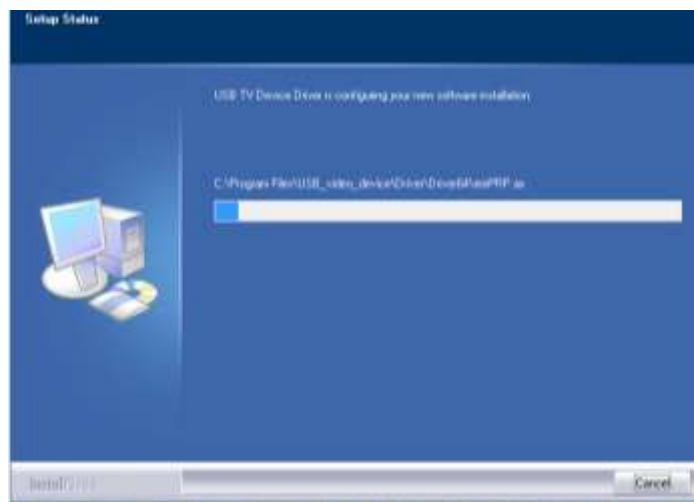
◆ **To install the USB video grabber drivers:**

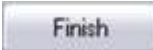
1. Run the following file from the installation CD:
uMote\3.5.5.6 uMote\Disk1\Drivers\USB2861\Setup.exe

Wait until the software loads and the following screen is displayed.



2. Click the  button.



3. Follow the on screen instructions until the driver is installed
4. Click the  button to restart your computer.
5. Go to [Installing the Display Screen](#) below.

Installing the Display Screen

The display screen can either be installed in a **suitable** location inside the customer's premises or inside a display window overlooking a street or thoroughfare, use Figure 1 on page 3 as a guide to determine the type of installation and type of uMote kit most suited to your requirements.

◆ **To locate the display screen:**

1. Locate the display screen 5 cm from and behind the display window or protective glass screen, in order to protect the display screen.

OR

Using a standard mounting bracket, mount the display screen on a shop floor wall.

2. Depending on the age and size of the audience, use Table 1 and Figure 2 below for an approximate height of the top corner of the screen from the floor or outside pavement.

Table 1: Display Screen Height Relative to Audience

Audience	Top of the Display Screen to Floor Level
Adults	140 cm (55 in.)
Small People	115 cm (45.3 in.)

Installing the IR LED Illumination Bar on the Display Screen (uMote shopFront only)

IMPORTANT NOTE

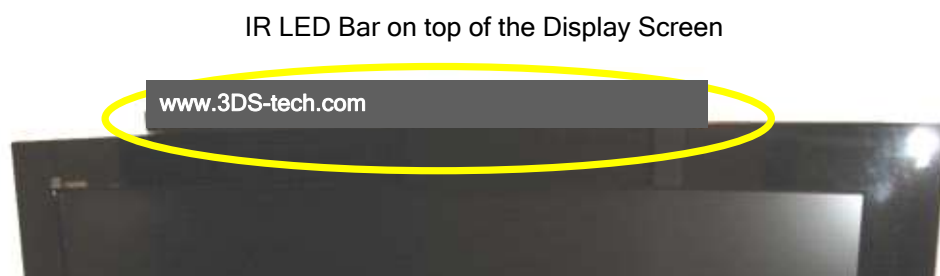
The IR-LED illumination bar is **ONLY** used when installing the uMote shopFront kit.

The inShop kit is installed inside the customer's premises and does not require an IR-LED illumination bar as the Camera Bar is installed in front of the optional glass screen protecting the display.

See Figure 1 on page 3 for examples.

◆ To install the IR LED illumination bar:

1. Unwrap the IR LED Illumination bar.



2. Secure the IR LED bar on top and middle of the display screen.
3. Connect the IR LED Bar power cable to the supplied external power supply.
4. Connect the other end of the external power cable to a working power outlet.

Installing the Cameras

There are two types of camera installation procedures:

- ⊕ Standard installation using the Camera Bar (next section)
- ⊕ Free standing installation for special conditions - for installing the cameras as free standing see, [Installing Free Standing Cameras](#) on page 33.

Installing the Camera Bar

The Camera Bar is installed on the top of the display window or on the ceiling, aligned with the cameras the same distance from either side of the display screen.

IMPORTANT NOTES

The positioning of the video cameras relative to the display screen depends on the type of lens used. See Figure 2 and Table 2 below for more information.

The standard lens supplied in the camera bar is 3.0 mm.

Only when the software is installed can you adjust the angle of the cameras visually to ensure a good FOV (Field of View).

◆ **To install the camera bar:**

1. Use Table 1 on page 10 as a guide to determine the height to install the display screen.
2. Use Figure 1 on page 3 as a guide to determine the type of installation and type of uMote kit most suited to your requirements.
3. Use Figure 2 and Table 2 below to determine and record the height of the Camera Bar above the display depending on the lens used.
4. Use Figure 3 below to mark the screw holes
5. Screw two screws almost into the wall or glass frame leaving enough space to hang the Camera Bar on.
6. Tighten the Camera Bar mounting screws as shown in Figure 4 below.
7. Remove the camera dust caps.

Only when the software is installed can you adjust the angle of the cameras visually to ensure a good FOV (Field of View)

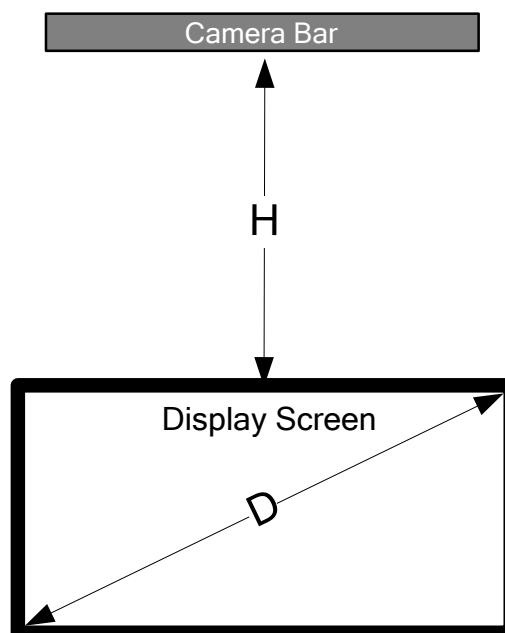


Figure 2: Camera Bar Installation Height Diagram

Use the table below to determine the height of the Cameras Bar depending on the lens type used.

Table 2: Camera bar Installation Height Chart

Lens	Formulae
3.0 mm	$H = 0.5 \text{ to } 0.75 * D$ (standard size)
4 mm	$H = 0.75 \text{ to } 1.0 * D$
6 mm	$H = 1.0 \text{ to } 1.25 * D$

* is the multiplication symbol

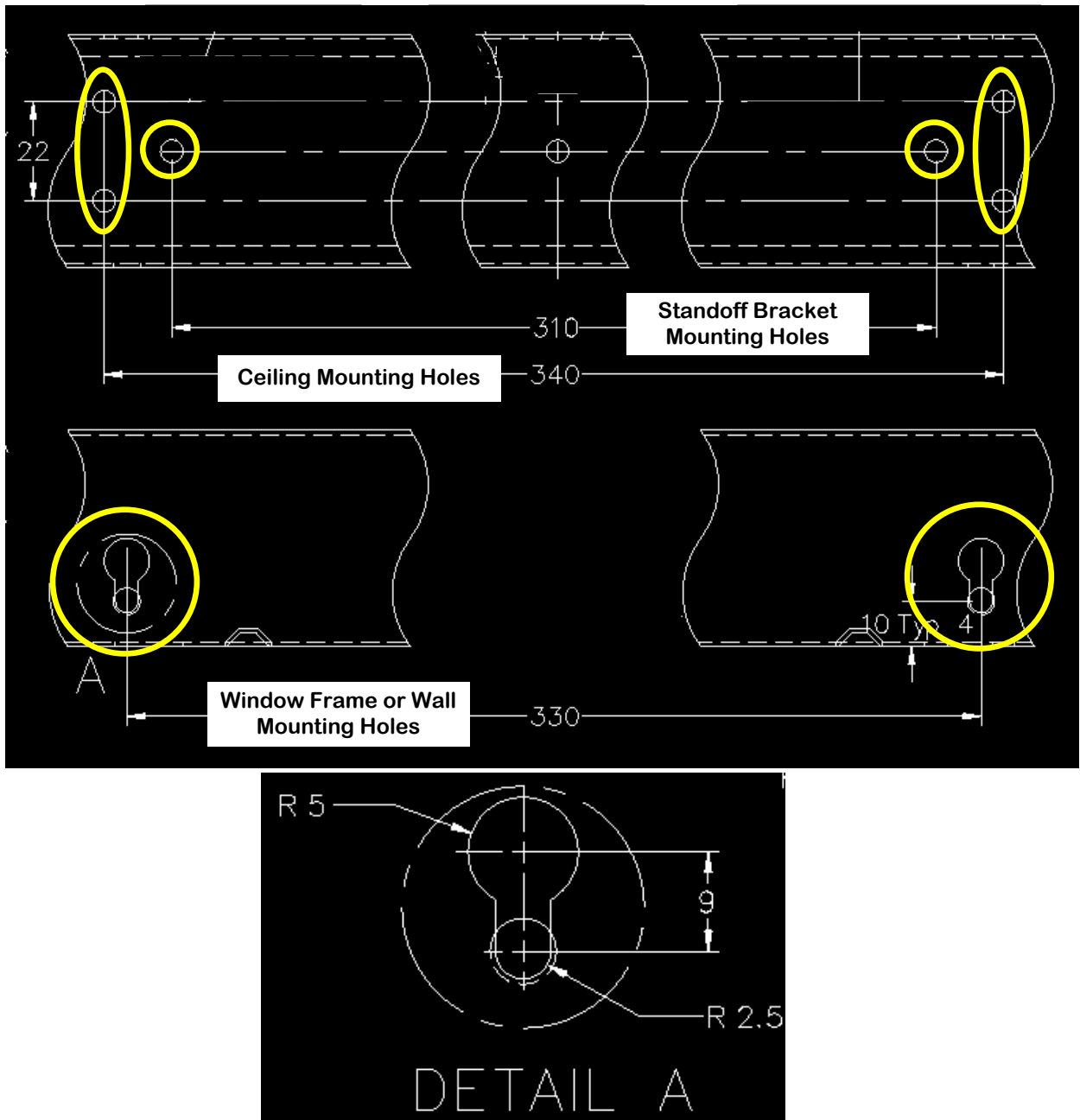


Figure 3: Camera Bar Mounting Hole Diagram

Securing the Camera Bar Mounting Screws

The figure below shows how to tighten securely the Camera Bar mounting screws.



Figure 4: Tightening the Camera Bar Mounting Screws

Connecting the Cables and Camera Power Supplies

Each camera has a video cable connected to the video capture card and a power cord connected to an external power supply.

IMPORTANT NOTES

The video cables are not marked as either L or R as they could be either. If required, they are swapped later during the FOV adjustment procedure.

The three other USB video grabber cables are NOT USED.

◆ To connect the camera cables:

1. Connect the camera power cables to the supplied multi-connection external power supply.
2. If you are using USB video grabbers skip the next step.
3. If you are using a PCI video capture card as your video device connect the cameras video signal cables (BNC Connector) to the PCI video capture card as shown in the figure below.

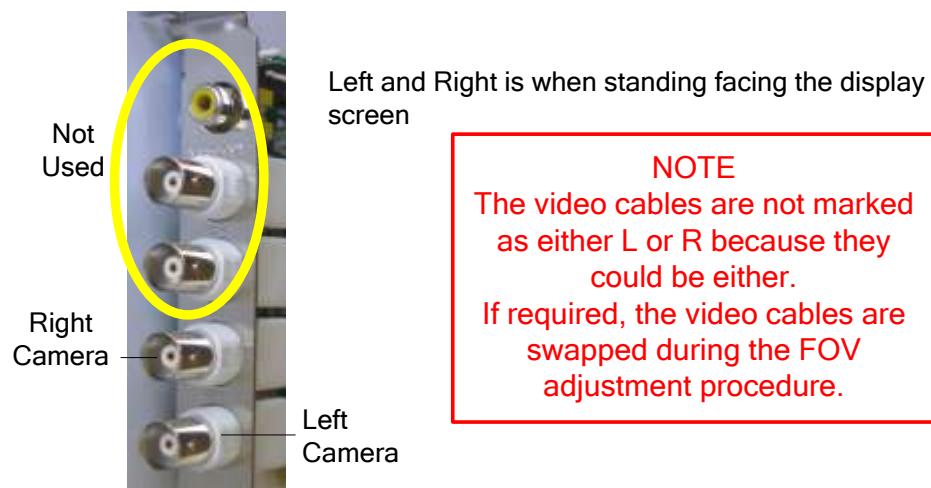


Figure 5: Video Capture Card Connectors

4. If you are using USB video grabbers as your video device, connect the video cable BNC connector from each camera to the YELLOW connectors on the USB video grabbers.

Checking the USB Video Grabber Camera Connections (AMCAP)

This section describes how to use AMCAP to check the uMote camera connections when using USB video grabbers as your video devices.

It is assumed that the USB video grabbers (dongles) are already installed.

◆ To run AMCAP:

1. Run the following file from the installation CD.
`uMote\3.5.5.6\Disk1\Drivers\AMCAP.exe`

2. Select the **Devices** tab.
3. If your USB video grabbers are both installed correctly you will see two lines marked as **USB 2861 device** displayed on the screen.

Each line represents one of the USB video grabbers.

4. Select one of the two lines to display the video signal from the camera connected to that USB video grabber dongle.
5. Select the other line to display the video signal from the camera connected to the other USB video grabber dongle.

If you can see both cameras clearly the cameras were installed successfully.

Installing the uMote Software

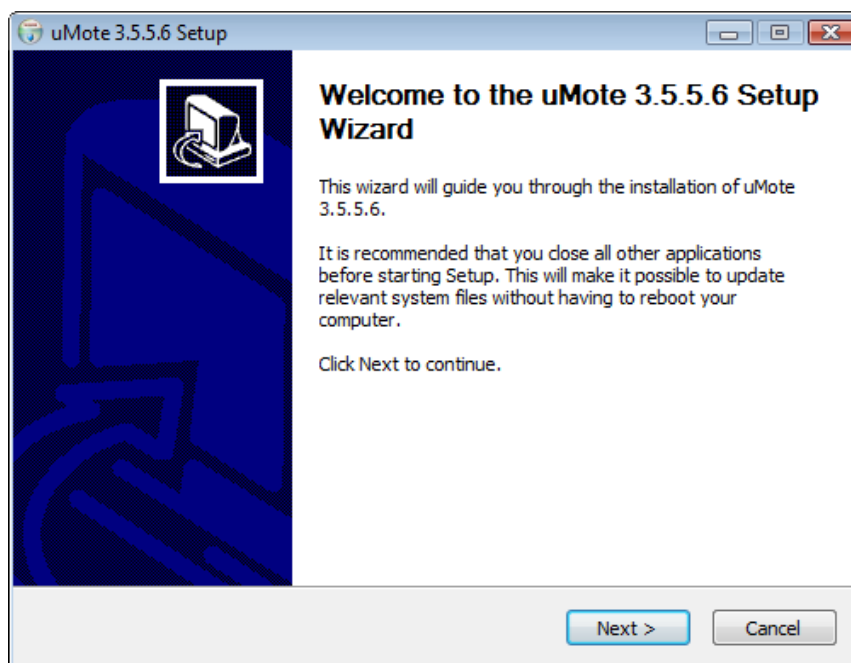
The software package includes a run-time program and a multiple examples package. These are installed together.

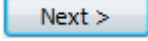
Software Requirements

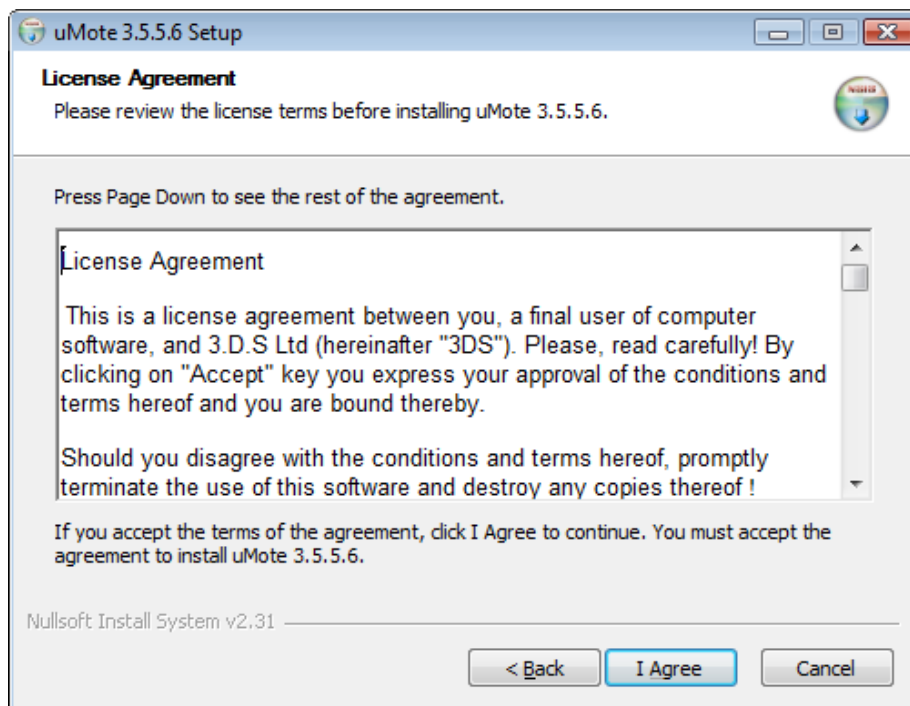
- ◆ Windows XP or Vista


Installing the uMote Software Application

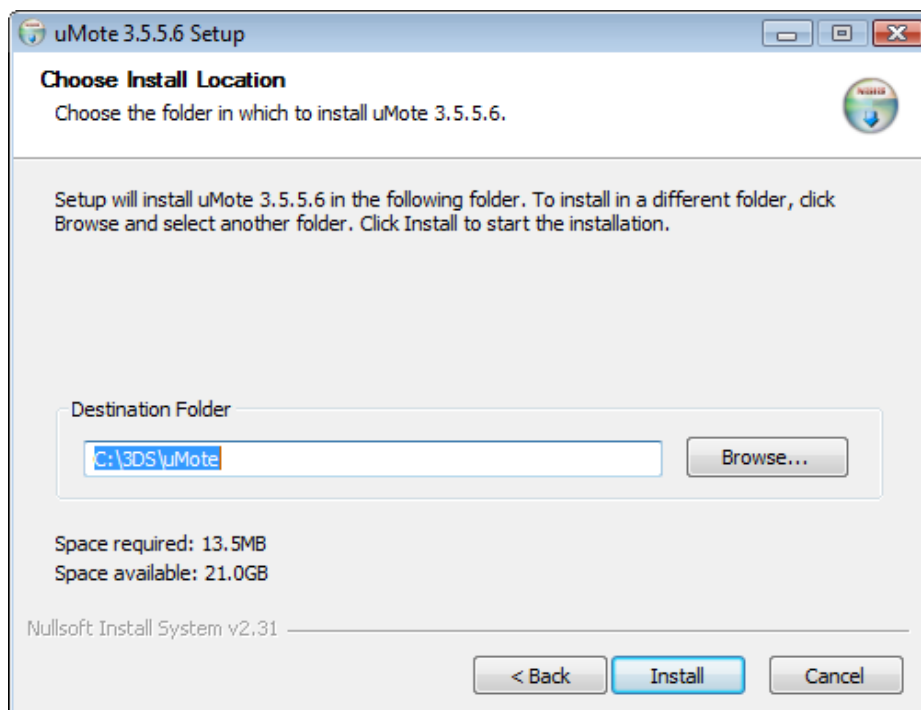
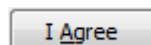
- ◆ **To install the uMote software:**
 1. Insert your Installation CD into the CD reader.
 2. Open the Installation CD and double-click the **uMote.exe** file.

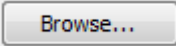



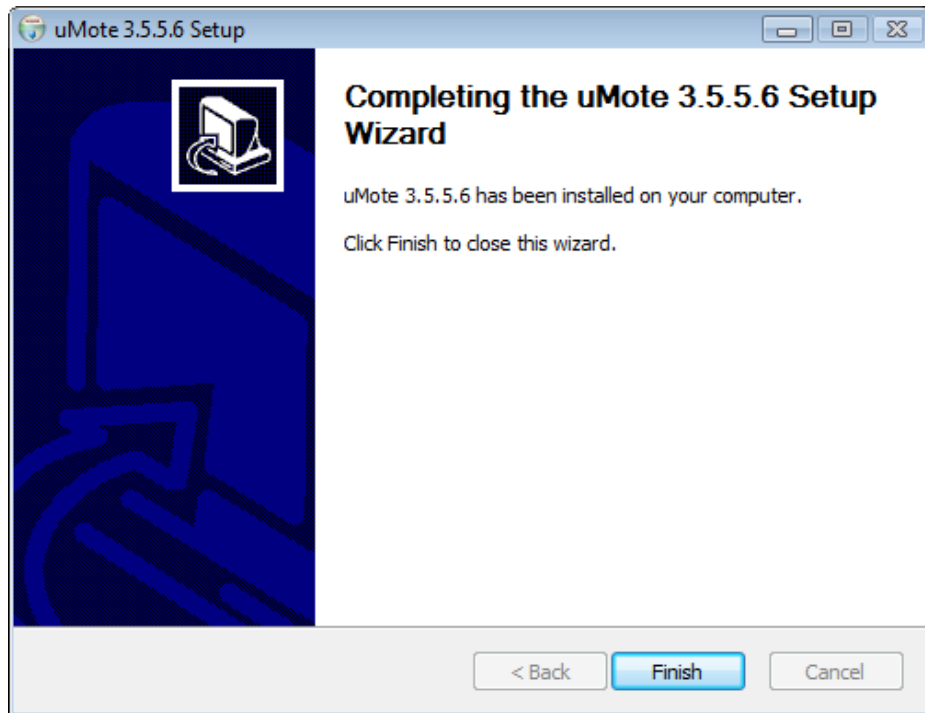
- Click the  button.




- Read the license agreement and if you agree click the  button.



5. Either leave the default folder path (**strongly recommended**) or click the  button to select another path.
6. Click the  button to continue.



7. Click the  button to complete the installation.

When the software is successfully installed the following icon  is placed on the desktop.

NOTE

When running uMote the application icon is placed in the system tray. There is no indication on the display screen to show that uMote is loaded and running.

Go to the next section to adjust the cameras.


Adjusting the Cameras

The FOV (Field of View) is the basic adjustment for the cameras and when done correctly ensures a proper response from anywhere on the display screen

Checking the Cameras Connections are NOT Swapped

The camera leads cannot be marked as either LEFT or RIGHT since you can install the Camera Bar on either the inside or the outside of the window or glass partition. When you rotate the Camera Bar 180° the left-hand camera becomes the right-hand camera and vice versa. This is not a problem, connect the camera leads temporarily on any connector and when performing the FOV adjustment they can be swapped to the correct positions if required.

◆ **To check the camera cables are not swapped:**

1. After ensuring that all the display and PC cables are connected, power ON the PC and the display.
2. Run the uMote application by double-clicking the  icon on the desktop and then double click the uMote icon in the system tray.
3. Place your hand under the left-hand camera.



4. If your hand is visible on the left hand side of the screen the cables are plugged correctly, if not swap the video cables.
For the PCI video capture card installation see Figure 5 on page 14.
For the USB video grabber installation see [Installing the External USB Video Grabbers \(Dongles\) and Drivers](#) on page 8.

Adjusting the FOV Using the Camera Bar

This section describes how to adjust the FOV when using the Camera Bar. The FOV is shown below in Figure 6 as dotted lines.

NOTE

Ensure that the Mask BG is not enabled. See [Advanced Configuration Settings](#) on page 24.

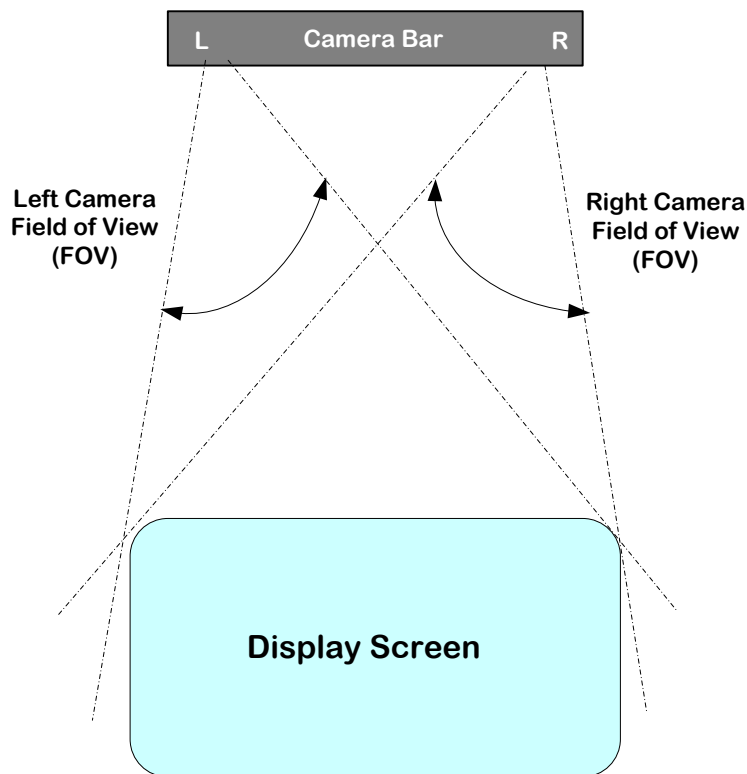



Figure 6: Camera FOV Adjustment Diagram for Camera Bar

◆ To adjust the FOV using the Camera Bar:

1. On the Camera Bar using the supplied Allen key loosen the **LEFT** and **RIGHT** camera locking and adjusting screws.
See Figure 7 below for the location of the adjustment screws.
2. Make an initial adjustment having the camera pointing down at approximately 30° , and then slightly tighten the adjusting screw.
3. If the **Calibration** screen is not already displayed, then from the **System Tray**, right-click the  icon.



4. Click Calibration
5. To adjust the left camera, place your finger on the **BOTTOM** left-hand corner of the screen.



6. Run your finger diagonally across the screen to the **TOP** right-hand corner of the screen.



7. If the adjustment is not correct adjust the **LEFT** camera either up or down and then repeat steps 5 and 6 above until you can see your finger at both positions.
8. Tighten the **LEFT** camera adjusting and locking screws.

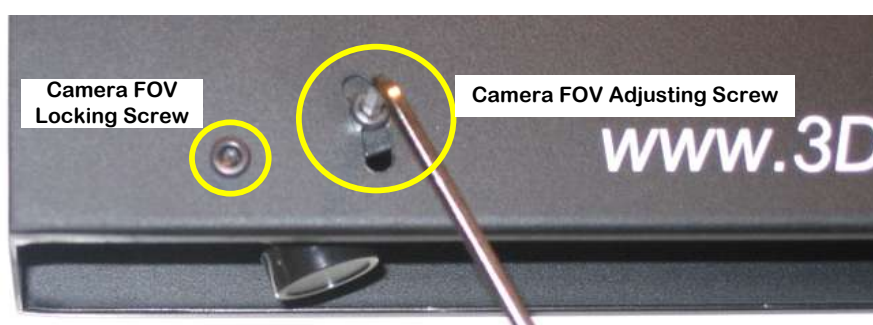


Figure 7: Using an Allen Key to Adjust the Left Camera's FOV

9. To adjust the right camera, place your finger on the **BOTTOM** right-hand corner of the screen.



10. Run your finger diagonally across the screen to the **TOP** left-hand corner of the screen.



11. If the adjustment is not correct adjust the **RIGHT** camera either up or down and then repeat steps 9 and 10 above until you can see your finger at both positions.
12. Tighten the **RIGHT** camera adjusting and locking screws.

The FOV adjustment is completed.

13. Go to [Configuring the uMote System](#) below.

Configuring the uMote System



Running uMote places a run-time icon in the system tray.

Basic Configuration Settings

IMPORTANT NOTE

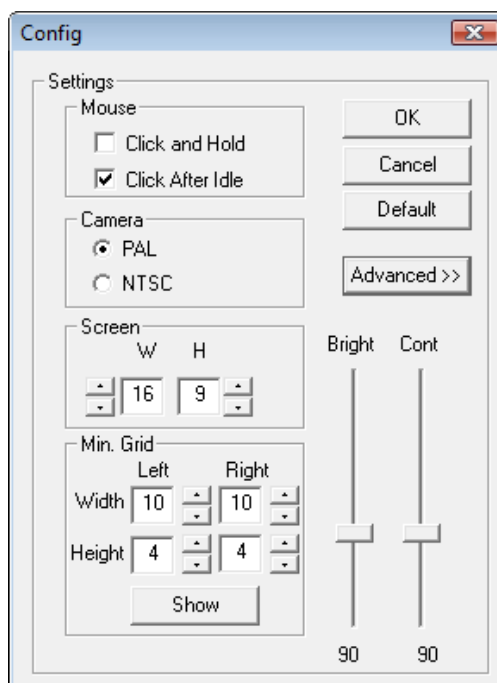
These factory default settings are designed to fit most types of installations and should only be changed when necessary.

◆ To configure the basic parameters:

1. From the desktop, double-click the  icon to run the uMote application.
2. From the **System Tray**, right-click the  icon.



3. Click **Config...**



4. Using Table 3 below as a guide, configure the basic system parameters.

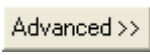
Table 3: Basic Configuration Parameters

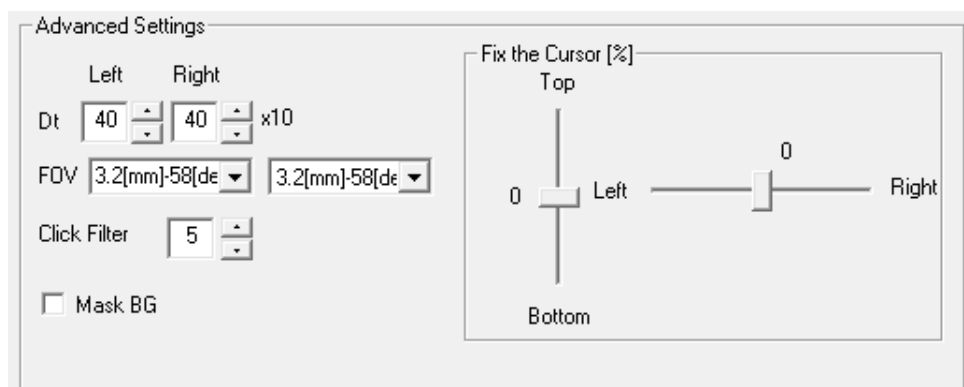
Fields	Description
Click and Hold	Use this mode if you intend to mainly use clicking and dragging capabilities. This mode is meant for those applications that require dragging windows and icons. When in this mode the system simulates a mouse click when your finger comes into the proximity of an application window. Moving your hand parallel to the screen causes the selected object to be dragged. Retracting your hand from the screen a mouse release is simulated, leaving the object in the intended position.
Click after Idle (default) (Recommended)	Use this mode if you intend to mainly use the clicking capabilities of an application using buttons. In this mode the system simulates a repeated mouse click sequence when pointing your finger on an application button. This sequence enables higher accuracy if you miss the button. If nothing happens, point your finger on the button again to repeat the click mouse sequence. Retracting your finger causes the repeated click sequences to stop.
Default	Sets all adjustments to the factory defaults.
Camera	Select between PAL or NTSC video standards.
Screen	Screen ratio. The default is 16:9 (1.78:1) the universal high-definition television and European digital standard.
Min Grid	This is the size of a typical half finger. Any smaller block of pixels is considered as noise.

Advanced Configuration Settings

These settings are only changed if you are experiencing difficulty.

◆ **To configure the advanced parameters:**

1. Open the **Basic Configuration** screen as described above.
2. Click the  button



3. Use the table below as a guide to configure the advanced settings.

4. Go to the next section [*Calibrating the uMote System*](#).

Table 4: Basic Configuration Parameters

Fields	Description
Dt	Detection sensitivity of movement. The smaller the number the higher the sensitivity.
FOV	Field OF View. This denotes the area from the top to the bottom of the display screen. This should cover the ROI (Region OF Interest). Use the values (focal distance): 62 for 3.0 mm lens (default) 58 for 3.2 mm lens 48 for 4.0 mm lens 39 for 5.0 mm lens 32 for 6 mm lens (The smaller the value denotes a wider angle)
Click Filter	A click is performed only if the user moves a hand toward the screen. The system ignores any retraction (pulling out) of a screen gesture. This parameter defines the sensitivity to the clicking gesture toward the screen. Increasing this parameter imparts more sensitivity to this type of motion. Lowering this parameter may increase false detections of any nearby movement as a gesture movement toward the screen.
Mask BG	Mask background. The ROI rectangle for each camera is masked black and only moving objects are displayed. This feature should ONLY be enabled after the FOV adjustment has been performed successfully. It is more difficult to adjust the FOV when enabled. Default is disabled (cleared).
Fix the Cursor	Enables you to make corrections on both the X and Y axis for the cursor so that your gestures correspond to the actual cursor.

Calibrating the uMote System

This section describes how to calibrate uMote and is divided into two sections:


- ✦ **Calibrating the ROI** (Region of Interest), set up the area where the finger / hand will be detected in close proximity to the front of the display screen.
- ✦ **Calibrating the display screen positioning system** synchronizes the finger / hand position to the position of the computer mouse cursor.

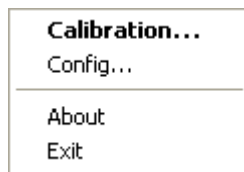
Calibrating the ROI (Region of Interest)

This section describes how to calibrate the Region of Interest in front of the display screen. Before you can calibrate the system the configuration must be performed.

To calibrate the system you must create an area enclosed in a white box so that any movement detected in the boxes activates the system and simulates the movements of the mouse.

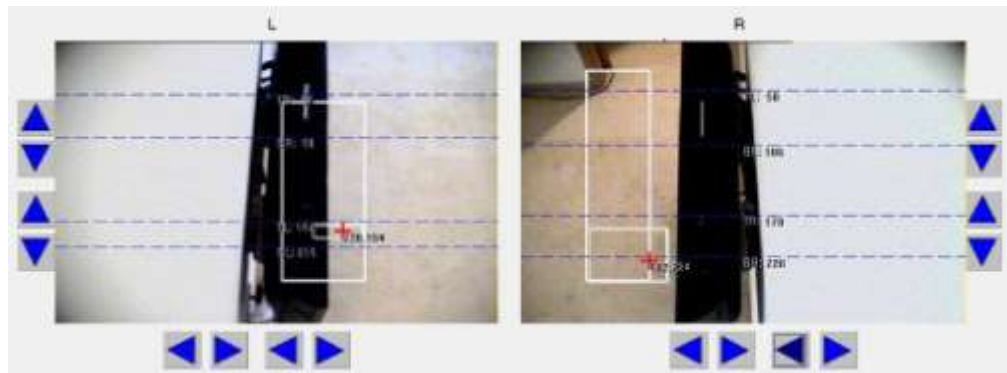
◆ To calibrate the ROI:



1. From the **System Tray**, right-click the  icon.

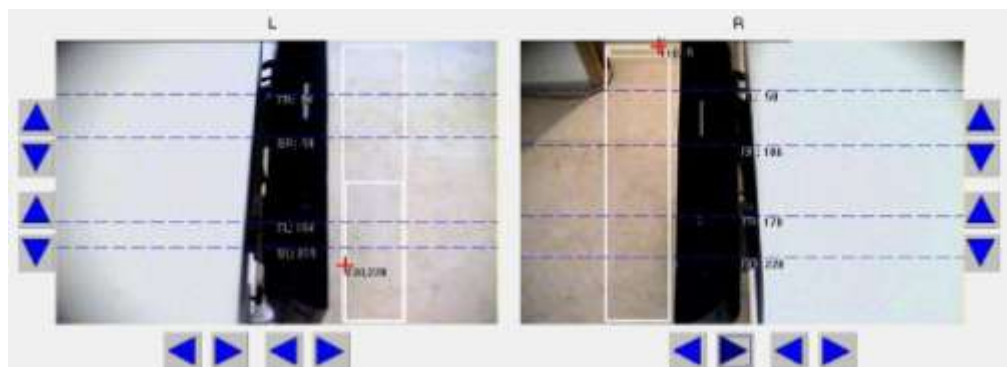




2. Click **Calibration...**

The steps performed below are to ensure the ROI covers the complete display screen. This means that the top and bottom of the display screen image corresponds to the top and bottom of the actual display screen.



3. Using the  and  arrow heads, move the white box's vertical sides left and right for both cameras until you achieve the desired position.



4. Using the  and  arrow heads, move the white box's horizontal sides up and down for both cameras until you achieve the desired position.



5. Move your hand up and down and ensure that the green Plus symbols moves up and down together with your finger.

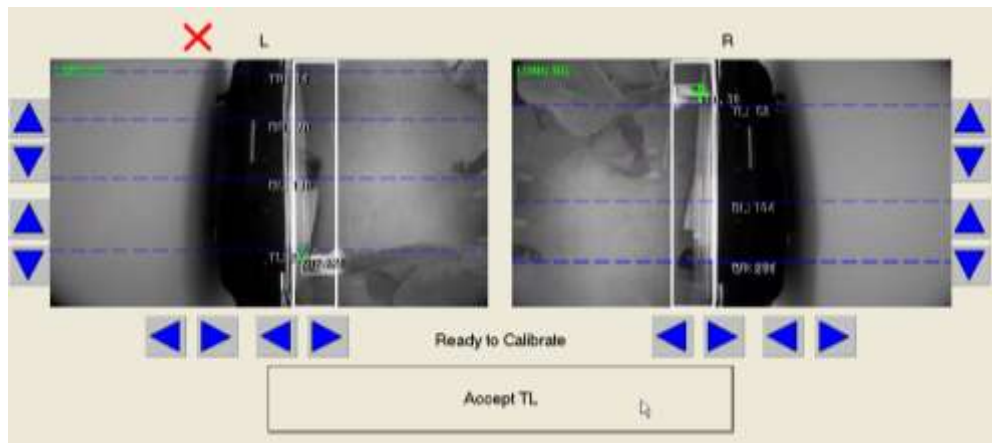
You can adjust the sensitivity of the cameras by adjusting the **Dt** and / or the **Min Grid** values but in most cases default values should work well.

Calibrating the Screen Positioning Mechanism

This section describes how to calibrate the system so that the hand gesture position corresponds to that of the mouse.

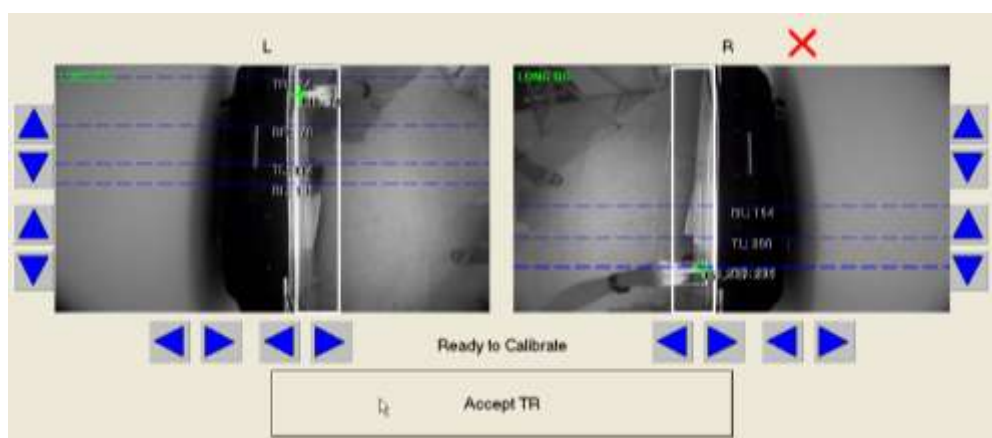
◆ **To calibrate the screen positioning mechanism:**

1. When you have successfully completed the above ROI calibration, click the **Start Calibration** button.



A large **RED X** is displayed on the top left-hand side of the screen waiting for your response.

2. Place the cursor in the **ACCEPT TL** box and point your finger at the red **X** at the top left-hand corner of the screen
3. When a green cross is shown on your finger tip (as shown), click the mouse button with the cursor on the **Accept TL** button at the bottom of the screen.

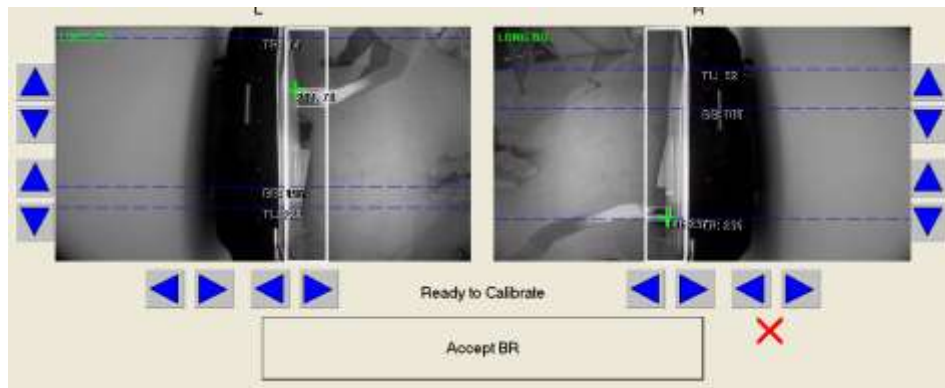


TL is registered and the **X** moves to the top right-hand side of the screen.

4. Place the cursor on the **ACCEPT TR** button and point your finger at the red **X** at the top right-hand corner of the screen.

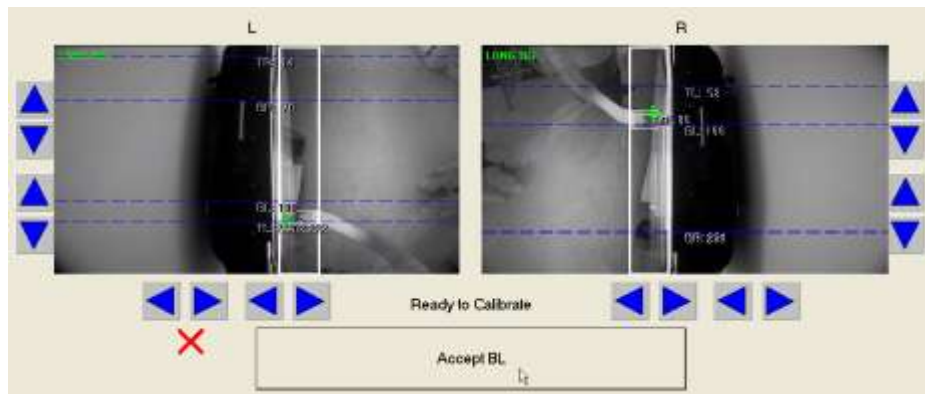
- When a green cross is shown on your finger tip (as shown), click the mouse button with the cursor on the **Accept TR** button at the bottom of the screen.

TR is registered and the **X** moves to the bottom right-hand side of the screen.



- Place the cursor on the **ACCEPT BR** button and point your finger at the red **X** at the bottom right-hand corner of the screen.
- When a green cross is shown on your finger tip (as shown), click the mouse button with the cursor on the **Accept BR** button at the bottom of the screen.

BR is registered and the **X** moves to the bottom left-hand side of the screen.



- Place the cursor on the **ACCEPT BL** button and point your finger at the red **X** at the bottom right-hand corner of the screen.
- When a green cross is shown on your finger tip (as shown), click the mouse button with the cursor on the large **Accept BL** button at the bottom of the screen.

BL is registered and the **system starts the configuration process**.

- Wait for the configuration to complete and the button to change back to **Start Calibration**, showing the calibration has ended.
- Go to the next section [Testing the System Using the Examples](#).

Testing the System Using the Examples

The examples shown below are used to test the uMote system.

Selecting a Frame at Full Screen Example A

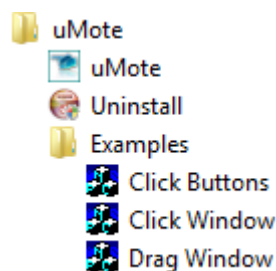
This is the basic test to verify a successful calibration.

◆ **To run the click window example:**

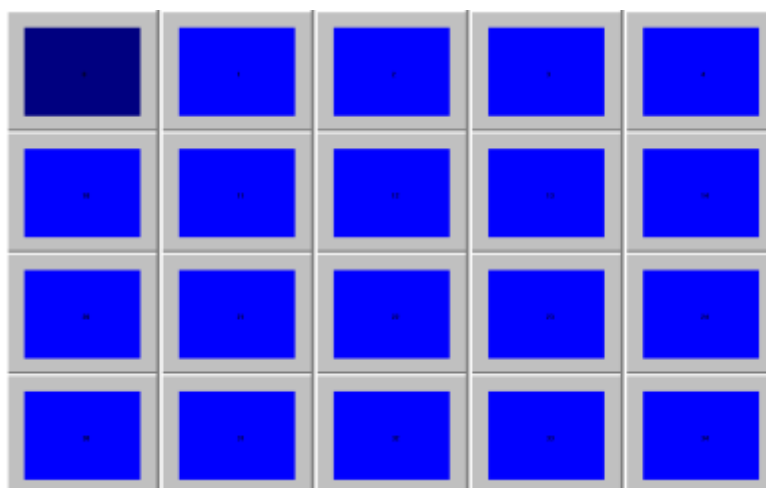
1. Click the **START** button, select **All Programs** and then click **uMote**.



2. Click the **Examples** folder.



3. Click the **Click Buttons** application.



4. Point at a random button, it should blink.
5. Move to another button and when your finger stops the button blinks again.

- Repeat this process for the other buttons until you are convinced that the system is working correctly.

If however you think the system is not working correctly repeat the [Calibrating the Screen Positioning Mechanism](#) on page 28.

Selecting a Frame at Full Screen Example B

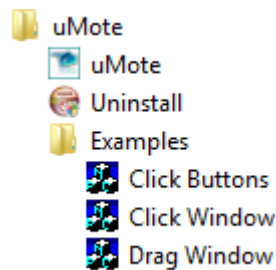
Pointing at any frame opens it to full screen. Pointing at a full screen frame causes the system to exit full screen mode.

◆ **To run the click window example:**

- Click the **START** button, select **All Programs** and then click **uMote**.



- Click the **Examples** folder.



- Select **Click Windows**.



- Point at any of the displayed frames.

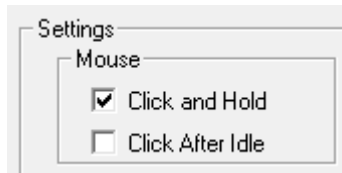
If the system is working correctly that frame should open to full screen.

Dragging Windows and Resizing Them

You can drag frames across the screen and resize them.

◆ **To run the drag window example:**

1. Ensure that the **Click and Hold** parameter is enabled.

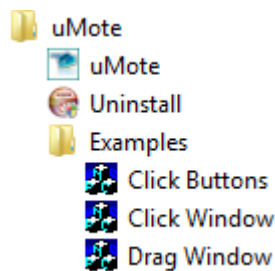


See **Basic Configuration Settings** on page 23.

2. Click the **START** button, select **All Programs** and then click **uMote**.



3. Click the **Examples** folder.



4. Select **Drag Window**.



Drag This Corner To Resize Image

5. Drag the corner as shown above to resize the image.

Installing Free Standing Cameras

Installing Free Standing Cameras

This section describes how to install the video cameras, NOT as part of the Cameras Bar, but free standing.

IMPORTANT NOTES

When installing the cameras as free standing it is recommended to use two swivel mountings.

The system can only operate at full performance when the cameras are kept parallel with one another and the camera pair installed centrally over the center of the display screen as shown in Figure 8 below.

Free standing cameras require three adjustments, elevation, tilt and rotation. For this reason we recommend using the Camera Bar whenever possible.

◆ **To install free standing cameras:**

1. It is assumed that the display screen is already installed in the required location. If not, see [Installing the Display Screen](#) on page 10.
2. Use Figure 8 and Table 5 below to determine the height before installing the cameras, depending on the lens used.
3. Remove the camera dust caps.

Only when the software is installed can you adjust the angle of the cameras visually to ensure a good FOV (Field of View).

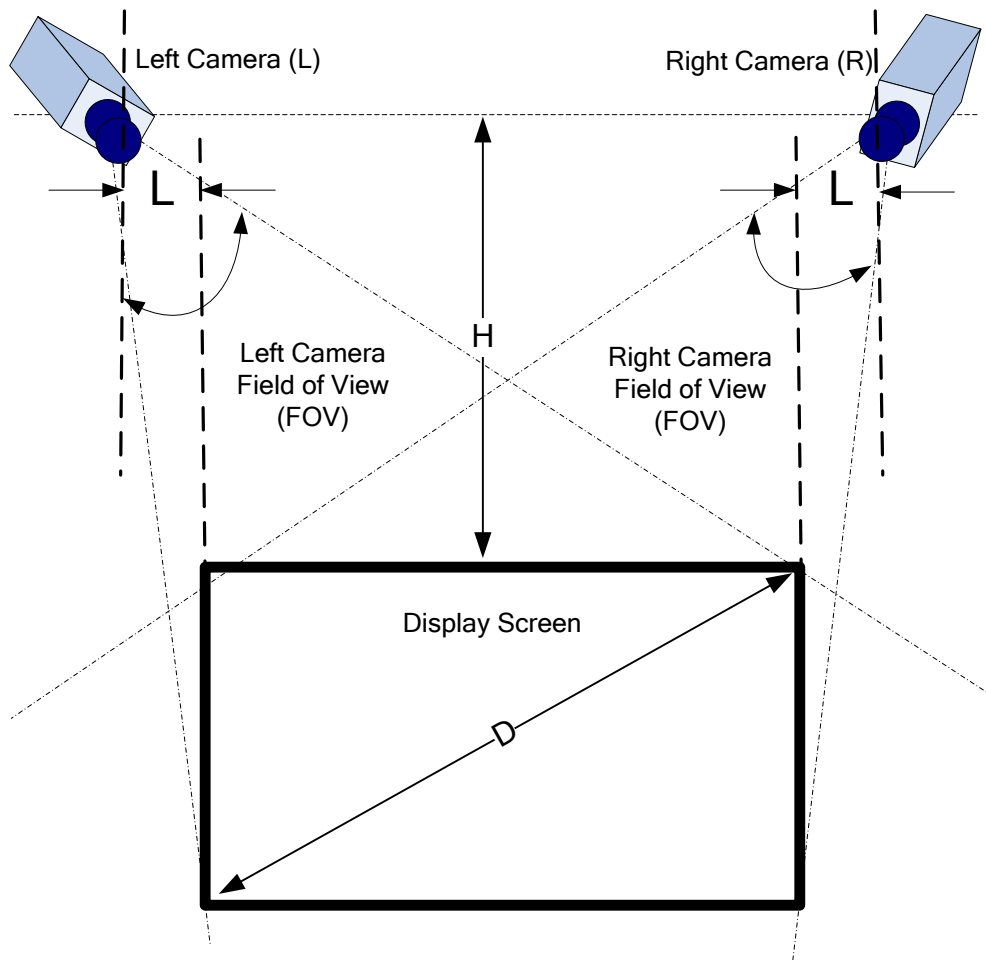


Figure 8: Camera Installation Diagram

Table 5: Lens Type Dimensions Chart

Lens	Formulae
3 mm	$H = 0.5 \text{ to } 0.75 * D$ $L = 0 \text{ to } 0.1 * D$
4 mm	$H = 0.75 \text{ to } 1.0 * D$ $L = 0 \text{ to } 0.1 * D$
6 mm	$H = 1.0 \text{ to } 1.25 * D$ $L = 0 \text{ to } 0.1 * D$

* is the multiplication symbol

Troubleshooting

When troubleshooting, remember that the system is designed to have the minimal amount of things that can go wrong.

Problem	Possible Solution
No video message is detected at either the left OR the right video windows	Check that the video cables and power supply cords are connected correctly.
White screens instead of video windows in both the left AND right video windows	Check the connection of the camera's video cables and power supplies cord. Check whether the selected video standard (PAL OR NTSC) is compatible to the cameras you installed. Close and then reopen the uMote application.
The mouse does not respond to any hand movement	Verify the uMode application is activated (look for the icon on the system tray). Open the configuration screen and confirm that the FOV parameter fits your cameras lens size. Open the configuration screen and adjust the Dt and/or the Min Grid parameters. Perform the calibration process again.
The uMote application fails at startup	Verify that both the video grabber card and the video grabber driver are correctly installed. Remember that on start up the uMote icon is placed in the system tray – no other indication is shown on the display screen.
Having difficulty with adjusting the FOV	Ensure that MaskBG is disabled in the Advanced Configuration Settings section on page 24. Clear the checkbox to disable.
Bad display images when installed in the Display window	Check that IR filters are installed on the camera lenses and the IR-Illumination unit is installed on the top of the display screen.
No picture when installed on the shop floor.	Check that IR filters are NOT installed on the camera lenses.

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