Digitarium® Epsilon and Kappa 2 Portable

Digital Planetarium System

User Manual

Digitalis®

EDUCATION SOLUTIONS, INC.

Digitarium® Epsilon Portable 2 and Kappa Portable 2

Digital Planetarium System

User Manual

Version 1.3
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EDUCATION SOLUTIONS, INC.

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Introduction

The Digitarium Epsilon Portable 2 and Kappa Portable 2 digital planetarium systems are full-featured portable systems that can be used in portable or fixed domes. Both models have the same form factor and similar components, and we will note instances where the specifications differ.

Our design goal was a planetarium system for the small dome market with high resolution and excellent projection quality that was simple to set up and use, portable, full-featured, and cost effective.

You will get the most out of your system if you understand the components of which it consists.

- The Digitarium computer control unit (CU) is the brains of the system. It runs simulation and media display software, and produces video output for the DLP projector.
- The DLP projector outputs a projected image of the video signal from the CU.
- The Digitalis proprietary fisheye lens adapts the DLP projector output to cover the dome.

User Interfaces

- The Digitarium infrared remote control allows the user to control the planetarium and media software running on the CU.
- The wireless gamepad controller provides a unique and fluid method for flying to and around bodies, stars (Nightshade NG Pro only), and other objects in the universe (Nightshade NG Pro only for objects outside the solar system).
- The optional Universal Console is a software interface that allows you to control your Digitarium system through a web browser or iPad.
- The DLP projector has its own remote control which is used to change settings, such as lamp brightness and video sources and to view lamp usage.

⚠ **The DLP projector remote control gives access to many projection specific settings, but we recommend that you do not modify these unless you are confident in your knowledge. Improper settings can potentially disable your Digitarium system.**

Documentation

- This user manual is designed to provide a general system overview.
- The Digitarium Software User Manual explains how to interact with the system using the Digitarium remote control and gamepad controller.
- The Digitarium CU User Manual includes detailed information about the control computer.
- The DLP projector user manual provides specific information about the DLP projector component.

⚠ **Please review ALL manuals before attempting to use your system!**

Features of note

- Easy, accurate, fast set up.
- Operated by backlit, handheld remote control from anywhere in the dome.
- Software is updated over the Internet at your command.
- Displays images or videos and plays scripts from a USB or internal drive
- Can play third-party fulldome video shows.
- Supports 360° video playback.
- Integrated stereo sound speakers.
- Stratoscript™ feature which allows you to create prerecorded segments or shows, including image manipulation, video, and audio. See the scripting section of your user manual binder for more information on writing scripts. Also be sure to sign up for an account at http://digitarium.com/community/ to download or share scripts and get notifications of free software update.
- Removable lens with user adjustable focus and centering.
- Offers high contrast and reliable DLP projection technology.
- Mechanical shutter to completely hide all projection temporarily.
- Spring assisted lift.

⚠ Safety

- Always extend and lock the top frame in place before operating the projector (for proper ventilation).
- Be careful lifting the system due to its weight. We recommend using two people when lifting the loaded transit case.
- Always lift the system by its frame, not by any of the individual components.
- Make sure vents are not blocked and projector vents are kept clean to avoid overheating.
- Always use the Digitarium system with a surge suppressor to avoid damage caused by power surges (which is not covered by our warranty).
- Do not operate the DLP projector without a lens installed.
- Do not stare into the lens while the projector is projecting as the light is very bright.
- Refer servicing to qualified service personnel.
- Change the lamp at the end of its recommended life, or catastrophic failure of the lamp can result.

⚠ Security

The fisheye lens in your system is one of the most expensive components. Please note that the lens is removable and could be a target of theft. Plan accordingly.

Feature Identifier

Features, as labeled above:

1. Frame base
2. Frame top
3. Digitarium CU control computer
4. DLP projector
5. Fisheye lens
6. Lens focus lock ring
7. Frame lock pin
8. Adjustable feet
9. Infrared receiver
10. Built in stereo speaker
11. HDMI Cable

Set Up and Turning on the System

⚠ Before turning on the system, be sure to read the "Turning Off the System" section below for instructions on turning it off. Do not simply switch it off.

Set Up

1. With the transit case standing on end (wheels on the floor), undo the two clasps and open the case.
2. Remove the cords and remote control(s) from the transit case.
3. Grasp the frame by both the curved handle at the top and the front edge of the base. Slide the entire system out of the case and place it on the floor. The transit case can now be stowed.
4. Position the system so that the projector lens is roughly under the zenith of your dome.
5. If necessary, use the leveling feet to correct for an uneven floor.
6. Remove the two pins near the base of the frame by pushing in the button on each pin handle and pulling straight back. Be careful not to damage the HDMI cable connector which is nearby.
7. Pull up on the top frame to raise the lens to projection height. You may want to stabilize the frame during this process by placing your foot on the base.
8. When the frame reaches its travel limit, insert the pins into the upper holes, inserting from the projector side to hold the system in place. You will need to push in the button on each pin to insert it, and you may need to lightly push down on the frame to line up the holes.
9. Attach the power cords to the computer and DLP projector.
10. Remove the lens cap by gently angling up one side; **do not twist the lens cap, or you might change your focus**. We recommend setting the cap on the system base.

Power On/Begin Projection

1. Plug the DLP projector cord first and then the CU cord into a surge suppressor (NOT a simple power strip) plugged into an acceptable grounded AC power outlet. The surge suppressor protects against damage from electrical power surges, which is not covered under your warranty.
2. The CU will automatically turn on and boot when plugged in.
3. Press the power button on the DLP remote or the bottom of the DLP projector to turn on the projector illumination.
4. After about a minute the CU will have finished booting. You will hear a few musical notes signifying that the CU is ready.
5. When the CU has booted and the lamps have warmed up, you will see the sky projected onto the dome above you. If you see only black or blue, refer to the troubleshooting section in this manual.
6. When the simulator starts up, it will automatically run a script called "/scripts/startup.sts" if one exists on a USB drive plugged into the CU. For more information about scripts, see the section entitled "Script Playback Mode" in the software user manual. Press  if you want to cancel the script.
7. If you want to make sure you are in the center of the dome, press  to bring up an azimuthal grid. Gently move the system as needed to center the grid on the dome.
8. If projection is blurry, adjust the lens focus (see "Focusing the Lens" below for details).
9. If the projection is tilted, recheck the lens centering (see "Centering the Lens" below for details).
10. Don't forget to change your latitude, longitude, and time zone, if necessary. Refer to the software manual for more information on this process.

Note: You may notice a smell of hot plastic while the projector is relatively new. This is normal.

Focusing the Lens:

If projection seems blurry, refocus the lens.

- Hold the top outer edge of the lens steady with one hand and loosen the focus lock ring by turning it counter-clockwise until it moves.
- Grasp the top outer edge of the lens and slowly rotate it until projection is focused. Experiment to find the focus that works best for your needs.
- Hold the top outer edge of the lens steady and tighten the lock ring by turning it clockwise until it stops.

Centering the lens

You may need to center the lens if it has shifted during transport and the projection seems tilted. To adjust the lens position, hit the "shift" button on the DLP projector remote control. Then use the DLP projector remote control arrow buttons to move the lens until the horizon is level on your dome.

Projecting Other Video Sources

The projector allows you to project directly from another computer or video source onto the dome. See the DLP projector user manual for details.

Turning off the System

To shut down your system, you should turn off the control unit first, and then the DLP projector.

To turn off the control unit use text menu item 8.3 (see the software manual for more information).

⚠ Do not turn off the control unit during a software update or while the indicator light is bright (indicates disk activity) to avoid corrupting the system.

To turn off the DLP projector:

1. Press the power button on the DLP projector or DLP projector remote twice. It takes a minute or two to cool down the projector lamp safely. Do not shut off power to the projector while it is cooling, or lamp life can be reduced.
2. Put the lens cap on the fisheye lens to protect it from dust.

Packing

1. If necessary, screw the leveling feet as far as possible into the frame base.
2. Remove the two frame pins by pushing in the central button on each and pulling straight back. Be careful not to damage the video cable which is nearby.
3. Push down on the top of the frame to compress it for packing. One strong motion works best.
4. Insert the frame pins in the holes near the frame base from the projector side.
5. Bring the transit case over and position it on end, with the lid open.
6. Grasp the top of the frame, lift the system slightly off the floor, and place two feet inside the case. Place one hand on the top of the frame and use your other hand to grasp the edge of the frame base facing you. Angle the system up to level it, then slide it back into the case as far as it will go. If necessary you can gently tilt the transit case backward to the floor to let gravity assist with packing. All four feet should rest on the bottom of the case.
7. Pack the cords, user manual, and remote controls in the spaces provided.

Maintenance

Lens Care

To protect the lens, always attach the lens cap when you are not using your Digitarium system. If you notice dust or dirt spots projected onto the dome, use the lens cleaning steps in the order below. Always perform the least amount of cleaning necessary to remove obstructions. Excessive cleaning can scratch the lens or remove special coatings on the lens. Note: if fingerprints are apparent on the lens, clean as soon as possible following all steps to ensure human oils do not degrade the lens coatings.

1. Remove the lens cap.
2. Use the included hand-powered air blower to remove large, abrasive pieces of dust or debris.
3. Lightly brush remaining debris with a microfiber cloth, cleaning brush, or cotton ball. Be very gentle to ensure that you do not scratch the lens with the debris on the lens.
4. Clean lens with multi-coated lens cleaning solution or high-purity methyl alcohol.
    1. Place several small drops on the center of the lens.
    2. Using a radial pattern, place cotton balls or the microfiber cloth at the center of the lens and wipe to the outside of the lens.
    3. Repeat until the lens has been cleaned and streaks are not apparent. You may need to use many cotton balls to fully clean a lens.

Lamp Life

Your Digitarium system is designed to require minimal maintenance. However, the projector lamps will eventually grow dimmer and burn out. It is important to check lamp life and to replace each lamp when its design lifetime is reached, even if it is still apparently working fine, in order to avoid catastrophic failure.

The standard projector lamp must be replaced after approximately 2,000 hours of projection. It may be necessary to replace it sooner if the lamp becomes noticeably dimmer or projection will not start. To assist you, the DLP projector tracks how many hours the lamp has been used.

Refer to the DLP projector user manual for detailed instructions on checking lamp hour usage and the replacement procedure.

⚠ We highly recommend that you always keep a spare lamp on hand to be prepared for any eventuality. Otherwise, if your only lamp fails, you may have days or weeks of downtime waiting for a replacement.

⚠ The projector lamps contain a small amount of mercury. Please dispose of them in an environmentally safe manner, such as at a hazardous waste collection site.

⚠ The computer and projector need to be kept clean of dust internally for adequate cooling. See those manuals for service recommendations.

Basic Troubleshooting

Symptom	*Possible Solution*
Nothing projected.	1. Do the DLP projector and the Digitarium control unit have power? 2. Are the DLP projector and Digitarium control unit turned on? The case fan on the control unit should be running and the lamp indicator light should be illuminated on the projector face. 3. Is the HDMI cable connected at the computer and projector? If not, connect it. 4. Press the "source" button on the DLP remote control until the HDMI option is selected. 5. Confirm that the speakers are connected to the CU, then reboot the CU. If the CU is working, you will hear a few musical notes after Nightshade NG has booted. 6. If everything seems correct but nothing is projected, shut down and then restart the projector. 7. If the CU is working, try using a different HDMI cable to connect the DLP projector and CU. 8. If all of the above fails, contact technical support.
Projection is not level.	See the section entitled "Centering the Lens" on page 9 of this manual for instructions.
Lamp shuts off unexpectedly.	See DLP projector user manual.
Digitarium remote control is not working.	1. Are you pointing it at the zenith of your dome? 2. Is the infrared receiver covered or blocked? If so, remove the problem. 3. Test by pointing the remote directly into the IR receiver window when hitting buttons. 4. Replace the batteries in the remote with new ones. 5. Reboot the CU by hitting the power button to shut down, or unplug it and plug it back it in.
Projection seems to pulsate/jiggle (not caused by star twinkling)	1. This can be caused by vibration in the system or its environment. Due to the large magnification inherent in the fisheye lens, a small amount of pixel vibration should be expected. 2. Is a DLP projector fan out of balance (this may be audible)? Try having the DLP projector serviced if the vibration is distracting.

How to Get Help

If you are experiencing problems with your Digitarium system, please:

1. Reread the manuals to make sure you haven't missed a possible solution.
2. Check out the online support section of our website, DigitalisEducation.com. This is frequently updated with answers to common questions and issues.
3. Contact your local distributor, if any:

4. Or for English technical support:
   - e-mail: info@digitaliseducation.com
   - phone: +1.360.616.8915
   - fax: +1.360.616.8917

Product Specifications

Resolution/ Projection Angle	Epsilon Portable 2: 1200 pixel diameter circle at 155 degrees	Kappa Portable 2: 1600 pixel diameter circle at 167 degrees
Electrical power requirements	100-240 VAC, 850 watts, 50-60 Hz	
Dimensions	System: 16 x 16 x 25 inches for storage (40 x 40 x 63.5 cm) 16 x 16 x 35 inches in use (40 x 40 x 89 cm) Transit case: 19 x 21 x 31 inches (47.5 x 52.5 x 77.5 cm)	
Weight	System: 48.5 pounds (22 kg) Transit case: 34 pounds (15.5 kg) Total: 82.5 pounds (37.5 kg)	

UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Customs Invoice** - 3 copies of a completed customs invoice are required for shipments with a commercial value.

3. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

4. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.
   Hand the package to any UPS driver in your area.
   Take your package to any location of The UPS Store®, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.

5. To acknowledge your acceptance of the original language of the agreement with UPS as stated on the confirm payment page, and to authorize UPS to act as forwarding agent for export control and custom purposes, **sign and date here:**

Shipper's Signature **Date of Shipment**

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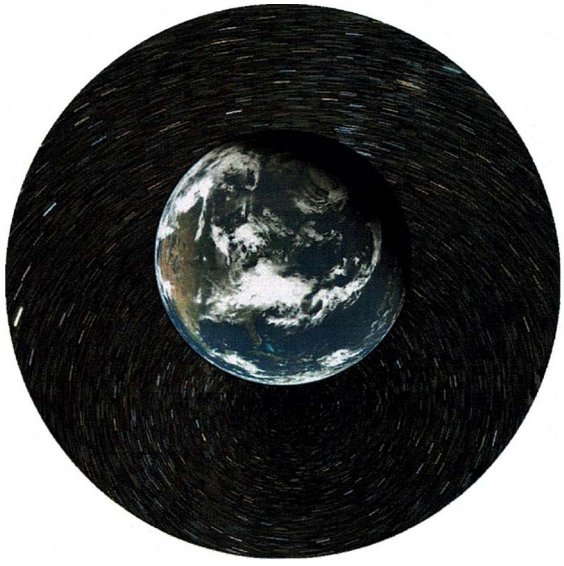
Digitarium®
Next Generation Software
User Manual

For Digitarium OP5 & Newer
Operating Platforms
Running Nightshade® NG



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May 30, 2018

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Introduction

Nightshade® NG (Next Generation) is the simulation software which runs your Digitarium® digital planetarium system. Nightshade NG is developed and maintained by Digitalis, and it should not be confused with the more limited Nightshade Legacy software which it replaces (versions 11 and lower).

Digitalis operates Nightshade NG as an open project, and encourages you to participate at: http://NightshadeSoftware.org

Nightshade NG for dome projection comes in two different editions:

- **Nightshade NG Professional** provides all the features of NG on a dome.
- **Nightshade NG Basic** is a budget edition offering fewer features. For example, travel is limited to within the solar system only and 3D model loading is limited.

Note that due to increased hardware requirements, Nightshade NG requires at least an OP5 operating platform or newer.

If you have just downloaded a new version of this manual, remember that access to new features may require running a free Internet software update to get the latest software versions. We recommend that you always keep your system and user manuals up to date for the latest features and bug fixes.

Choose Your Interfaces

There are a number of interfaces to your Digitarium system, giving you the choice of whichever interface, or combination of interfaces, meets your needs for a given presentation. Each is described further on in this manual. Your options are:

- Digitarium hand-held remote control: general purpose control.
- Gamepad control: ideal for flying around the universe.
- Universal Console control software on an iPad or other supported computer.

Fundamental Concepts

Anchored Object

You are always anchored to an object, also known as a home 'planet.' With Nightshade NG Professional, your anchored body can even be a nearby star. You are not limited to being on the surface of this object. It is simply your anchor point and all motion is relative to this anchor.

For example, if you are anchored to the Earth you could move 3 light years away from it. Now if you adjust your latitude, this is still relative to the Earth even though you can no longer see it.

To change your anchored object you just need to select an object and fly to it (or do the equivalent in a StratoScript™ script).

Selected Object

You can optionally select an object of interest. Objects are selected using a selection cursor, scripts, etc. Do not confuse a selected object with your anchored object – movement is always relative to your anchored object, not your selected object. Note that you can select your anchored object if desired.

Focal Point

Your focal point is a point on your dome where you want to focus attention so that your audience will have the best view during your shows. In a dome with unidirectional seating, this would be in front of the audience. In a concentric dome this is usually at the dome zenith.

When you track your selected object, it will move to the focal point. Zooming in with the remote control will also keep the selected object at this location. (To untrack, use the zoom out button on the remote control.) You define your focal point using the text menu, discussed in the Menu Mode section on page 15.

Landed Mode

In Nightshade NG you are either in Landed Mode or Exploration Mode. In Landed Mode, you are on the surface of your Anchored Object, such as the Earth, looking up at the sky. You can display a photographic landscape if desired. You enter this mode by landing on an object.

Exploration Mode

In this mode you are above the surface of your Anchored Body. You can fly around this object at whatever altitude you want. You can be near the surface exploring terrain – or fly so far away that you can not even see your Anchored Object. You can not display a photographic landscape in this mode. You enter this mode by flying to an object.

Gamepad Control

Basic Control Layout

1. Move away from anchored body
2. Move closer to anchored body
3. Zoom out
4. Zoom in
5. Left stick
6. Accelerate time rate backwards
7. Select the Earth
8. Accelerate time rate forwards
9. Cursor control
10. Right stick

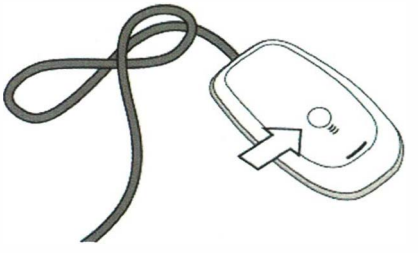
A. Select object at cursor
B. Unselect object
X. Fly to/land/take-off toggle
Y. Track selected object

Note: Your gamepad layout may vary slightly from the illustration. Controls 1, 2, 5, and 10 are not just on/off type controls – the rate of motion will vary with the amount that you move the control.

Getting Started with a Wireless Gamepad

Your wireless gamepad controller may seem like it is not working. First make sure you have the USB receiver plugged into your Digitarium computer before you boot up. While Nightshade is running, depress button 7. The gamepad will wake up and usually start working right away. If that doesn't work, remove and reinsert the gamepad batteries, and try again. If this fails, pair your gamepad to the receiver again as described below.

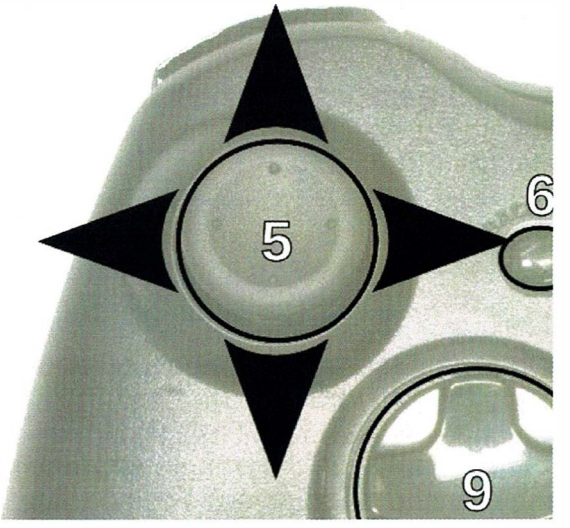
Pairing the Wireless Gamepad to the Receiver

1. While Nightshade is running, turn on the gamepad by depressing button 7.	
2. On the receiver, press the connect button. The light flashes green. Note: The receiver may be inside your system enclosure.	
3. Press the connect button on the wireless controller.	
4. Green flashing lights around button 7 on the gamepad and on the receiver indicate that the device is trying to establish a connection. When the lights stop flashing and remain lit, the gamepad is connected.	 *Image credits : Microsoft XBOX 360 support*

Specific Controls in Detail

The more complex controls are explained below.

Left Stick – Movement

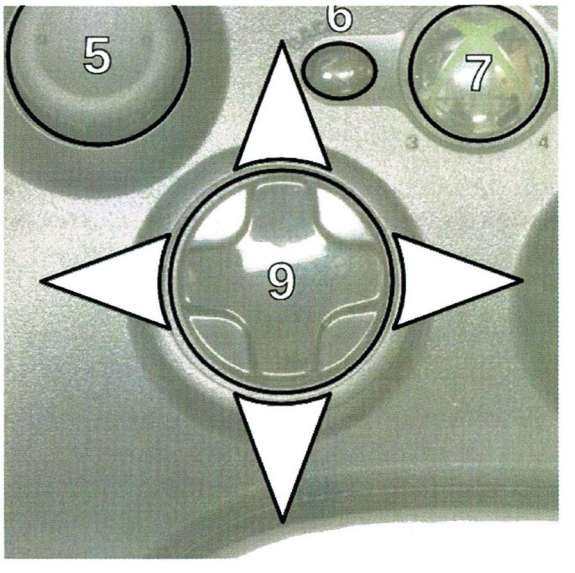


This stick controls movement. Pushing the stick up (towards the top of the page, as shown) will move you forward. Pushing the control to the right will move you right, etc.

In landed mode, moving forward is always North on your anchored body, right is West, etc.

In exploration mode, forward is always in the direction from your Anchored Object center towards the dome zenith, and the other directions are relative to the forward direction.

Cursor Control



This pad controls movement of the selection cursor. Pushing up on the pad moves the cursor up towards the zenith. Pushing down moves the cursor towards the horizon.

If you are facing the cursor on the dome, pushing the pad left moves the cursor left.

You can select an object by positioning the cursor near it and then hitting the green A button to select it.

Right Stick

This stick controls your viewing direction. Pushing the stick up will cause you to look up (what you are looking at will move down).

Pushing the control to the right will cause you to turn to the right (what you are looking at will move left).

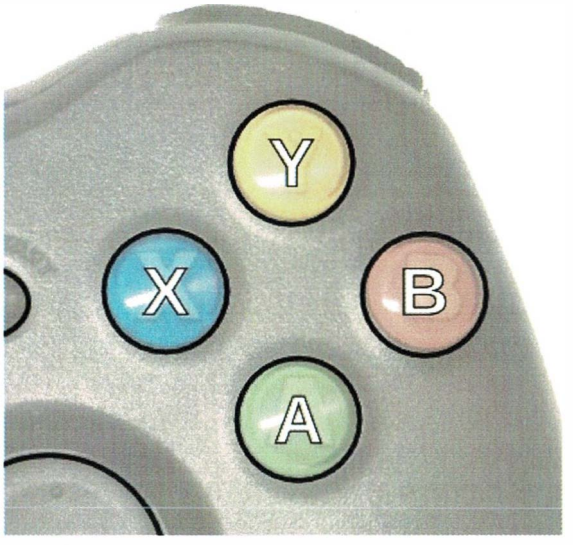
Right Stick Depress

Depress this stick into the gamepad and release like you would press a button to toggle between Geosynchronous Mode (where you are tied to a latitude and longitude on your anchored body) and Follow Mode (where you stay in the same relative position to your anchored body but do not rotate with daily motion).

Left Stick Depress + Right Stick

If you depress and hold down the left stick like a button you can simultaneously use the right stick left-right directions to rotate your view about the zenith. This is useful for temporarily moving your anchored body around the dome in Exploration Mode.

Fly to, Land, and Take off



To fly to the currently selected object, hit the blue X button. This will fly you directly to the object and stop at a good viewing distance. You will be in Exploration Mode.

If you are in Exploration Mode at the default viewing distance and want to land on your selected object, click the blue X button. This will land you on the object and put you into Landed Mode.

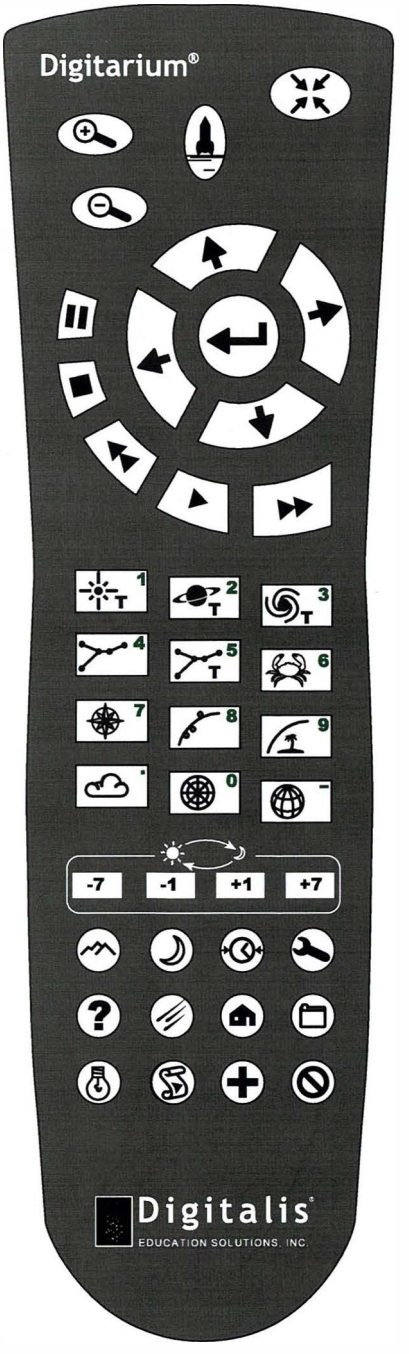
If you are in Landed Mode, you can click the blue button to take off and go to the default viewing distance. You will be in Exploration Mode.

Digitarium Remote Control

The current Digitarium® system remote control is pictured at right. Older versions will vary slightly. In cases where the button icon shown in this manual does not match that on your older remote, the button functionality is the same regardless of the different icon.

There are four modes for the remote control:

- Normal operating mode: Control the sky simulation directly.
- Menu mode: Modify configuration settings using a text menu.
- Script playback mode: Play prerecorded segments or shows.
- Media mode: Display images or video.



The following pages will explain in detail what the buttons do in each mode.

For best reception, point the remote toward the zenith while sending commands. The infrared (IR) signals will bounce off the dome and reach the receiver on top of the system. If you are using an external IR receiver, point the remote directly at the receiver. An external receiver may be required in domes over approximately 30 feet (9m) in diameter.

The remote control is backlit. To backlight the remote for a few seconds, push the button. You can hold down the button, but you must release it before you push another button.

Normal Operating Mode

In normal operating mode, the buttons do what is shown by the icons on their faces.

Button	*Normal Operating Mode Function*
	Zoom in on selected object.
	Zoom out to full sky.
	This is the same as the blue 'X' button on the gamepad. See “Fly to, Land, and Take-off” on page 8.
	Track (center view on) selected object at your Focal Point.
	Move cursor toward zenith.
	Move cursor counterclockwise around the zenith.
	Move cursor toward horizon.
	Move cursor clockwise around the zenith.
	Select an object located near the cursor.
	Pause/continue movement of time.
	Stop time.
	Accelerate time rate in a negative (backward) direction. Can be pressed multiple times for faster rates. If the time rate is positive, this will act to decrease your time rate.

Button	*Normal Operating Mode Function*
	Move forward in real time.
	Accelerate time rate in a positive (forward) direction. Can be pressed multiple times for faster rates. If time is moving backward, will reduce the backward rate.
	Toggle labels for bright stars, including the Sun.
	Toggle body labels.
	Toggle labels for deep sky objects.
	Toggle constellation line drawings. To show one constellation at a time, select a star in the constellation you wish to show. You can add line drawings one at a time by selecting a star in each constellation's line drawing. To resume showing all line drawings, select a star not in a constellation line drawing.
	Toggle labels for constellations. To show one label at a time, select a star in the constellation you wish to label. You can add labels one at a time by selecting a star in each constellation's line drawing. To resume showing all labels, select a star not in a constellation line drawing.
	Toggle constellation artwork. To show one constellation at a time, select a star in the constellation you wish to show. You can add artwork one at a time by selecting a star in each constellation's line drawing. To resume showing all artwork, select a star not in a constellation line drawing.
	Toggle compass points.
	Toggle the ecliptic. The ecliptic is the path of the sun across the sky. The planets and moon also lie on or near this line. Numbers on the ecliptic correspond to the months of the year and show when the sun will be in that position. The number for each month is roughly in the middle of that month's segment.
	Toggle the celestial equator. The celestial equator is an extension of Earth's equator onto the sky. The labels are hour marks for right ascension.
	Toggle Earth's atmosphere. For the blackest night sky, turn off the atmosphere.
	Toggle celestial meridian. The celestial meridian is a circle running through the north and south celestial poles; it passes through the zenith and intersects the observer's horizon at the north and south points.

Button	*Normal Operating Mode Function*
	Toggle the equatorial grid.
	Move forward (+) or backward (-) in time the specified number of Earth calendar days (or local sidereal days if you configured this is in menu item 2.3, described below).
	Toggle landscape.
	Increase size of moon to make phase more visible in full sky view. Press a second time to return moon to normal size.
	Change time and date to default settings.
	Enter menu mode.
	Toggle time and selected object information display.
	Step between 4 different meteor shower zenith hourly rates: 10 (background rate); 80; 10,000; 144,000. Meteors are assumed to be from dust that the Earth is passing through, so the peak is around 6:00 AM local time. See the StratoScript meteor command documentation to set other rates and radiants.
	Select your saved home body.
	Enter media mode. See page Error: Reference source not found.
	Shift button. See functions in the following section.
	Cancel an object selection or other action.

Normal Operating Mode Shift Buttons

The shift button allows you to access additional features. To access the features below, first hit the ⊕ button, then the second button within three seconds. Both infrared signals need to be received by the computer in order for the action to occur.

Button	*Normal Operating Mode Shift Function*
	Fly to selected planet.
	Replay the last run script.
	Toggle galactic point cloud data. (Sloan Digital Sky Survey DR7, http://www.sdss.org)
	Toggle constellation boundaries.
	Toggle planet and moon orbits. To show one planet orbit at a time, select a planet. To resume showing all planet and moon orbits, select an object other than a planet.
	Toggle the galactic coordinate grid.
	Toggle time lapse mode. As time passes, any natural objects will accumulate into a time lapse exposure. Synthetic elements like labels will not accumulate.
	Toggle planet tropic lines. These are lines of latitude equal to the limits of the travel of the Sun in the sky over one orbit of the planet around the Sun.
	Toggle Earth cloud cover when viewing the planet from above or from another body.
	Toggle azimuthal grid. The azimuthal grid consists of parallels and meridians, with meridians crossing at the zenith (90 degrees above the horizon).
	Toggle Earth's precession circle.
	Reload user default configuration.
	Drop all bodies added from a script. If you are on one of these bodies, nothing will happen.

Using the Cursor

The cursor enables you to move around the sky and select objects. Selecting an object provides basic information about the object and prepares you to zoom in on it or fly to it.

When you start up your system, the cursor will be directly at the dome zenith. To move the plus-shaped (+) cursor around the sky, use the arrow buttons as directed above in the table of button functions for normal operating mode. The cursor will move slowly when an arrow button is first pressed and will speed up if the button is held down.

To select an object near the cursor, press the  button. If your destination object is very bright, such as the Sun, you do not have to position the cursor right over it in order to select it. The brighter the destination object, the farther the cursor can be from it and still allow you to select it. To unselect an object, press the  button.

We recommend setting the cursor to time out (hide itself) after five seconds so that the cursor does not distract from the sky when it is not being used. If you wish the cursor to remain visible at all times, set the timeout value to 0 using menu item 6.9, described below.

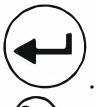
Menu Mode

This product uses a text-based menu system to modify configuration settings. The menu, activated by the  button, is displayed along the southwest horizon.

The configuration menu is organized into categories. Browse categories with the  and  buttons. Press  or  to enter a category.

Once within a category, browse the available configuration settings in that category with the  and  buttons. Use  or  to begin editing the currently displayed setting.

While editing, the setting value you are editing is displayed in white. Use the number buttons 0-9 and "." or "-" to enter a number directly or use the  and  buttons to change gradually.

To finish your edit, press  . To cancel your edit press  .

To leave the menu, press  again.

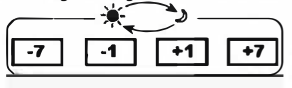
Be sure to save your settings as default if want them to be used the next time you start up your system. See the "Administration" menu category.

Button	Menu Mode Function
	Move up in list of options or increase number value being edited.
	Go down a level in menu tree.
	Move down in list of options or decrease number value being edited.
	Go up a level in menu tree.
	Select an option or finish editing a setting.
	Enter the number 1.
	Enter the number 2.
	Enter the number 3.
	Enter the number 4.
	Enter the number 5.
	Enter the number 6.
	Enter the number 7.
	Enter the number 8.
	Enter the number 9.
	Enter a decimal point.
	Enter the number 0.
	Enter negative values (for southern latitudes and western longitudes).
	Exit menu mode.
	Cancel a selection.

Menu Tree

⚠ **Only items that apply to your system will be visible.**

1. **Set location**
   - **1.1 Latitude:** Use + for north and – for south.
   - **1.2 Longitude:** Use + for east, - for west.
   - **1.3 Altitude:** Distance above anchored object.
   - **1.4 Heading:** Rotate the sky simulation in your dome.

2. **Set time**
   - **2.1 Sky Time:** Set your sky for a different time.
   - **2.2 Set Time Zone:** Select continent, then city in your time zone. These account for daylight savings, if any. Be sure to update the time zone if you change longitude, or the time will not correspond to the sky.
   - **2.3 Day Keys:** Choose between calendar days or sidereal days for time steps with the 

buttons. A sidereal day will vary in length depending on the planet or moon from which you are viewing the sky. Sidereal days are great for demonstrating planetary motion.
   - **2.4 Preset Sky Time:** Only used if startup time is set to “preset.”
   - **2.5 Sky Time at Start-up:** Use the actual clock time when you start up, or use a preset time you have chosen.
   - **2.6 Time Display Format:** 12 or 24 hour format.
   - **2.7 Date Display Format:** Choose between: yyyy-mm-dd; yyyy/mm/dd; dd/mm/yyyy; and mm/dd/yyyy.

3. **General**
   - **3.1 Landscape:** Change the projected landscape.
   - **3.2 Sky Culture:** Select culture for constellations.
   - **3.3 Sky Language:** Select language for star, planet, and constellation labels.

4. **Stars**
   - **4.1 Show:** Display or hide the stars.
   - **4.2 Maximum Magnitude to Label:** Increase or decrease number of stars labeled.
   - **4.3 Twinkling:** 0 equals no twinkle; 1 is the maximum.
   - **4.4 Limiting Magnitude:** Increase or decrease number of stars projected based on their apparent magnitude. Default value is 6.5. This only affects stars. Set the light pollution luminance for a more realistic and comprehensive effect (menu item 6.1).
   - **4.5 Core Density:** Adjust the intensity of the halo core for stars and bodies.
   - **4.6 Halo Density:** Adjust the intensity of the outer halo for stars and bodies.
   - **4.7 Star Catalog:** By default your system uses the Hipparcos star catalog (around 100,000 stars). NG Professional systems may be able to use the TGAS catalog (over two million stars) depending on hardware performance. Restart NG for a change to take effect.

5. **Colors:** Adjust red, green, blue, and alpha values independently from 0 to 1.
   - **5.1 Azimuthal Grid**
   - **5.2 Cardinal Points**
   - **5.3 Circumpolar Circle**
   - **5.4 Constellation Art**
   - **5.5 Constellation Boundaries**
   - **5.6 Constellation Lines**
   - **5.7 Constellation Names**
   - **5.8 Ecliptic Line**
   - **5.9 Equatorial Grid**
   - **5.10 Equator Line**
   - **5.11 Galactic Grid**
   - **5.12 Galaxy Points** (SDSS galaxy point cloud)
   - **5.13 J2000 Grid**
   - **5.14 Meridian Line**
   - **5.15 Nebula Circle**
   - **5.16 Nebula Names**
   - **5.17 Planet Names**
   - **5.18 Planet Orbits**
   - **5.19 Precession Circle**
   - **5.20 Satellite Orbits**
   - **5.21 Tropic Lines**

6. **Effects**
   - **6.1 Light Pollution Limiting Magnitude:** Simulate the effects of light pollution. Value is naked eye limiting magnitude at full sky view.
   - **6.2 Manual Zoom:** Zoom in or out on selected object in small steps rather than one large step.
   - **6.3 Milky Way Intensity:** Adjust the brightness of the Milky Way, from 0 to 100. Default intensity is 1.
   - **6.4 Focal Point Altitude:** Adjust the altitude of your focal point above the horizon. Track an object to visualize the focal point position while adjusting.
   - **6.5 Focal Point Azimuth:** Adjust the azimuth of your focal point (this angle is measured from the up direction on your video source rather than North).
   - **6.6 Zoom Duration:** Amount of time (in seconds) it takes to zoom in on an object.
   - **6.7 Flight Duration:** Amount of time (in seconds) it takes to fly to another body.
   - **6.8 Cursor Timeout:** Amount of time (in seconds) pointer will remain visible in the sky, from 0 (no timeout) to 60. Moving cursor or selecting/deselecting the cursor will make it reappear in the sky in its last location.
   - **6.9 Line Width:** Adjust the width of drawn lines from 0.125 to 5 pixels.
   - **6.10 Maximum Body Magnitude to Label**:Only draw orbit lines and labels for bodies with a magnitude brighter than this setting.
   - **6.11 Atmosphere Sun Bloom:** Increase or reduce the Sun bloom effect in the atmosphere.
   - **6.12 Correct for Light Travel Time:** Account for the travel time of light when observing solar system bodies and moons. Turn this on so that zoomed views match up with actual telescope views. Note that this is a close approximation due to performance considerations.

7. Rendering

7.1 Light Exposure: Adjust the brightness of sunlit objects like planets and moons.

7.2 Gamma: Adjusts the differences between light and dark colors. Ideally this should match the gamma setting in your projector.

7.3 Saturation: Adjust how saturated colors are when displayed.

7.4 Atmosphere Multiplier: Adjust the luminance of the daytime sky. This may affect visual extinction times for stars, etc.

8. Administration

8.1 Load default configuration: Return all settings to your defaults.

8.2 Save current configuration as default: Option says "Do." Save all current settings as default. Includes state of all settings, such as latitude, longitude, planet labels on or off, etc. This will also save current media positioning configuration (see the Media Mode section on page 21).

8.3 Shut down: Shut down computer control unit. Option says "Do." Hit  and it will prompt "Are you sure?," and then hit the same button once again to shut down.

8.4 Update me via Internet: Option says "Do." See Software Updates section below for directions.

8.5 Set UI Locale: Change menu language.

8.6 Projector Offset (percent of dome radius): Adjust the projection to correct for the lens being placed off-center in a dome. Results will vary by model.

8.7 Synchronize Internal Drive from USB Drive: Copy files to the internal hard drive. Note that since this is a synchronization, the hard drive will look exactly like your USB drive when finished. Files on the hard drive but not on the USB drive will be deleted. You can hit the cancel button during a sync to stop it, although there may be a delay.

8.8 Projection Configuration: If your Digitarium model supports more than one projection configuration you can select an option such as:

- **Lens at Dome Center**: The lens is at the center point of the dome (at the spring line of the dome). The horizon will not reach down to the dome spring line. This is a typical portable dome configuration.
- **Lens Below Dome Center**: The lens is below the dome zenith, but located below the spring line of the dome so that the horizon reaches down to the edge of the dome. This is a typical fixed dome configuration.
- **Truncated Projection**: You want to project a higher resolution but truncated (cut off) projection.

8.9 Info: Displays the operating platform version, the last time a software update was installed on the system, and the system network address, if any.

8.10 Video Shear: **[Digitarium® Delta 1 systems]** If the East and West horizons (with heading set to 0) are either both above or both below the North and South horizons, this setting allows you to adjust this until you have a level horizon.

8.11 Video Offset: **[Digitarium® Delta 1 and Iota systems]** If the projection system is level but the projection is tipped to East or West (with heading set to 0), this allows the projection to be re-centered so that East and West horizons are level.

8.12 Reset password for Universal Console (will not appear if you do not have the

Universal Console software).

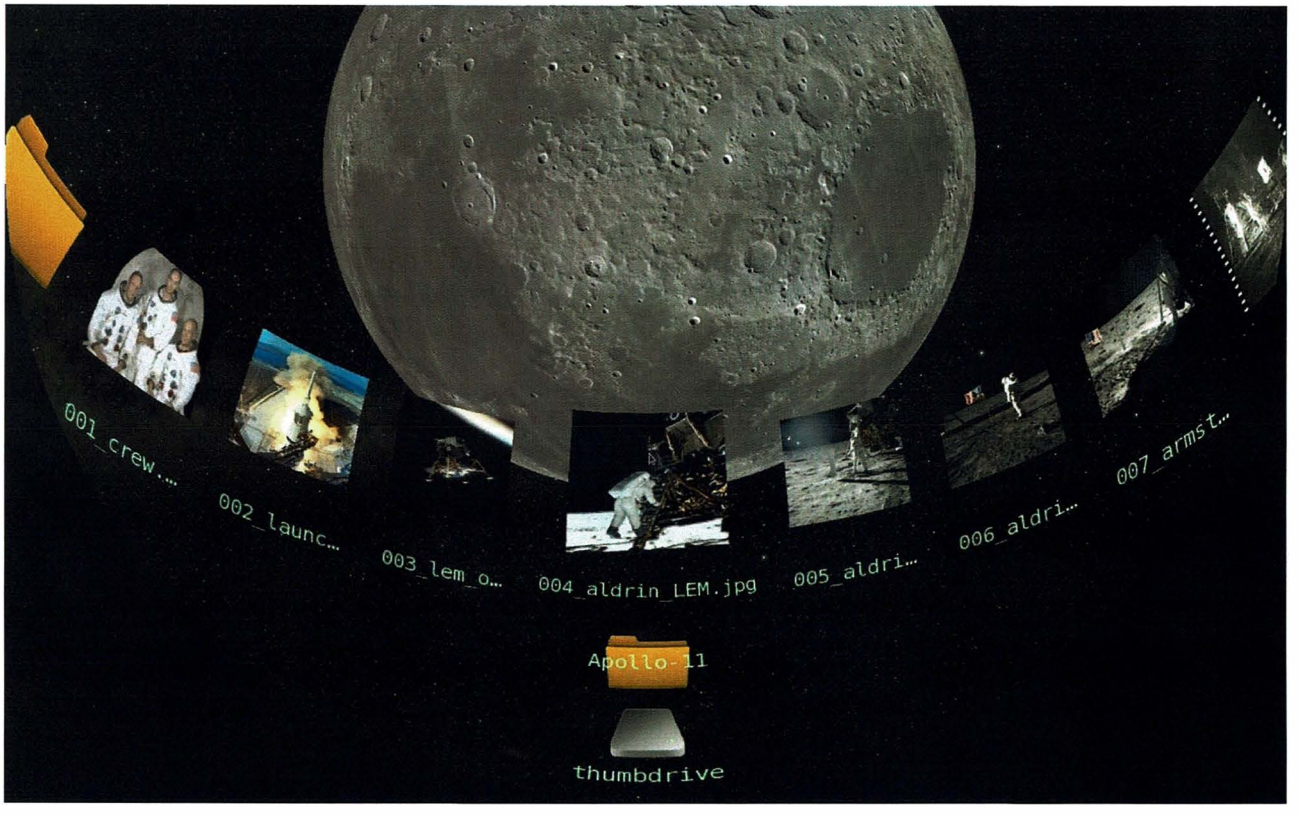
8.13 Reload factory defaults: Resets all defaults to original factory settings.

8.14 Recalibrate Projection: If your Digitarium model supports projection autocalibration, this item will rerun the calibration process.

8.15 Restart Nightshade: Exit and restart quickly.

Media Mode (Visual Media Browser)

The Digitarium system control unit allows you to show your own or third-party content from a USB drive or the internal hard drive, fully integrated into Nightshade NG. Show images, play videos, play audio, or even run StratoScript scripts.



Many common formats of still images and video are supported. Audio files in WAV or OGG format can be played. To show your own content, copy them to a USB drive or the internal hard drive (see menu item 8.7 above). See the "Creating Multimedia Content" section on page 25 for directions.

The internal hard drive is the most convenient storage option as you can store content directly in your system. Simply select "Internal" from the list of drives in the Media Browser to access this content. You synchronize content to the internal hard drive from a master USB drive using menu item 8.7, described above.

To use a USB drive:

1. Insert the drive into any of the USB ports on the Digitarium control computer. Wait a few seconds for the system to recognize the drive.
2. Bring up the media browser as normal and go to the root level where drives are shown.

3. If your drive was mounted, you will see it shown and labeled with its drive label.
4. Use the left or right arrow buttons to highlight the USB drive and press  or  to select the USB drive.
5. If your USB drive has displayable content you will see the directory contents. Otherwise you will see an error icon.

Removing USB Drives

We recommend that you only remove a USB drive when the system is in normal operating mode (Media Browser is closed).

Managing Large Video Files

If you need to show video files over 4 GiB in size, format your USB drive with an NTFS file system on a PC using the Windows disk format feature.

Button	Media Mode Function
	Increase size of a still image or video.
	Decrease size of a still image or video.
	View directory or drive. View or play selected file. If you play a script you will exit media mode and enter script playback mode (see page 27).
	Move right to next item in directory.
	Stop viewing a file or, if viewing a directory, go back a level in directory tree.
	Move left to next item in directory.
	View directory or drive. View or play selected file. If you play a script you will exit media mode and enter script playback mode (see page 27).
	Pause/continue playing video.
	Stop displaying an image or video and return to directory.
	Jump backward in playing video.
	Resume playing paused video.
	Jump forward in playing video.
	Toggle between full dome and perspective projections for displaying media.
	Toggle sky or black background when browsing or displaying media

Button	*Media Mode Function*
	Move perspective image or video up towards the zenith.
	Mirror image or video on opposite side of dome when in perspective projection mode.
	Move perspective image or video to the left.
	Move perspective image or video to the right.
	Rotate media browser to the left.
	Move perspective image or video down towards the horizon.
	Rotate media browser to the right.
	Perspective mode: Rotate image or video counter-clockwise in place. Fulldome mode: Rotate image or video around the dome in a North to West direction.
	Perspective mode: Rotate image or video clockwise in place. Fulldome mode: Rotate image or video around the dome in a North to East direction.
	Reload default media position configuration. Your settings are saved when you save your default settings in the Nightshade configuration menu (item 8.2).
	Reload factory default media position configuration.
	Decrease (-7) or increase (+7) video volume. May not work with some videos.
	Exit media mode and return to normal operating mode.
	Toggle open captions for audio or video files (discussed below).
	Stop displaying an image or video.

Creating Multimedia Content

Collecting images and/or videos onto a USB drive allows you to cover any topic in the dome. Create slide shows for use in your lessons, or just have extra content on hand for questions that may come up.

You can find an enormous amount of content on the Internet that is free to use (check licenses to be sure). You can also easily create your own images with an image editor. A full dome image should be at least as large as your system resolution. If an image is larger than the projector resolution, it will be scaled down to fit when displayed.

Most common image and video formats should work. However, due to the huge variety of video encoding formats available, you will probably encounter some video formats which will not play. The only way to know for sure is to test your file with the system. MPEG-2 or MPEG-4 video is generally the best option, if you have a choice.

Organizing Media

Start by creating a directory where you will set up your disk content. If you want to organize your content into categories, you can create subdirectories. You can create any sort of directory tree you want, to as many levels as you need.

After you have created your directory, place your content into your directory tree so that you will be able to find it easily.

Tips for naming files:

- Use logical, easily understandable names.
- Keep the file and directory names short or they will be abbreviated in the media browser.
- Keep the original file extension (.jpg, .mpg, .tif, etc.).
- Remember that subdirectories and files within a directory will be sorted alphabetically in the media browser, and that subdirectories will always appear before files in the list.
- If you want to create a slide show with images in a definite order, an easy solution is to append a zero padded number to the name. For example,
    - 01-start.jpg
    - 02-intro.tif

    ...
    - 19-conclusion.jpg

Once you are happy with your directory structure and content, save to your USB drive and either use directly or synchronize to the internal hard drive.

Remember to try your disk in the system to see how it turned out and make adjustments if needed.

Saving Content to a USB Drive

Usually copying files to a USB drive is as simple as inserting the drive into a USB port on a computer, then copying over the files to it. The Digitarium system will not write to the drive itself and requires that there is only one partition on the drive.

Saving Content to the Internal Hard Drive

See menu item 8.7, above.

Media Scaling by File Name

Fulldome Video

If you always want to scale an image or video to fit the resolution of your system, you can simply rename the video file to end with a ".full." before the extension. For example: "video.full.mpg" On Windows PCs the extension may be hidden from you, in which case this may appear as "video.full" in the file explorer.

Spherical Video

If you want to easily display 360 degree (equirectangular spherical) image or video, rename the file with a ".360." before the extension. For example: "video.360.mp4" While viewing the media you can pan and tilt with the remote or gamepad to look around.

Open Captions

Open captions are lines of text that can display on the dome horizon while a video or audio file is playing. Open captions offer an alternate form of communication for those with hearing issues or who speak another language. Local disabilities laws may require the use of captions with prerecorded content.

When a video or audio file is started, the system will look for a captions files in SRT format. SRT is a very simple text file format that you can create yourself if needed:

https://en.wikipedia.org/wiki/SubRip#SubRip_text_file_format

If you play a file called "myvideo.mp4" the system will look first for a caption file called "myvideo.mp4.en.srt" where 'en' was the current sky locale (English). If no such file exists, the general "myvideo.mp4.srt" will be used, if present.

Caption display can be toggled with the ⓘ button.

Script Playback Mode

Scripting makes it relatively easy to create your own prerecorded segments and play these back on a Digitarium system. This allows you to automate repetitive or awkward tasks, customize aspects of Nightshade, or even create complete prerecorded shows. See the scripting documentation in your user manual binder for more information. Also be sure to visit the Digitalis Community website to download or share scripts and other resources:

http://Community.DigitalisEducation.com

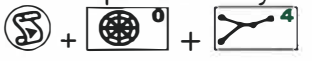
To run a script, bring up the Media Browser and navigate to the directory containing your script. Then just select the script with the  or  buttons. The Media Browser will close and the script will begin playing.

While a script is playing, you can pause, fast forward, play, stop, and adjust the volume as needed; you cannot rewind a script.

Button	***Script Playback Mode Function***
	Pause/continue script playback.
	Stop script playback.
	Play script at normal speed.
	Fast forward script. Can be pressed multiple times for faster rates.
	Decrease (-7) or increase (+7) script audio volume.

Random Access Script Feature

If you have a compatible remote control version you can play a script directly from the remote control in normal operating mode without having to bring up the menu. Simply begin your script file names with two digits from 00 to 99. Press the  button followed by the two digits within three seconds. Use the numbers printed next to the central buttons to enter digits. Once entered, Nightshade will search through the "/scripts" directories on the internal drive and mounted USB drives (in alphabetical order by label name). The first script found starting with those two digits will then be run, and you will be in script playback mode.

For example, if you had a script called "04-analemma.sts" in the scripts directory of your internal drive, you could start playing this script by pressing: 

Note that if you take more than three seconds to enter your digits, the number pad area buttons will stop functioning as digits and you will end up performing normal button actions.

Software Updates

This product is driven by software, and it can be updated easily over the Internet. Software updates allow you to receive changes and enhancements that were made after your purchase. The update process will also correct your system date and time, if needed. Updates are free for the life of your system. Update descriptions and download sizes are posted in the support section of the Digitalis website.

To update the software:

1. Locate an Ethernet network that supports the DHCP protocol and has Internet access. The system will need to be able to open an outgoing connection on TCP port 80. This is usually not a problem unless you are behind a restrictive firewall. See your local network administrator if you need assistance with this.
2. Plug a network cable into the socket located on the system.
3. Bring up the menu using the Digitarium system remote control, and go to menu section 8, Administration.
4. Scroll down to 8.4, “Update me over the Internet” and press  .
5. Press  to start and  once more to confirm.

   ⚠ **Do not shut down your system while performing an update. This can lead to a corrupted system that won't function. If there is a problem, the update should provide an error message. Otherwise it is still working and you will see a continuing animation.**

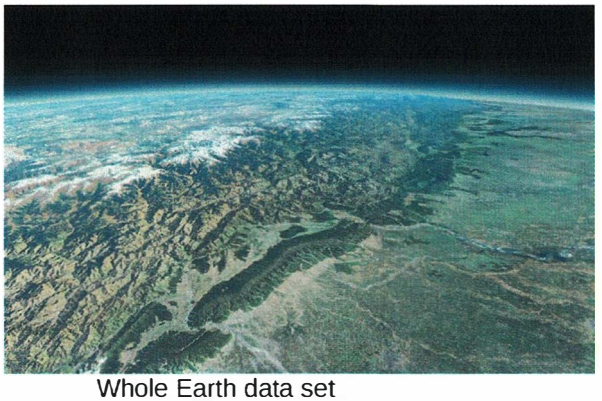
6. When done, you can unplug the network cable and return your Digitarium system to its usual use. If the update does not work, you will receive an error message explaining what went wrong.

We strongly encourage you to have a technical person who is familiar with your network assist you during your first attempt at software updating. Some network changes may be required in order for the updates to occur.

Add-On Data Sets

Enhance your exploration of planetary sciences with optional satellite and space probe data.

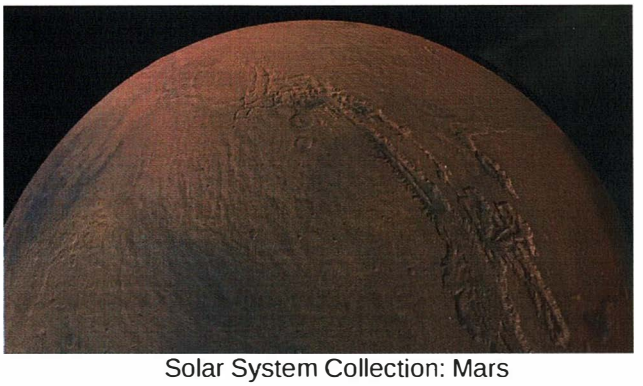
High resolution add-on data will enhance your shows with topography and/or imagery for select body surfaces. With your own local data there are no network or server headaches, no waiting for data to download, and no need to preplan your flight!



Whole Earth data set

Solar System Collection: Moon

Washington State data set



Solar System Collection: Mars

Add-On Data Instructions

If you just received a new add-on data set you just need to plug it into your system, update your system, and reboot to start exploring. Instructions for inserting external and internal drives follow:

Inserting External USB Drives

Some systems will have an external drive already attached. Should you need to set up an external drive:

1. If you have received an external USB drive, first plug the blue connector on the included USB cable into a blue USB slot on your control unit.
2. Next, if your drive came with a Y connector cable, plug the white USB connector into any available USB slot on the control unit.
3. Next, connect the drive connector end of the cable into the hard drive.

Inserting Internal SATA Drives

Drives are already inserted into your CU-1 and if Add-On data was included at the time of system purchase. Should you need to insert a newly purchased drive:

1. Grab your drive bay key from your user manual binder and unlock bay 3 or 4.
2. Open the drive bay door and insert the drive, sliding the large unlabeled side of the drive along the right side of the bay as shown in the image at right.
3. Close the bay door and lock it. Be sure to put your key back where you keep it.

Troubleshooting Common Problems

Symptom	*Possible Solution*
Remote buttons don't seem to work.	**1.** Are you in menu mode or playing a script? If so, exit. **2.** Are you aiming the remote control at the zenith (or external IR receiver)? **3.** Point the remote directly into the infrared receiver window and push a button. **4.** Check and replace the remote control batteries. **5.** Remove sources of IR interference such as Sunlight or fluorescent lights and then reboot the computer using the reset button.
Can't find cursor.	**1.** Are you in menu or media mode? If so, exit. **2.** Press the remote control arrow buttons to move the cursor so you can find it. (The cursor may have been set to time out via the configuration menu item 6.8. If you do not wish the pointer to time out, enter 0 as the cursor timeout value.)
Wireless gamepad does not work at all	**1.** Did you plug in the USB receiver into the Digitarium computer before booting? **2.** Did you pair your gamepad to the receiver? See instructions that came with the gamepad. **3.** Press the large center button (button 7 on diagram on page 5) and hold for at least one second. This should wake up the gamepad. **4.** If the center button is not flashing green (Microsoft Xbox controller) then replace your batteries in the gamepad and start over. **5.** If that fails, you may need to pair your gamepad to the receiver. See the instructions on page 6.
Wireless gamepad does not work well or gets stuck moving certain directions	**1.** Make sure you have line-of-sight visibility between the gamepad and the receiver. **2.** Minimize other wireless interference in your dome on the 2.4GHz frequency. **3.** Move closer to the receiver. **4.** Replace the batteries.
No sound when playing a video.	**1.** Are you sure the video has an audio track? **2.** Do you have speakers plugged in, turned on, and turned up loud enough to hear? **3.** Turn up the volume using the +7 button
Wireless gamepad flashes in an alternating pattern.	Replace the batteries.

Symptom	*Possible Solution*
Blotches of light across zenith while displaying video from an external source.	This happens when an image or video has bright regions outside the projection circle. This can also be caused by projector menu or notification messages. Size or mask images and videos so that no bright part is outside the projected area, or avoid showing images or videos with these bright regions. Nightshade performs dynamic masking so that this is not necessary while projecting content from the Digitarium computer.
Computer does not seem to boot.	Make sure the computer has power and that the main power switch (if any) is on. Look for the hard drive light flashing during boot up. If the computer is running the case fans should be running and detectable. Plug in speakers or headphones before booting so that you can hear the audible startup music when Nightshade has started. If you DO NOT hear the music, the problem may be a loose video card if you have a CU-1 computer. With power off jiggle the video card by grasping the vide cable connector. End by pushing down, away from the "Digitarium" labeled cover. If you hear the music, make sure your projector has the correct input source selected and that it is operating properly (bring up the projector menu, for example). If those seem correct, try reseating the video connectors and rebooting, or try a new video cable and reboot.

How to Get Help

If you are experiencing problems with your Digitarium® system, please:
1. Reread the manuals to make sure you have not missed a possible solution.
2. Contact your local distributor, or (English) technical support via:

- Link to web form (autofilled): http://DigitalisEducation.com/support
- Phone: +1.360.616.8915

Software Licenses

Your Digitarium system is driven by software. There are different types of software included on the system and each software package has it's own license:

1. Proprietary software and other copyrighted files are licensed for use only on Digitarium system hardware and may not be copied, used, or modified without permission. See the Software End User License Agreement below.
2. Software released under the GNU General Public License (GPL) or similar open source licenses can be copied or modified as long as the licenses are complied with. Open source code used in your system is available on the Digitalis Community website at:
http://community.DigitalisEducation.com/opensource

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Nightshade NG®

Getting Started Creating Scripts

Digitalis Education Solutions, Inc.

June 15, 2018

Introduction

Nightshade is an open source astronomy simulator designed for the planetarium and astronomy education community. It is used in literally hundreds of digital planetarium systems around the world. Nightshade can be automated using the StratoScript™ scripting language developed by Digitalis.

A Nightshade script is a text file with the extension ".sts" which contains a list of StratoScript commands. A command is an instruction telling Nightshade to perform a certain action. These commands cover just about everything you can do using the software manually, plus much more.

Scripting makes it relatively easy to create your own prerecorded segments and play these back. This allows you to automate repetitive or awkward tasks, customize aspects of Nightshade, or even create complete prerecorded lessons or shows.

How to run a script

On your Digitarium® planetarium system you can run a script in four different ways:

- Select a script in the Media Browser.
- Use the Script screen in the Universal Console™ application.
- Use the remote control to run a random access script by number. See the software user manual for details.
- One script can call another using the "script" command.

On a desktop the easiest way to run a script is via the random access script feature. Hit 'y' and then within three seconds hit the two digits that begin the script filename. For example, "y10" would run a script in the Nightshade NG scripts directory with "10" as the beginning of the filename ("10-moon.sts" or "10-jupiter.sts" for example).

To replay the last script, hit '` '(backtick) and then 'k'.

Startup script

If your have a script called "startup.sts" in the script directory, this will be run when Nightshade starts up automatically. On a Digitarium system this can be on removeable media in a scripts directory. This feature makes it simple to start a prerecorded show on an automated exhibit, or to automatically load a custom landscape that you will use during a live show.

Script playback

While a script is playing you can pause ('6'), or resume playback ('K') as needed (you can not rewind or fast forward currently). You can also use the -7 days and +7 days time keys ('[' and ']') to adjust the audio volume. To cancel a script hit the stop key ('7').

While a script is playing, you can continue to use many Nightshade features manually.

Special script features

Probably the most noticeable feature that scripting opens up is the ability to position images in the sky on cue. These can be positioned as 2D images or mapped onto various coordinate systems. Multiple images can move around the dome fading in and out, rotating, or scaling as needed.

Script Examples

Here are some illustrative examples of where scripts have been used:

- Load a landscape of the local city at start-up
- A seasonal night sky show which repeats in an unattended exhibit
- Simulate an aurora using moving images
- 20 minute fulldome show with soundtrack, narration, and animated characters who take a tour of the solar system
- Visit the Moon and look back at Earth
- Go through a year one sidereal day at a time with planet trails on to show retrograde motion
- Load the 500 brightest asteroids and ride a comet past the Sun while viewing their trails

Every time you update your Digitarium you get updated local scripts with satellite, comet, and other useful scripts. See the "Local" drive in your Media Browser.

Creating a script

Often the best way to get started is to start with someone else's script that is close to what you want to do already. You can download scripts from http://Digitarium.com/community

Creating a script is an iterative process. It is unlikely your script will work perfectly the first time unless it is very simple. Usually it will take a number of editing and retesting steps.

If you are creating a script for playback on a planetarium system, install the latest desktop version of Nightshade NG via STEAM, once available. Be sure to grab the latest version of the StratoScript Command Reference.

For very simple scripts you can just create a .sts file in a text editor and run this in Nightshade on a desktop computer to test. If you put the file in your Nightshade scripts directory and name it appropriately you can use the random access scripts feature, discussed above, to run it.

Once you have played a script and want to make changes, you can leave Nightshade running, edit your script with a text editor, and then hit backtick 'k' to replay the last script and retest.

For complex scripts, we suggest this process:

1. Outline what you want to do.
2. If you are creating a narrative audio track, write out a narrative so that you can plan out your words, actions, and timings.
3. Record your audio track, if applicable.
4. On a desktop running Nightshade simultaneously start playing your audio track and recording a Nightshade script (hit CTRL-R to start or stop recording actions in Nightshade and note to what script file they are being recorded).
5. Now edit your recorded script in a text editor to add commands to play your soundtrack, set up the correct initial state for your script, or add commands that you can't record through Nightshade, such as showing images.
6. Play back your script on the desktop Nightshade. Fix any problems by editing the script. Replay and make further changes. Repeat until you are happy. If you put the command “flag script_gui_debug 1” at the start of your script, error messages will be displayed directly on screen in Nightshade.

Potential pitfalls

Initial State

Remember that you need to be very careful in your scripts to set up an appropriate initial state. For example, if your script zooms in on Venus, you need to make sure that the landscape and atmosphere are turned off. Otherwise the audience might suddenly end up zoomed in on a blade of grass because someone ran the script with a landscape on at a different time or longitude than you planned. Or imagine talking about the full night sky when the user is still zoomed in on Jupiter from a previous discussion. We strongly recommend using the “clear” command at the start of your script unless you definitely don't want to modify the user's initial state when your script is run.

Filename Problems

When changing the file name of a script, do this with the “Save as” feature of your text editor. Using the Windows file manager can cause problems if it adds an extension (such as “.txt”) to the actual file name without your knowledge. Be careful to match filename capitalization exactly. While Windows is case insensitive (and thus might run your script perfectly) Digitarium systems are case sensitive and will not find a filename that does not match capitalization exactly ("First.PNG" will not match "First.png").

Platform Differences

Also bear in mind that there are a few unavoidable differences between Nightshade on different platforms. In particular, video playback performance will not be identical and high resolution terrain and topography is not published for Windows at this writing.

Resolution Planning

Images can be in almost any format and do not need to be any particular dimensions. If sharing a script, do plan for a wide range of systems (768 to 4k and up pixel diameter domes) and use high enough resolution files. Plan for at some point upgrading your own system and being able to reuse scripts you are writing today. For small image sizes use JPEG format. If you need transparency, use PNG format.

Coordinate Systems

When using the horizontal coordinate system for images, bear in mind that the images are drawn in the observer's horizontal coordinates, not the dome's horizontal coordinates. In other words, if you zoom in on a planet, odds are you won't see any of your images, as the observer's field of view is so small. If you do want the images to be visible in such a case, you could instead use dome coordinates.

Showing Media

When playing audio or showing an image, remember that these are automatically unloaded when your script ends (unless using persistent image commands). So you will need to put a delay (wait command) into your script to hear audio or see an image. Also note that the default alpha (transparency) setting is invisible (0) for images, so you need to set the image alpha yourself to have a visible image (1 is fully visible).

User content loaded from scripts that persist (bodies, images, etc.) can be dropped by hitting backtick Escape.

Key Frame Animation

To aid smooth playback of motion through space, Nightshade NG has the concept of key frames. While recording a script you can get into position and then hit CTRL-k to record a key frame. This records your current position and orientation. Move to the next position you want to travel to and hit CTRL-k again, and so on until you are done moving.

When the script is played back, you will move between the key frames reaching each at the exact time you hit CTRL-k while you were recording. As of this writing, there is no interpolation between more than two frames, so motion stops momentarily at each key frame rather than being completely fluid. This is on our roadmap to fix.

Conclusion

Scripting is a powerful tool, but like other powerful tools, it is also can be complex to master. Help is available via:

- The free Digitarium Community StratoScript Forum
- One on one help from Digitalis Priority Support with paid subscription.

StratoScript is a simple yet powerful scripting language developed by Digitalis Education Solutions, Inc. for automating planetarium simulation software. Anyone with some astronomy knowledge can be successful with StratoScript scripting. Use it to alleviate tedious manual sequences or provide special effects with image manipulation, audio, video playback (where supported), and more.

This document outlines StratoScript commands supported by: **Nightshade NG 18.7.x**

StratoScript features have been enhanced with Nightshade NG through the addition of new commands, new arguments, and the much greater capabilities of NG. Scripts designed for the older versions of Nightshade should mostly work with NG, except that a few features are not supported. See the notes below on a blue background and this summary page which is kept up to date:

http://NightshadeSoftware.org/projects/nightshade/wiki/StratoScript_in_NG

The Basics

StratoScript files end in a ".sts" extension and should be formatted in UTF-8 encoding (ASCII is acceptable as it is a subset of UTF-8).

Command format:

- Each command is a single line (terminated with a newline character). If you need a newline in an argument value you must use "\n".
- Each command consists of a command name followed by an optional list of arguments in the form of name/value pairs:

```
COMMAND ARG_NAME1 ARG_VALUE1 ARG_NAME2 ARG_VALUE2 ...
```

- Whitespace is used as a delimiter.
- Argument values requiring included whitespace must be enclosed in double quotes. If you want a double quote within a value you can precede it with a backslash.

```
"This is a value with spaces."
"What is a \"blue moon?\""
```

- Commands and argument names are not case sensitive.
- Argument values are case sensitive.
- Argument pairs can be arranged in any order.
- When multiple arguments are required to perform a command, they must all be supplied at the same time (in the same single-line command).
- Comments start with a '#' character. Anything to the right of and including a '#' is ignored unless the '#' is preceded by a backslash.

```
# My script about the Sun
select planet Earth # this is a comment and will be ignored
text name title action load string "Lesson \#1" alpha 1
```

- If an argument is not defined it will be ignored if possible. Otherwise it will default to zero if a number is required, or an empty string otherwise. Any different default values are documented below in the command argument descriptions.

Example Commands:

```
select planet Jupiter
flag atmosphere on
date utc 1999-08-11T12:00:00
wait duration 2.5
moveto lat 45.7 lon -122 duration 5
landscape action load type spherical texture egarden.png
select nebula M31 pointer off
set home_planet "Solar System Observer"
```

Best practice is to use the “require” command as the first command in your script as this alerts Nightshade and users to the requirements for proper playback. For best results you should develop scripts using the same software version and projection mode intended for playback.

Please note that the Community version of Nightshade NG does not support fisheye projection mode. Also note that some features like video playback may not work on the Windows versions of Nightshade NG.

Format of this document:

Command Name

Command description.

argument_a

`AU (REAL)`

A description of what the argument value means follows each argument option. If an argument value is all caps like "AU" it is purely descriptive, and should be substituted with an appropriate value. "REAL" in parenthesis shows that this is a real number, defined in the next section.

argument_b

`literal_argument_value`

Argument values that are literal strings are lower case and are used exactly as listed. Examples (note the box used for examples):

```
literal_argument_value
"literal_argument_value"
```

`ARGUMENT_VALUE (STRING)`

A standard argument value (defined in the next section) will always be defined, here "(STRING)" clarifies exactly what type of value is required.

In this example, the argument "argument_b" can have any string value desired, but "literal_argument_value" would have a special meaning, which would have been described here.

argument_c

Notes about current or future changes have this blue background.

Standard Argument Values

Many argument values are standardized and defined in this section. If an argument value is ALL CAPS refer to this section for its definition.

Fundamental Values

`DATE_TIME`

A date and/or time specified in ISO8601 format: year-month-dayThour:minute:second

In StratoScript the date or time portion can be left off, in which case the 'T' separator is not required.

```
-200-03-22T13:33:00
59900-12-31T01:00:00
1918-11-11
20:30:0
```

`DIRECTORY`

A case sensitive directory (folder) relative to directory the running script is located in.

```
MyMedia
"jupiter directory"
moons/irregular/Mars
```

FADER

A real number between 0 and 1, inclusive. Used to adjust a value between off (0) and fully on (1).

FILENAME

A valid filename which is case sensitive. Path must be relative to the directory the script is running from. Note that the required file type(s) vary by command.

```
MyMedia/something.jpg
thing.ogg
```

INTEGER

A whole number. Specific ranges are limited for some arguments, but the internal implementation is a C++ 'integer' with a range of at least –2,147,483,648 to 2,147,483,647.

```
5
-123
0
```

ON_OFF

A value of "on" or "1" is on. Off is "off" or "0".

ON_OFF_TOGGLE

A value of "on" or "1" is on. Off is "off" or "0". "toggle" means turn off if currently on, or vice versa.

REAL

A real number. Specific ranges are limited for some arguments, but the internal implementation is a C++ 'double' with a range of at least 1.7E +/- 308 (15 digits).

```
1900
2.345
-0.0004
```

STRING

A string. If the string contains spaces it needs to be quoted. It is best to assume that strings are case sensitive (capitalization has to match). Default is an empty string.

```
"a string with spaces"
```

Other Values

COORDINATE_SYSTEM

A number of useful coordinate systems are defined for positioning media, such as images, on the celestial sphere. The following are the supported coordinate system names and descriptions.

- **dome** – Altitude is the angular distance from the horizon, positive above and negative below the horizon. Azimuth is the angular distance from the direction opposite the focal point azimuth direction in a counter-clockwise direction if you are facing the zenith of your dome. Dome coordinates are only affected by your focal point and do not move with heading, pitch, etc.
- **equatorial** – Right ascension (**ra**) and declination (**dec**) in equatorial coordinates based on the equinox of date.
- **galactic** – Right ascension (**ra**) and declination (**dec**) in galactic coordinates.
- **geocentric** – Latitude (**lat**) and longitude (**lon**) of the currently anchored body.

- **horizontal** – Altitude is the angular distance from the horizon, positive above and negative below the horizon. Azimuth is the angular distance from North along the horizon, positive in the North to East rotational direction (counter-clockwise if you are facing the local zenith).
- **j2000** – Right ascension (**ra**) and declination (**dec**) in J2000 equatorial coordinates.
- **viewport** – A 2D coordinate system overlayed on the screen with x (**xpos**) and y (**ypos**) coordinates. The center of the viewport is (0,0). X is positive to the right, Y is positive up. Note: In fisheye mode (Nightshade NG Professional and Basic editions only) the viewport is a square just containing a non-truncated fisheye projection circle. In NG the viewport is rotated so that the bottom of the viewport (down direction in the image) is aligned to the focal azimuth direction.

The following table lists the recommended position argument names for each coordinate system. Note that **xpos** and **ypos** are also supported for all systems but are not intuitive. All position arguments are **REAL** values, using degrees for any angles.

coordinate_system	Argument A (xpos)	Argument B (ypos)
dome	altitude	azimuth
equatorial	dec	ra
galactic	dec	ra
geocentric	lat	lon
horizontal	altitude	azimuth
j2000	dec	ra
viewport	xpos	ypos

DEGREES (REAL)

Angular degrees. Note that these are true decimal degrees; do not confuse with formats using a decimal point but hours or minute notation.

```
35
-540.23
```

DISTANCE

A **REAL** combined with an optional supported unit of length (with no white space in between). Units are case insensitive. Default units are meters. Supported units are:

- m – meter
- km – kilometer
- AU – Astronomical Unit
- ly – light-year
- pc – parsec
- mly – mega light-year
- % - percentage of current distance

```
1au
10km
50%
30000
```

MARKUP_STRING (STRING)

A **STRING** that allows newlines (as "\n" escape sequences) and also supports some formatting markup tags. The following markup tags can be used. Note that tags have a beginning and an ending tag as shown:

bold

italics

^{superscript}

_{subscript}

```
You\nAre\nHere.
H<sub>2</sub>O
E = MC<sup>2</sup>
This is my <b>favorite</b> star.
```

RGB (FADER,FADER,FADER)

A color defined by red, green, and blue values in that order. Remember to include quotes if you put spaces between the numbers.

```
1,0.5,0
"0.33, 0.2, 0.9"
```

VECTOR3 (REAL,REAL,REAL)

A vector defined by x, y, and z values in that order. Remember to include quotes if you put spaces between the numbers.

```
1,0.5,0
"-0.33, 5.2, 0.9"
```

Command Index

audio

Play and control audio tracks. Note that an audio track is stopped when the script that started it is stopped or finishes.

```
audio action play filename test.ogg name introduction
```

action

`drop`

Halts playback and drops the track from memory. To resume an audio track after pausing it where you left off, you can call action "play" again, but be sure not to specify a filename or it will treat it as a new track.

`pause`

Pause currently playing script audio track.

`play`

Resume playing the existing script audio track if currently paused or begin playing a new track if a 'filename' argument is defined.

`resume`

Resume playing a paused audio track.

`sync`

Deprecated.

filename

`FILENAME`

Used with "play" action. Format support depends on your binary. Ogg Vorbis format is recommended for best compressed quality and backward compatibility. WAV format is also supported.

loop

`ON_OFF`

Used with "play" action.

name

`STRING`

Unique name to identify the audio track. Required if you want more than one track.

seek

`[+-]SECONDS (REAL)`

Jump to a new position in the audio file. The brackets mean that this value can begin with an optional '+' or '-'. If it does the seek will be made relative to the current position. Otherwise the position is measured from the beginning of the track. Can be used with the 'play' action to start somewhere besides the beginning of the track.

volume

Better results will be obtained by adjusting the volume in the actual audio track itself with an audio editor like the free Audacity project (http://audacity.sourceforge.net/).

`decrement`

Reduce audio volume by a step of 10% of maximum volume.

`increment`

Increase audio volume by a step of 10% of maximum volume.

`FADER`

0 is muted, 1 is maximum volume.

body

Load a solar system body such as an asteroid, comet, or artificial satellite.

albedo

`FADER`

Reflectance of the body. 1.0 = White, 0.0 = Black.

action

`clear`

To remove all script added bodies at once use the "clear" action. This will not perform any action if the home planet would be dropped.

`drop`

Remove an added solar system body with the "drop" action and "name" parameter. Only bodies loaded from scripts with no currently loaded satellites and that are not the current home planet can be dropped.

`load`

Add a new solar system body defined by further arguments.

batch

`begin`

When loading a collection of new bodies, this tells Nightshade to begin processing a set of body commands in the most efficient way possible. Use this argument on the first command in the set.

`end`

Finish processing a set of body commands and make them visible. Use this argument on the last command in the set.

close_orbit

`TRUE_FALSE`

Orbit visualizations may not look very jagged or misleading with, for example, hyperbolic orbits due to the large orbit and small sampling size of the orbit line. A false argument value will prevent the connecting line between the start and end of the visualization period from being connected with a line segment.

color

`RGB`

General color of the body (affects the halo color).

coord_func

`ell_orbit`

Elliptical type orbit.

`comet_orbit`

Comet type orbit.

halo

TRUE_FALSE

Is it bright enough to have a halo?

lighting

TRUE_FALSE

Is the body lit by the Sun?

lighting_model

phong

oren-nayar

What lighting model to use for a body. For a spherical body, the default is 'oren-nayar' which is realistic for dusty bodies. The 'phong' option is the default for other models and is realistic for artificial bodies like spacecraft.

model

spherical

MODEL_FILENAME

Load a 3D model of the body. The model will be scaled to fit withing a sphere sized to the **radius** argument. The default is a 'spherical' body, which will be scaled for the specified **oblateness**.

model_front

VECTOR3

If you are loading a model such as an artificial satellite that needs to stay aligned to its orbit, this vector defines which direction is toward the direction of forward motion. This will override other rotational parameters other than model_gravity. If you load your model in osgviewer (part of the OpenSceneGraph project) it starts up with x positive to the right, y positive into the screen, and z positive up. If the front of the model is to the right in osgviewer, the model_front vector would be “1,0,0”.

model_gravity

VECTOR3

If you are loading a model such as an artificial satellite that needs to stay aligned to the parent body, this vector defines which direction faces down towards the parent in model coordinates. This will override other rotational parameters other than model_front.

name

STRING

Required. The body will not be added if there is already a body with the same name.

oblateness

REAL

How 'squashed' is the body? A perfect sphere has an oblateness of zero.

orbit_AscendingNode

DEGREES

orbit_ArgOfPericenter

DEGREES

Used to define elliptical or comet orbits.

orbit_color

RGB

Color of the orbit visualization line.

orbit_eccentricity

REAL

A circle has ratio of 0.0.

orbit_epoch

JULIAN_DATE (REAL)

Used to define elliptical orbits.

orbit_inclination

DEGREES

orbit_LongOfPericenter

DEGREES

Used to define elliptical orbits.

orbit_MeanAnomaly

DEGREES

Used to define elliptical orbits.

orbit_MeanLongitude

DEGREES

Used to define elliptical orbits.

orbit_PericenterDistance

AU (REAL)

Used to define comet orbits.

orbit_period

DAYS (REAL)

Used to define elliptical orbits.

orbit_SemiMajorAxis

KILOMETERS (REAL)

Used to define elliptical orbits.

orbit_TimeAtPericenter

JULIAN_DATE (REAL)

Used to define comet orbits.

orbit_visualization_period

DAYS (REAL)

How many days to use when drawing the orbit line for the body. The visualization is roughly centered on the body at it's current position.

parent

STRING

Parent body name in English. Required. Case sensitive.

radius

KILOMETERS (REAL)

Radius of the body.

rot_period

HOURS (REAL)

Body rotation period (not orbit period) in hours.

rot_periode

Synonym for "rot_period" which is preferred.

rot_pole_ra

DEGREES

North pole right ascension at epoch.

rot_pole_de

Synonym for "rot_pole_dec" which is preferred.

rot_pole_dec

DEGREES

North pole declination at epoch.

rot_rotation_offset

DEGREES

Offset of the prime meridian.

tex_map

FILENAME

Surface texture image.

tex_halo

FILENAME

Halo texture image.

clear

A shortcut to turn off lines and labels easily. If state is natural, ground and atmosphere will be turned on, otherwise these will be turned off.

state

natural

Turn off all labels, lines, and art. Turn planet, star, and nebula rendering on. Deselect any selected objects. Return to initial fov and viewing direction.

color

Specify the color of a drawn element. Example which sets body orbits to bright yellow:

```
color property planet_orbits r 1 g 1
```

alpha

FADER

Opacity value. Defaults to 1 (opaque). Although all properties will accept an alpha value, not all properties will render with transparency.

b

FADER

Blue value. Defaults to 0.

g

FADER

Green value. Defaults to 0.

property

azimuthal_grid

cardinal_points

circumpolar_circle

constellation_art

constellation_boundaries

constellation_lines

constellation_names

ecliptic_line

equator_grid

Synonym for **equatorial_grid** which is preferred.

equatorial_grid

equator_line

galactic_grid

galaxy_points

j2000_grid

meridian_line

nebula_circle

nebula_names

object_trails

Deprecated feature.

planet_names

planet_orbits

precession_circle

satellite_orbits

tropic_lines

Color for orbits of bodies which do not orbit the Sun.

r

FADER

Red value. Defaults to 0.

configuration

action

load

Reload the user's default settings.

cove_lights

Control certain dome cove light systems. Only supported on Digitarium planetarium systems. The lights will change over the time specified by the **duration** argument to the color specified by the **r**, **g**, and/or **b** arguments. Alternately, use a preset setting.

duration

SECONDS

Number of seconds to transition to a new color given by the **r**, **g**, and/or **b** arguments. If absent, the duration defaults to zero.

r

FADER

Red value.

g

FADER

Green value.

b

FADER

Blue value.

preset

INTEGER

An integer denoting the desired preset to load. The **duration** argument will not effect preset loading.

date

Change the simulation date and/or time.

duration

SECONDS

Number of real world seconds to transition to a new date given by other arguments. Default is zero for an immediate change.

jday

JULIAN_DATE (REAL)

Set date to current Julian date.

load

`current`

Set date to current (real world) date.

`preset`

Set date to preset start up date.

local

`DATE_TIME`

Set time to a specified date and/or time using the current timezone. When no date is specified, the current simulation date is used. When no time is provided, the current simulation time is used.

relative

`DAYS (REAL)`

Change date and time by DAYS (can be fractional).

sidereal

`SIDEREAL_DAYS (REAL)`

Change date and time by SIDEREAL_DAYS (can be fractional) based on the planet or moon you are on.

utc

`DATE_TIME`

Set time to a specified date and time in the UTC timezone. When no date is specified, the current simulation date is used. When no time is provided, the current simulation time is used.

deselect

With no arguments, deselects current object selection, including any constellation selection. See select command.

constellation

`CONSTELLATION_SHORT_NAME`

With a 3 character constellation abbreviation specified, will only deselect that constellation. See: http://nightshadesoftware.org/projects/nightshade/wiki/Constellation_Abbreviations

external_viewer

Will still work, but deprecated. See 'video' command.

flag

Flags are simple on/off type settings.

atmosphere

`ON_OFF_TOGGLE`

Draw atmospheric effects.

azimuthal_grid

`ON_OFF_TOGGLE`

Draw azimuthal grid.

cardinal_points

ON_OFF_TOGGLE

Draw cardinal points.

clouds

ON_OFF_TOGGLE

Draw clouds when rendering planets such as Earth.

circumpolar_circle

ON_OFF_TOGGLE

Draw circumpolar circle showing limit of sky visibility.

constellation_art

ON_OFF_TOGGLE

Draw constellation artwork.

constellation_boundaries

ON_OFF_TOGGLE

Draw contellation boundaries.

constellation_drawing

See synonym 'constellation_lines'

constellation_lines

ON_OFF_TOGGLE

Draw constellation line drawings.

constellation_names

ON_OFF_TOGGLE

Draw constellation labels.

constellation_pick

ON_OFF_TOGGLE

Select constellation pick mode (whether to only draw selected constellations).

ecliptic_line

ON_OFF_TOGGLE

Draw ecliptic line.

equator_line

ON_OFF_TOGGLE

Draw equator line.

equatorial_grid

ON_OFF_TOGGLE

Draw equatorial grid.

galactic_grid

ON_OFF_TOGGLE

Draw galactic grid.

galaxy_points

ON_OFF_TOGGLE

Draw SDSS galactic point data.

j2000_grid

ON_OFF_TOGGLE

Draw J2000 grid.

landscape

ON_OFF_TOGGLE

Draw the landscape.

light_travel_time

ON_OFF_TOGGLE

Whether to correct for light travel time when rendering planets and moons. For performance reasons this is a close approximation.

manual_zoom

ON_OFF_TOGGLE

Select manual zoom mode.

media_captions

ON_OFF_TOGGLE

Draw text captions during audio or video playback if available.

meridian_line

ON_OFF_TOGGLE

Draw the meridian line.

milky_way

ON_OFF_TOGGLE

Draw the Milky Way.

Not currently supported but can use “set milky_way_intensity 0”

moon_scaled

ON_OFF_TOGGLE

Draw the moon scaled.

nebula_names

ON_OFF_TOGGLE

Draw nebula labels.

object_trails

Deprecated. See **time_lapse** flag.

planets

ON_OFF_TOGGLE

Draw planets and moons.

Not currently supported

planet_names

ON_OFF_TOGGLE

Draw planet labels.

planet_orbits

ON_OFF_TOGGLE

Draw planet orbits.

precession_circle

ON_OFF_TOGGLE

Draw Earth precession circle.

script_gui_debug

ON_OFF_TOGGLE

If on, will print script errors to the screen. Good for debugging.

shadow_volumes

ON_OFF_TOGGLE

Show volumes to visualize body shadows.

show_framerate

ON_OFF_TOGGLE

Shows the current rendering framerate next to the date for debugging purposes.

show_tui_datetime

ON_OFF_TOGGLE

Draw the date and time.

show_tui_short_obj_info

ON_OFF_TOGGLE

Draw information about the selected object.

star_names

ON_OFF_TOGGLE

Draw star labels.

star_twinkle

ON_OFF_TOGGLE

Draw stars twinkling.

stars

ON_OFF_TOGGLE

Draw stars.

time_lapse

ON_OFF_TOGGLE

Make a time lapse exposure of non-synthetic scene elements. Illustrate planetary trails, star trails, analemma, etc.

track_object

ON_OFF_TOGGLE

Center view on currently selected object.

translate_constellation_names

ON_OFF_TOGGLE

Whether to translate constellation names into the current sky locale. If you do not want to show translated constellation labels, set to false. If false, for example, you will see Latin names for all Western sky culture constellations.

tropic_lines

ON_OFF_TOGGLE

Draw tropic line.

flyto

Fly straight to the currently selected object or an object of your choice.

alt

DISTANCE

Altitude desired above the object at final destination.

duration

SECONDS (REAL)

How long to take to effect this change. Defaults to 0.

object

OBJECT_NAME (STRING)

Object to fly to. Defaults to currently selected object, or if none, the currently anchored object.

As a side effect the object flown to becomes selected.

image

Display images. Images are loaded as transparent by default, so be sure to set the alpha value to be visible. Note that an image is dropped when the script is stopped or finishes.

action

load

Load a new image to display.

drop

Drop images when no longer needed to improve performance.

alpha

FADER

0 is transparent (default), 1 is opaque. Note that images are drawn in the order they were loaded.

altitude

DEGREES

For positioning the center of the image in horizontal/dome coordinates. Zero is at the horizon, 90 is at the zenith.

azimuth

DEGREES

For positioning the center of the image in horizontal/dome coordinates. Please see page 4.

clone

ON_OFF

Whether to clone an image on opposite sides of the dome when using dome coordinates.

coordinate_system

COORDINATE_SYSTEM

What coordinate system to use when positioning the image. This can not be changed later.

dec

DEGREES (REAL)

Declination of the image center for "equatorial" and "j2000" coordinate systems.

duration

SECONDS (REAL)

How long to take to complete the command.

filename

FILENAME

Path must be relative to script. For the greatest backward compatibility or if you want transparency then PNG format is recommended.

lat

DEGREES (REAL)

Latitude of the image center for "geocentric" coordinate system.

lon

DEGREES (REAL)

Longitude of the image center for "geocentric" coordinate system.

persist

ON_OFF

If on, the image will persist even after the script ends. You can continue to control the image through the image command in other scripts by referencing name.

name

STRING

Unique name used to refer to the image in later calls to manipulate the image.

ra

DEGREES (REAL)

Right ascension of the image center for "equatorial" and "j2000" coordinate systems.

rotation

DEGREES

Absolute rotation about the center of the image, positive is clockwise when looking towards the center of the image.

scale

fill

In viewport coordinates, the image is scaled to completely cover the viewport while preserving the image aspect ratio. This means some of the image may be outside of the viewport. This argument is invalid for any other coordinate system.

REAL

How large to draw the image. In viewport coordinates, at 1 the image is scaled to fit maximized in the viewport without extending beyond the viewport edges. In other coordinate systems, this defines the maximum angular dimension of the image in degrees.

xpos

REAL

Position of the image center in "viewport" coordinates. In perspective projection mode the viewport is usually the screen. In fisheye mode (Nightshade Professional only) the viewport is a square just containing the fisheye projection circle.

Zero is center of viewport, 1 is the right edge of the viewport, -1 is the left edge of the viewport.

ypos

REAL

Position of the image center in "viewport" coordinates. In perspective projection mode the viewport is usually the screen. In fisheye mode (Nightshade Professional only) the viewport is a square just containing the fisheye projection circle.

Zero is center of viewport, 1 is the top edge of the viewport, -1 is the bottom edge of the viewport.

landscape

A landscape surrounds the viewer and is typically a photographic panorama with the sky areas transparent for sky viewing. Landscapes only draw if the user is "landed" on a body.

action

load

Load a landscape.

fov

DEGREES

For fisheye type landscapes, sets the field of view of the texture, typically 180°. Default is 180°.

base_altitude

DEGREES

For spherical type landscapes, sets the altitude angle of the bottom of the texture. Default is -90°.

body

BODY_NAME (STRING)

If defined, the landscape will only display when on the named body (for example, 'Mars').

night_texture

FILENAME

This image will fade in overlaying the normal texture as it gets dark. This image is optional. The file name needs to be specified in full including the path relative to the script. Must be PNG format with the sky transparent.

mipmap

ON_OFF

Whether to use mipmapping. If you have high contrast texture details, your landscape may look better with this option. Default is off.

rotate_z

DEGREES

Rotate the landscape around the z (up) axis. Default is 0° with the spherical landscape seam to the East and a fisheye oriented with the texture top at North.

texture

`IMAGE_FILENAME`

The standard landscape image. The file name needs to be specified in full including the path relative to the script. Must be PNG format with the sky transparent.

top_altitude

`DEGREES`

For spherical type landscapes, sets the altitude angle of the top of the texture. Default is 90°.

type

`fisheye`

`spherical`

The "fisheye" type is best is you have only one fisheye image with the zenith in the center. The "spherical" type is recommended for it's simplicity and also can support cylindrical landscapes using base_altitude and top_altitude parameters.

The "old_style" type has been deprecated.

layer

Add data layers such as satellite imagery, topographic height fields, or false color data visualization layers to reference frames (currently select bodies, but soon the sky itself). Data layers can cover the entire object or just be an inset of detail for a particular area. Data layers are implemented through the osgEarth library, so documentation for this library may be helpful for more advanced uses. Layers stay loaded until explicitly dropped or you restart Nightshade. A simple example:

```
layer name sea reference_frame Earth action load url imagery/sea.TIFF
# Fade up over 3 seconds
layer name test alpha 1 duration 3
wait duration 3
```

action

`clear`

Drop all user loaded layers. Can also specify **reference_frame** to limit to layers on that object.

`load`

Load a new layer to display.

`drop`

Drop a layer when no longer needed to improve performance.

alpha

`FADER`

0 is transparent (default), 1 is opaque. Note that layers are drawn in the **z_order** defined, defaulting to newer layers over older layers.

duration

`SECONDS (REAL)`

How long to take to complete the command.

inset

`TRUE_FALSE`

If a data layer does not cover the whole surface of the object set this to true.

lighting

ON_OFF

If lighting is on (default) then a body is shadowed normally. When off, the entire object is lit for better visibility.

max_level

INTEGER

Stop drawing the layer after this level of detail is reached. Level 0 is the least detailed with the level number increasing with detail.

min_level

INTEGER

Start drawing the layer when this level of detail is reached. Level 0 is the least detailed with the level number increasing with detail.

name

STRING

Unique name used to refer to the layer in later calls to manipulate the layer.

reference_frame

STRING

Name of the reference frame to load the layer into. Built in options are:

```
Mars
Mercury
Moon
Earth
Europa
```

type

heightfield

image

Type of data layer. The default type is image. A heightfield is used for topography.

url

URL

This is the location of the data layer file or network resource. File paths are relative to the script itself.

xmax

DEGREES

If using an inset layer this defines the maximum X extent of the layer in degrees of longitude.

xmin

DEGREES

If using an inset layer this defines the minimum X extent of the layer in degrees of longitude.

ymax

DEGREES

If using an inset layer this defines the maximum Y extent of the layer in degrees of latitude.

ymin

DEGREES

If using an inset layer this defines the minimum Y extent of the layer in degrees of latitude.

z_order

INTEGER

Data layers stack on top of each other and the **z_order** defines this order. The **z_order** increases from the lowest layer. By default loading a layer places it on top with the highest **z_order**.

meteors

action

reset

Reset the radiant location to the apex of the Earth's way in space and the background meteor rate.

dec

DEGREES (REAL)

Declination of the radiant center in "j2000" coordinate system.

ra

DEGREES (REAL)

Right ascension of the radiant center in "j2000" coordinate system.

velocity

default

METERS_PER_SECOND (REAL)

Speed of the meteors relative to the Earth.

zhr

default

ZENITH_HOURLY_RATE (REAL)

Zenith hourly rate in meteors per hour.

moveto

Move to another location. Latitude, longitude, pitch, heading, and altitude all are adjustable independently.

Currently the different dimensions can not be updated on overlapping moveto commands. For example, if one moveto starts while another is still running, the first will be interrupted by the second moveto command.

acceleration

FADER

Adjust the acceleration curve of the moveto altitude/distance animation. The value 0 produces linear motion.

alt

default

DISTANCE

Altitude or distance above the surface of the destination object. Value of "default" will reload saved value from configuration file.

duration

default

SECONDS (REAL)

How long to take to effect this change. Value of "default" will use the value from your configuration file for auto_move_duration.

heading

default

DEGREES

Heading relative to North. Positive to the East. Value of "default" will reload saved value from configuration file.

This is not backward compatible with Nightshade Legacy **moveto heading** which was relative to screen up direction.

land

default

ON_OFF_TOGGLE

Whether to be landed on the anchored body at the end of the movement. Altitude must be relatively low for land to be able to take effect. Value of "default" will reload value from configuration file.

lat

default

DEGREES

Latitude. South is negative. Value of "default" will reload value from configuration file.

lon

default

DEGREES

Longitude. West is negative. Value of "default" will reload value from configuration file.

look_at

ON_OFF

If on, you will look at the anchored object over a duration of ¼ your total moveto duration.

object

default

OBJECT_NAME (STRING)

You can change your anchored body as part of a moveto. Value of "default" will reload value from configuration file.

pitch

`default`

`DEGREES`

Pitch. Positive up from the horizon. Value of "default" will reload value from configuration file.

roll

`default`

`DEGREES`

Roll. At zero roll the horizon is level, with positive rotation of the horizon in the counter-clockwise direction about the focal point. Value of "default" will reload value from configuration file. Warning: roll and heading are conflated when tracking a body, which can lead to unpredictable results.

nebula

Not implemented.

action

`load`

Load a new nebula to supplement or replace a standard nebula image.

`drop`

Drop a script added nebula (use the name parameter).

`clear`

Clear all script added nebulae.

angular_size

`ARC_MINUTES (REAL)`

Image angular size.

credit

`STRING`

Credit for the photographer who has provided usage permission.

de

Synonym for "dec" which is preferred.

dec

`DEGREES`

Declination.

distance

`LIGHT_YEARS (REAL)`

Distance to the nebula from the Sun.

filename

`FILENAME`

Texture image.

magnitude

`MAGNITUDE (REAL)`

Apparent visual magnitude of the nebula.

name

`STRING`

Name of an existing or new nebulae.

ra

`DEGREES`

Right ascension.

rotation

`DEGREES`

Rotation of the image texture around it's center.

texture_luminance_adjust

`REAL`

Allows adjustment of the texture brightness. Default is 1 (no adjustment).

require

This command is highly recommended to be the first line of every script you create. It identifies what is required for faithful playback of the script. This helps users understand what scripts are compatible with their software version and also affects some StratoScript behaviors for backward compatibility. In the future warnings may be displayed for incompatible scripts.

```
require projection_type perspective version 15.1.1 release community
```

projection_type

`perspective`

`fisheye`

Identify what projection type is required, if this matters.

release

`basic`

`community`

`professional`

Identify what software release is required, if this matters. The biggest potential issue is that Nightshade Basic is limited to travel within the solar system.

version

`INTEGER.INTEGER.INTEGER`

Use to define what minimum version of Nightshade is required. If no version is supplied, a script will be assumed to be written for version 11.12.1 (Nightshade Legacy), meaning that you will get some deprecated behavior such as no easing (speed ramp up and down at start and end of motion) on moveto animations.

script

action

`end`

See 'stop'.

play

Start playing a new script defined by the "filename" argument. The original script will terminate.

pause

Pause the current script.

resume

Resume playback of a paused script. Note that a script can not resume itself once paused.

stop

Stop playing the current script.

filename

FILENAME

Specify a script file.

select

If no arguments are supplied, deselects current object but leaves constellation selections alone. See "deselect" command.

constellation

CONSTELLATION_SHORT_NAME

Three character abbreviation. For built in sky cultures see:
http://nightshadesoftware.org/projects/nightshade/wiki/Constellation_Abbreviations

hp

INTEGER

Select a star by its Hipparcos catalog number.

nebula

STRING

Valid names begin with catalog identifiers M, NGC, or IC.

planet

home_planet

default

STRING

English name of a currently loaded body or "home_planet" to select the body you are currently anchored to. To select your saved home body use “default”.

pointer

ON_OFF

Whether to draw the highlighting pointer around the selected object. Default is on.

star_only

ON_OFF

When selecting a star this is OFF by default, meaning that if the star is in a constellation line drawing for the current sky culture, that constellation will also be selected.

set

anchor

> **follow**
>
> **geosync**
>
> With an anchor of 'geosync' you will stay over the same latitude and longitude on your anchored body as time passes. This is the default type of anchor. With an anchor of 'follow' you will follow the anchored body but keep your orientation relative to the stars so you can view the body rotate on its axis.

atmosphere_fade_duration

> **SECONDS**
>
> How long it should take to fade the atmosphere when turning on or off.

atmosphere_rendering_multiplier

> **REAL**
>
> Increase the rendered brightness of the atmosphere. Default is 1.

atmosphere_sun_bloom

> **REAL**
>
> Adjust the intensity of the Sun bloom in the atmosphere.

auto_move_duration

> **SECONDS**
>
> Used for auto zoom feature.

constellation_art_fade_duration

> **SECONDS**

constellation_art_intensity

> **FADER**
>
> Works, but deprecated. Use "color property constellation_art alpha FADER" instead.

duration

> **default**
>
> **SECONDS**
>
> Currently only used for setting a duration for a heading or home_planet change (see below). Will use user's default duration settings if "default" is used. If not duration is provided, change is immediate.
>
> NG should eventually support duration argument for all fadable setting changes.

focal_alt

> **DEGREES**
>
> For use in a planetarium, this defines the altitude angle of the focal point above the dome springline. The focal point is where a tracked object will go. A user will already have this set correctly for their theater so changing this in a script you intend to share is discouraged.

focal_azi

> **DEGREES**
>
> For use in a planetarium, this defines the azimuth angle of the focal point as measured from the up direction on your video source. The focal point is where a tracked object will go. A user will

already have this set correctly for their theater so changing this in a script you intend to share is discouraged.

landscape_name

LANDSCAPE_NAME

Set the landscape to use. Built in landscape identifiers are in the landscapes.lua file (not the "Name" parameter).

light_pollution_limiting_magnitude

MAGNITUDE

Set naked eye limiting magnitude due to light pollution (light_pollution_luminance is now deprecated)

line_width

PIXELS (REAL)

Can be fractional.

max_mag_planet_name

MAGNITUDE

Only label and show orbit lines for bodies brighter than this.

max_mag_star_name

MAGNITUDE

Only label stars brighter than this.

milky_way_intensity

REAL

1 is the default

milky_way_texture

default

IMAGE_FILENAME

Replace the milky way spherical texture with your own image. Use "set milky_way_texture default" to return to the default texture. Add an argument "coordinate_system" to change the image projection -- argument values can be "j2000" (default) or "geocentric".

Not currently implemented.

moon_scale

REAL

1 is real size

heading

DEGREES

0 is default, otherwise you can rotate the sky simulation around the zenith. Duration argument supported, see above.

home_planet

BODY_NAME

Change viewing location, case sensitive, English names.

sky_culture

arab

aztec

chinese

egyptian

hindu

inca

inuit

inuit-color

lakota

navajo

norse

polynesian

sami

western

western-color

western-hevelius

western-mod

Change to a different sky culture, which includes constellation data and star names.

sky_locale

LOCALE

locale code: fr, zh_HK, etc.

star_limiting_mag

MAGNITUDE

Default is 6.5. Simply does not draw stars dimmer than this value at a full sky view. Might be removed in future releases.

star_twinkle_amount

FADER

0 is no twinkling and 1 is deep twinkling. The amount sets how much the star can dip in brightness at each twinkle sampling.

time_zone

TIME_ZONE

See https://en.wikipedia.org/wiki/List_of_tz_database_time_zones for a list of generally usable time zone names. Actual supported time zones can vary with your operating system.

```
set time_zone America/Louisville
set time_zone Australia/Lord_Howe
```

sky_culture

action

`load`

Load a new sky culture, which can include constellation lines, constellation art, constellation boundaries, and star names. This data is loaded into memory and will be replaced if another sky culture is selected or loaded.

path

`DIRECTORY`

The directory should contain all the files necessary to define a sky culture. See http://nightshadesoftware.org/projects/nightshade/wiki/Sky_culture for details.

text

Draw a string of text on screen.

This is an experimental feature and subject to revisions.

action

`load`

Load a new text to display.

`drop`

Drop text when no longer needed to improve performance.

alpha

`FADER`

0 is transparent (default), 1 is opaque. Note that texts are drawn in the order they were loaded.

altitude

`DEGREES`

For positioning the center of the text in horizontal/dome coordinates. Zero is at the horizon, 90 is at the zenith.

azimuth

`DEGREES`

For positioning the center of the text in horizontal/dome coordinates. Please see page 4.

b

`FADER`

Blue value of text color.

coordinate_system

`COORDINATE_SYSTEM`

What coordinate system to use when positioning the image. This can not be changed later.

dec

`DEGREES (REAL)`

Declination of the text center for "equatorial" and "j2000" coordinate systems.

duration

SECONDS (REAL)

How long to take to complete the command.

face

sans

serif

font_size

DEGREES (REAL)

Approximate font height in degrees. May only be set at load time and may not exceed 45 degrees.

g

FADER

Green value of text color.

h_align

left

center

right

Horizontally align text relative to your desired position.

lat

DEGREES (REAL)

Latitude of the image center for "geocentric" coordinate system.

lon

DEGREES (REAL)

Longitude of the image center for "geocentric" coordinate system.

name

STRING

Unique name used to refer to the text in later calls to manipulate it.

r

FADER

Red value of text color.

ra

DEGREES (REAL)

Right ascension of the text center for "equatorial" and "j2000" coordinate systems.

rotation

DEGREES

Absolute rotation about the center of the text, positive is clockwise when looking towards the center of the text.

string

MARKUP_STRING

Text to draw onscreen.

xpos

REAL

Position of the text center in "viewport" coordinates. In perspective projection mode the viewport is usually the screen. In fisheye mode (Nightshade NG Professional only) the viewport is a square just containing the fisheye projection circle.

Zero is center of viewport, 1 is the right edge of the viewport, -1 is the left edge of the viewport.

ypos

REAL

Position of the text center in "viewport" coordinates. In perspective projection mode the viewport is usually the screen. In fisheye mode (Nightshade NG Professional only) the viewport is a square just containing the fisheye projection circle.

Zero is center of viewport, 1 is the top edge of the viewport, -1 is the bottom edge of the viewport.

v_align

top

center

bottom

baseline

Vertically align text relative to your desired position.

timerate

This command is used to adjust the how fast time elapses in the simulation. Units are seconds of simulation time per second of real time. A timerate of 1 is normal time, meaning that the simulation is running just as fast as real time.

action

decrement

increment

Decrement and increment generally adjust the simulation time rate by multiples of 10. Example steps: ... -1000 -100 -10 -1 0 1 10 100 1000 ...

pause

The simulation can be paused and resumed with 'pause'. If paused and resumed the simulation time rate will remain the same.

rate

SECONDS_PER_SECOND (REAL)

Set simulation time rate in seconds of simulation time per second of real time.

video

Play and control video playback. Note that a video is stopped when the script that started it is stopped or finishes. Typically you will want the script to start the video, wait for some duration, and then call this command again with an "action stop" to stop the video. Some platforms may not support video playback.

action

pause

Pause playback of a video.

play

Continue playing a paused video or if 'filename' is defined, start a new video.

resume

Continue playing a paused video.

stop

Halt video playback and unload the video.

alpha

FADER

0 is transparent (default), 1 is opaque. Note that videos are drawn in the order they were loaded.

altitude

DEGREES

For positioning the center of the video in horizontal/dome coordinates. Zero is at the horizon, 90 is at the zenith.

azimuth

DEGREES

For positioning the center of the video in horizontal/dome coordinates. Please see page 4.

clone

ON_OFF

Whether to clone a video on opposite sides of the dome when using dome coordinates.

coordinate_system

COORDINATE_SYSTEM

What coordinate system to use when positioning the image. This can not be changed later.

dec

DEGREES (REAL)

Declination of the video center for "equatorial" and "j2000" coordinate systems.

duration

SECONDS (REAL)

How long to take to complete the command.

lat

DEGREES (REAL)

Latitude of the image center for "geocentric" coordinate system.

lon

DEGREES (REAL)

Longitude of the image center for "geocentric" coordinate system.

filename

FILENAME

Path must be relative to script.

max_performance

ON_OFF

Render only this video for maximum playback performance. Anything else that would be visible will be black.

name

STRING

Unique name used to refer to the video in later calls to manipulate the video.

ra

DEGREES (REAL)

Right ascension of the video center for "equatorial" and "j2000" coordinate systems.

rotation

DEGREES (REAL)

Absolute rotation about the center of the video, positive is clockwise when looking towards the center of the video.

scale

fill

In viewport coordinates, the video is scaled to completely cover the viewport while preserving the video aspect ratio. This means some of the video may be outside of the viewport. This argument is invalid for any other coordinate system.

REAL

How large to draw the video. In viewport coordinates, at 1 the video is scaled to fit maximized in the viewport without extending beyond the viewport edges. In other coordinate systems, this defines the maximum angular dimension of the video in degrees.

seek

[+-]SECONDS (REAL)

Jump to a new position in the video file. The brackets mean that this value can begin with an optional '+' or '-'. If it does the seek will be made relative to the current position. Otherwise the position is measured from the beginning of the video. Can be used with the 'play' action to start somewhere besides the beginning of the video.

xpos

REAL

Position of the video center in "viewport" coordinates. In perspective projection mode the viewport is usually the screen. In fisheye mode (Nightshade NG Professional only) the viewport is a square just containing the fisheye projection circle.

Zero is center of viewport, 1 is the right edge of the viewport, -1 is the left edge of the viewport.

ypos

REAL

Position of the video center in "viewport" coordinates. In perspective projection mode the viewport is usually the screen. In fisheye mode (Nightshade Professional only) the viewport is a square just containing the fisheye projection circle.

Zero is center of viewport, 1 is the top edge of the viewport, -1 is the bottom edge of the viewport.

wait

action

`reset_timer`

This is a rarely used but useful argument to reset the timer for the next wait duration command. For example, if you load a number of images you do not know how much time this will take on different hardware. If you want to load your images and then wait 1 second before doing something else, just using a duration argument might not work as you intend because the image loading takes some amount of time, maybe even more than 1 second since the last wait command. So by using this command right after loading the images, you can have a definite starting point for your next wait duration command.

duration

`SECONDS (REAL)`

SECONDS can be fractional. This is a very important command, because most of the time in a script you will be waiting. Without wait commands everything would happen so quickly that you would not see or hear much of anything.

until

`[[HOURS:]MINUTES:]SECONDS ([[INTEGER:]INTEGER:]REAL)`

Wait to proceed with the next command until the script has run for this much time since being started. SECONDS are required, HOURS are not required, and MINUTES are only required if HOURS are used.

```
wait until 3:59
wait until 15.6
```

zoom

auto

`in`

When using auto zoom to zoom in, the currently selected object will be tracked and the field of view (fov) will be adjusted to show a system view of satellites of the object. If there are no satellites or the fov is smaller than the system view already, the fov will shrink to enlarge a view of just the object itself.

`initial`

Returns to configured initial fov and if landed, returns to initial view direction.

`out`

When using auto zoom to zoom out, the field of view will be adjusted to show a body view if zoomed in further already. Otherwise, if zoomed in further than a system view of satellites of the object (if there is one) then that will be shown on a next call, otherwise fov returns to the default. If called when at the satellite view, fov is returned to the default. When returning to default fov and in landed mode then the initial view direction is also returned to the default.

fov

`DEGREES`

Change the current field of view, in degrees

duration

`SECONDS (REAL)`

manual

`in`

When using manual zoom to zoom in, the currently selected object will be tracked and the field of view (fov) will be reduced by one half. In other words magnification will be doubled.

`out`

When using manual zoom to zoom out, the fov will be doubled. In other words magnification will be reduced by one half. When the base fov is reached and in landed mode, the view direction will be reset to default.

Digitarium® CU-1
Planetarium Control Unit
User Manual

Version 6.2
October 17, 2017

Digitalis®
EDUCATION SOLUTIONS, INC.

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Introduction

The Digitarium® CU-1 is a computer control unit designed to be the heart of a Digitarium digital planetarium system.

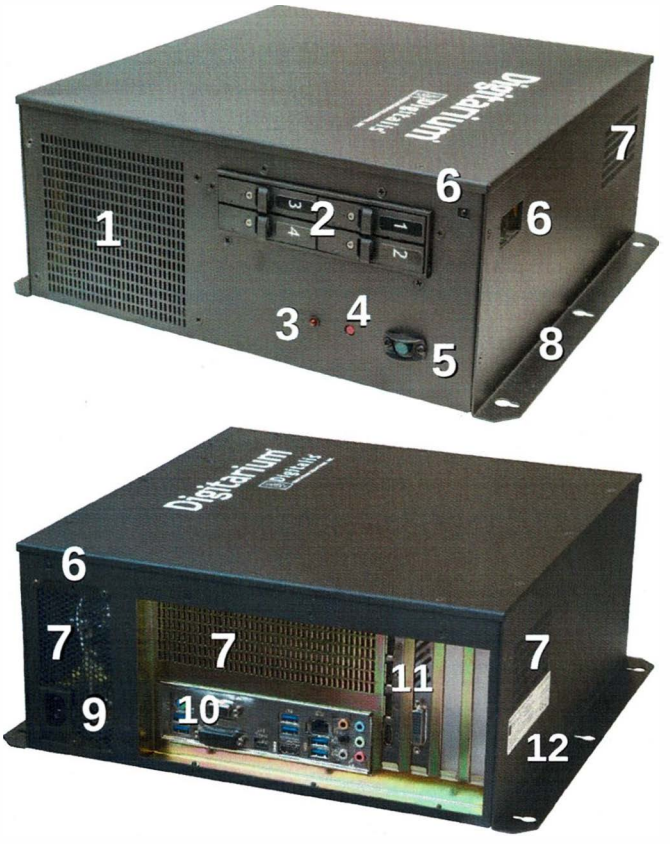
It is a computer with specialized software built in. All features are designed to be controlled with a Digitarium infrared remote control or our Universal Console™ application on an iPad or other computer. An optional mouse or keyboard can also be used, if desired.

Software features are described in the Digitarium Software User Manual.

Features vary by model version, denoted by the Operating Platform (OP) number. The most recent version is OP11.

Safety ⚠

- Make sure vents are not blocked and avoid use in dusty environments to prevent overheating.
- Do no expose to dripping or splashing liquids. Do not place objects filled with liquids,
- such as cups, on top of the control unit.
- Do not expose computer, remote controls, or batteries to excessive heat such as from sunshine, fire, or the like.
- Always use the CU-1 with a surge suppressor to avoid damage caused by power surges.
- Refer servicing to qualified service personnel.



Feature Identifier

1. Air intake vent.
2. Hard drive bay (OP5 or newer) or DVD drive.
3. Hard drive activity light.
4. Reset button (red).
5. Start button (green).
6. Infrared receivers for Digitarium remote control. May not be present on older versions.
7. Air exhaust vents (more may be present).
8. Mounting flange.
9. Power supply with AC power inlet and power switch (if applicable).
10. Motherboard connectors. Connectors vary by operating platform.
11. Video card connectors. Connectors vary by operating platform.
12. Product label with serial number.

Power Cable

Plug the female end of the power cord into the AC power inlet. Plug the male end of the power cord into a surge suppressor which is connected to a grounded electrical outlet.

⚠ On OP5 and OP6 systems, be sure to use the power cord with the ferrite (large "bead" surrounding the cable) near the female end included for regulatory compliance.

Video Cable

For video output, connect a digital video cable such as a DVI-D, DisplayPort, or HDMI cable to a connector on the video card. DO NOT use the video connectors on the motherboard as you will not get correct output. VGA (analog) video ports are not recommended due to poor image quality.

Audio Cables

Connect optional PC type speakers or a professional audio system to the 1/8" (3.5mm) stereo jacks by color as follows:

	Front	Center/Subwoofer	Rear
OP4-OP6, OP9/OP11	green	orange	black
OP2/OP3	green	pink	blue

⚠ Be sure to ground an audio connector before plugging it in (by touching it to the bare metal near the jack) to discharge any static electricity. Never plug an audio SOURCE such as a microphone or amplifier into the system. It is possible to permanently damage the audio circuitry in the computer.

Network Cable

An ethernet cable can be plugged into the network port for software updates or network control via the optional Universal Console application.

USB Ports

⚠ Some older USB devices may not function in the USB 3.0 (blue) ports. If you have problems, try using a black USB port. For drive synchronization and media playback, we recommend using USB 3.0 ports if available for the fastest possible data transfer rates. A keyboard or mouse are not recommended for normal operation, but can be connected to USB ports (or PS/2 ports if present).

Turning on the CU-1

1. Make sure the system is plugged in.
2. Flip the CU-1 power switch to the on position (|) if applicable.
3. Push the green start button.
4. The CU-1 will boot up in about a minute.

NOTE: On OP2/OP3 systems, every 30th time you boot up the CU-1 may check the file system for integrity. This file system check will result in a slower start up process.

Turning off the CU-1

On OP4 or newer systems you can simply press the green start button to cleanly shut down the system without having to go into the text menu. Just give it time to shut down (the fans will stop when completely shut down) before turning off the AC switch.

Alternately, or on older systems:

1. Use text menu item 8.3 to shut down the CU-1 (see the software manual for more information).
2. If you want to shut off all power to the control unit, flip the CU-1 AC power switch to the off position (0) if applicable when the shut down process is complete.

⚠ **Do not turn off the CU-1 during a software update or while the indicator light is lit (indicating disk activity) to avoid corrupting the system.**

Resetting the CU-1

If the system becomes unusable, you can use the red reset button to reboot. This should only be used when absolutely necessary to avoid the risk of system corruption.

Rescuing a CU-1

If your system disk should somehow become corrupted and will not boot, you have a rescue USB disk (OP5 or newer) or DVD which will allow you in most instances to get everything repaired. Keep this disk in a safe place with the system.

⚠ **DO NOT USE THE RESCUE DISK WITHOUT CONSULTING TECHNICAL SUPPORT.** Most of the time this disk is unnecessary and using it without instruction can potentially disable system functionality.

DVD Drive

We recommend using a USB flash drive or the internal drive instead of a DVD for quieter, vibration free use. However, OP2 through OP4 systems have a DVD drive which you can use if needed to supplement your lessons with images and video, to run scripts, or to play third-party prerecorded fulldome shows. The DVD drive can read the following formats:

- CD-R/RW
- CD-ROM
- DVD+R/RW
- DVD-R/RW
- DVD-ROM

Expansion Drive Bay

OP5 and newer systems contain a drive bay which allows up to four 2.5" SATA hard drives to be added to the system. The drive slots are numbered for reference. A media drive is included in slot 1, and should always remain in this slot. You can synchronize content to this drive for use on the system. See the software user manual for instructions.

Slots 2 through 4 are designed to allow the addition of optional add on data sets, such as detailed planet terrain data or other astronomical databases. The drive slot doors lock using the included keys.

Maintenance

- Keep the air intake vent free of dust and lint.
- System should be cleaned of dust internally once a year or as needed by a qualified computer technician.
- Servicing should only be performed by a qualified service technician. Please contact Digitalis or your local distributor for assistance.
- Perform a software update from time to time to get the latest features, bug fixes, and data updates. See the Digitarium Software User Manual for details.

Determining Network MAC Address

If you need to provide a network MAC address to your network administrator to enable local network access, follow these instructions:

1. Shut down the system.
2. Disconnect the projector DVI cable from the CU-1.
3. Plug a keyboard in.
4. Plug a monitor into a video port on the video card (NOT on the motherboard).
5. Start the CU-1 with the green button.
6. Tap F9 several times to get to the System Information screen.
7. Turn off the system with the green button.

8. Reconnect the CU-1 to the projection system.
9. Boot and verify everything is working normally.

Software Licenses

The Digitarium CU-1 is driven by software. Please refer to the Digitarium Software User Manual for license information.

Specifications

AC input	100-240VAC 50-60Hz OP6/OP9/OP11: 3A; OP2-OP5: 2A
Operating Environment	50-100 degrees F (10-38 degrees C) Humidity: non-condensing Avoid use in dusty environments. No sources of infrared interference.

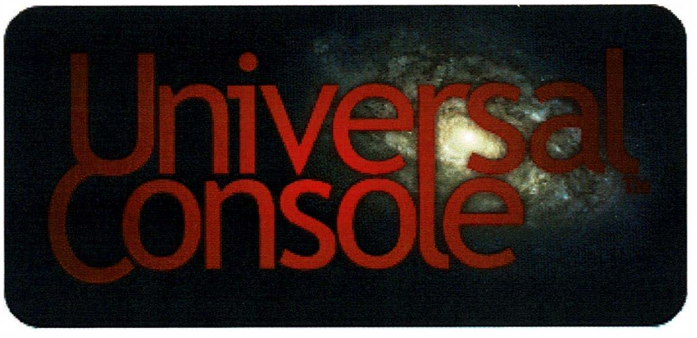
Regulatory Information

Note: this equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Digitarium®
Universal Console™ NG
User Manual



For Universal Console release 1.9.4
Manual Version 3.4

September 19, 2018

Digitalis®
EDUCATION SOLUTIONS, INC.

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Introduction

The Digitarium® Universal Console™ is a software interface that allows you to control your Digitarium digital planetarium system through a web browser. Version 1.9 and above are designed to work with systems using Nightshade NG (not Nightshade Legacy) software.

With a cross-platform, web-based application interface, users can control their system from a number of devices over a wired or wireless network. For example, a fixed dome user may want to use a PC type console in a control booth. For a more portable device, users might choose an Apple® iPad®.

The Universal Console is designed to give presenters more options for controlling their Digitarium planetarium system. The Universal Console has clear advantages for users who want finer control over their presentations, or who want to hide any trace of their user interface from the audience to maximize the immersive experience.

A drawback with the Universal Console is that you need to look at the interface while using it, whereas you can easily operate the Digitarium remote control by touch alone. Therefore it is entirely possible that you might use both during one presentation, using whichever is easier for a given task.

You should familiarize yourself with the Digitarium Software User Manual in order to understand and make effective use of all your Digitarium system software features. This manual only explains how to set up and use the Universal Console interface to your system.

If you have just downloaded a new version of this manual, remember that access to new features may require running a free Internet software update to get the latest software versions. We recommend that you always keep your system and user manuals up to date for the latest features and bug fixes.

Conventions Used

In this manual, when a special term is defined for the first time it will be shown in ***bold italics***.

```
If text needs to be entered exactly, it will be drawn like this in a
box.  Note that capitalized phrases in brackets need to be replaced
with an appropriate value when entering the text.
```

If something behaves differently on a particular platform, that will be called out like this, next to an icon for the browser or device (in this case for the Apple iPad).

Requirements

1. **Digitarium Control Unit:** A Digitarium control computer running the Digitarium OS6 software platform is required. If you purchase a license for the Digitarium Universal Console after receiving your system, you will need to perform an Internet software update to install the required software. See the Digitarium Software User Manual for more detail on this process.

2. **Computing Device:** Any Apple iPad model running iOS 9.3 and using the built in Safari web browser, or a computer running a recent version of the free Firefox® web browser is required. Firefox can be downloaded from http://www.mozilla.com. Other browsers or devices may also work, but we do not officially support anything else at this time.

WARNING: *Never update your iOS (iPad operating system software) without confirming this will not cause problems with the Universal Console application! You can find this information on the Updates by Operating Platform pages at: http://digitaliseducation.com/support.html*

Recommended and tested iPad iOS version is: 9.3
Some features may not work on older iOS versions.

Recommended and tested Firefox version is 56 or newer.

3. **Network hardware:** Some method of networking the Digitarium control unit computer and your computing device(s) is required. All Digitarium control units support a wired Ethernet connection, but this cable can be connected to a wireless router to enable access from an iPad or notebook computer via a WiFi wireless connection. If you are using a desktop computer, a wired network is usually the preferred option. Ideally this network would also have Internet access, so that you can easily perform software updates. Consult your local network administrator for advice and local policies. See Router Configuration Requirements on page 26 for more details.

The Digitarium CU-S & CU-Z control units support a direct WiFi connection, meaning that no additional networking hardware is required. Similarly, OP5 or newer Digitarium CU-1 control units support a tiny WiFi dongle (available from Digitalis) which can be left in the system while transporting. These options are great for portable users.

Typical Network Configuration

Interaction with Other User Interfaces

Digitarium hand-held remote controls can be used at the same time as the Universal Console interface. Multiple Universal Console interfaces can even be used at the same time, limited to the processing power of your system. However, there are a few limitations.

We recommend that you do not interact with the Universal Console interface while you are using a remote control to access the Media Browser function, while synchronizing your hard drive from a USB drive, or while performing a software update. This is because in these cases the simulator is suspended, which can lead to unexpected behavior in the Universal Console application.

When using multiple Universal Console instances, media shown on the dome is not shared between the different instances. So if one instance places media on the dome, another will not show this in its Media View.

First Time Set Up

The first time you set up your system to use a Universal Console interface, you will need to follow the steps below. **It is critical that you not skip any steps.** If you experience any problems setting up your system, please consult the Troubleshooting section on page 28.

1. Make sure your computing device meets the requirements outlined in the Requirements section above.

A. *Update your iPad operating system using Apple iTunes on a Mac or Windows computer to a supported version of iOS listed on page 4.* ***Other versions may not work and are not supported by Digitalis.***

B. *While holding the iPad in a landscape (rather than portrait) type orientation, press the home button on the face of the iPad twice in rapid succession. Some icons or controls will show up along the bottom of the screen. Drag your finger on this area to the right so that you scroll to the left until you see a circular arrow icon. If there is not a lock icon in the middle of the circle, click this button to lock the display orientation in landscape mode. Hit the home button once to exit.*

2. If using a wired network or external WiFi router, make sure the control unit Ethernet port is physically connected to your network.
3. Turn on your network router or switch if required and not already running.

   If you are setting up a wireless router for the first time, follow the manufacturer's instructions for configuring your router. Typically you need to use a web browser to connect to the router and change settings. Be sure to:

   3.1. Change the default password (and write this down so you remember it) so other people can not change your settings.

   3.2. Set up a unique network ID (SSID). This must be a unique ID so that you and your wireless device can easily and correctly identify your network.

   3.3. Configure a secure network to prevent unauthorized users from connecting to your network. We recommend the WPA2-PSK security option for speed and security.

   3.4. Review Router Configuration Requirements on page 26 for other possible settings that may be required.
4. Boot up the Digitarium control unit.
5. Connect your computing device to the network the control unit is on. If you are connecting directly via WiFi to a CU-S or an OP6+ CU-1 with a WiFi dongle, join the "Digitarium-XXXX" network, where XXXX is a number unique to your system. The shared WPA key is "d" followed by your control unit serial number from your product label.

Press the home button on the iPad once to exit and then two more times to get to the home screen. Click on the Settings icon. Select the "Wi-Fi" section. Select your wireless network by the unique ID you gave it. Press the home button again to exit.

6. Using the Digitarium remote control, go to menu item 8.9 and note the IP address of the control unit. However, if connecting directly via WiFi to the control unit, use the address 10.0.0.1 instead.

7. Open the web browser on the device and open the location:

```
http://[IP ADDRESS]
```

Example:

```
http://10.0.0.1
```

8. You will be prompted to set a 6 digit password. If you ever need to reset this password, you can do so from the tui menu using your Digitarium remote

9. A Universal Console page should now load. If you get a warning about a pop-up window, you need to enable pop-ups with the button on the warning message and try again.

iPad

Do not be alarmed if this page is poorly formatted or cut off, you will fix this in the next step.

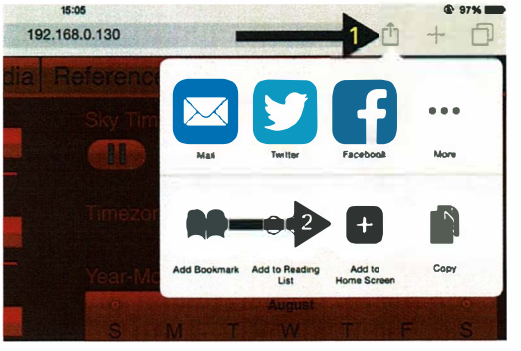
10. Create a Home Screen icon for easy future access. When you log in for the second time, you will be give the option to have your password remembered for one year.

mozilla Firefox

For optimal results in Firefox you can remove the unused browser controls around the Universal Console window to make it look like a native application. To do this, open a new browser window and enter "about:config" in the location bar and hit Enter. Scroll to "dom.disable_window_open_feature.location", right click this and toggle this setting to false. Do the same for the setting "dom.disable_window_open_feature.status". You can now close this window.

iPad

Click the icon next to the address box that looks like an arrow coming out of a rectangle (see screenshot at right). Select "Add to Home Screen" from the pop-up menu. You will then be prompted to name your application ("Universal Console" is a good option). Starting the application from the home screen allows the Universal Console interface to fit on the iPad screen without being cut off at the bottom.



11. Close your web browser. Next start up the Universal Console application from your bookmark or application icon you just created to make sure it works properly. You will be prompted to read and accept the license agreement before continuing to the application itself. Third generation iPads may not remember your password when using the pin to homescreen feature. You may be prompted to enter your password with each login.

12. You may want to turn down the brightness on your screen to avoid illuminating your dome with distracting stray light.

See the "Brightness & Wallpaper" section in the iPad settings.

Start Up

Once you have performed the first time setup, you should only need to perform the following steps to start up your Digitarium system and use the Universal Console interface. For any problems see the Troubleshooting section on page 28.

1. Make sure that the control unit can reach your network (Ethernet cable or WiFi dongle plugged in, for example).
2. Turn on any network router or switch if not already running.
3. Boot up the control unit.
4. Connect your computing device to the network the control unit is on.
5. Open your Universal Console bookmark in your web browser.
6. Enter your user name and password if required and get started.

Universal Console User Interface

The Universal Console user interface (UI) is divided into different sections, called ***views***. Each view allows you to control one major aspect of your Digitarium system. Each view is accessed from a row of tabs across the top of the screen. Clicking on the "Media" tab will take you to the Media View, for example.

Basic UI Actions

The following actions are used throughout the remainder of this manual to describe how to interact with the various UI components. If you are using a mouse or similar type pointing device, refer to the "Mouse" column for action definitions. If you are using an iPad, refer to the "Touchscreen" column.

Action	Mouse	Touchscreen
Click	Press and release your left mouse button with the cursor positioned on the component to click.	Touch one finger to the screen on the component to click, and immediately lift your finger.
Drag	Press your left mouse button with the cursor positioned on the component, move the mouse as desired, and then release the mouse button.	Touch one finger to the screen on the component, move your finger as desired, and then lift your finger.
Flick	Like a drag, but move the mouse quickly and release the mouse button while the cursor is still moving.	Like a drag, but move your finger quickly and lift your finger while it is still moving.

Basic UI Components

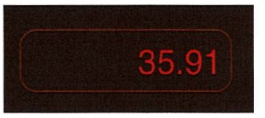
The following is a list of basic user interface components and instructions for using each. A graphical example follows each description. Specialized components used on single views are described in the later sections describing those views.

Button: Click a button to perform the action. If a button is not applicable to your current situation, the button will be darkened to signify it is inoperative. We are currently revamping parts of the application and have a few different button styles such as those pictured at right.

Toggle Button: The checkbox to the left of the label shows the current state of the feature labeled on the button. Click the button to toggle the state of this feature.

***Pulldown Menu*:** Click the pulldown menu to bring up a list of other options. Drag or flick to scroll through the list. Click to select an option and close the menu.

***Edit Box*:** Click on the box to edit the value.

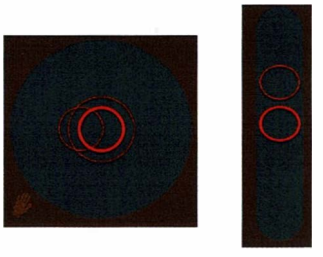


iPad

When you click on the box an on-screen keyboard will come up so that you can edit the value. Click the keyboard hide button to finish editing.

***Direct Slider*:** Drag the diamond shaped handle along the bar to adjust the value between the two endpoints. A direct slider can be horizontal or vertical. If the possible values are "On" and "Off", be sure to drag the handle all the way over to one side or the other before letting go so that your change will be made.

***Touchpad*:** Click the center and drag to control navigation components.



***Time Control Logo*:** To save space yet allow access to time rate control from any view, the Universal Console logo in the lower right of every view also doubles as a time control.

(can vary)

iPad

Flick from left to right over the logo to accelerate the time rate in a positive (forward) direction. Flick from right to left over the logo to accelerate the time rate in a negative (backward) direction. Click the logo for a real time rate. This takes some practice.

mozilla Firefox

Click on the left side of the logo to accelerate time in a negative (backward) direction. Click on the right side of the logo to accelerate time in a positive (forward) direction. Click on the middle of the logo for a real time rate.

Observer View

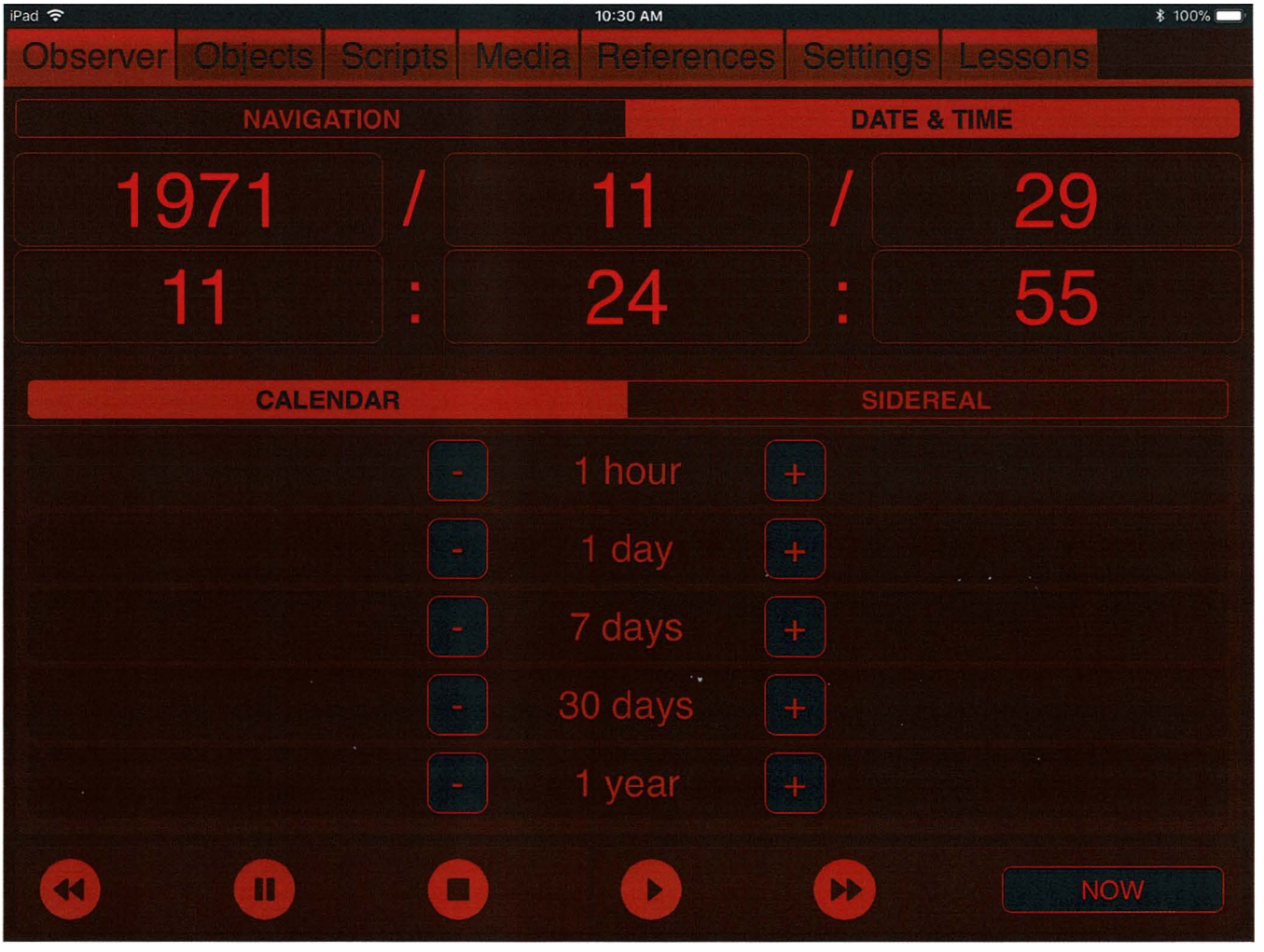
The Observer View is divided into two sections, one for navigating around the universe, and one for controlling date and time.

Navigation Section

The touchpads can be used to like a gamepad controller. You can hold an iPad in both hands and use your thumbs to navigate. You can control pitch, heading, latitude, and longitude as you would with a gamepad controller. Likewise, the altitude touchpad can increase or decrease altitude. To ease performing other tasks while flying around an object, click the lock button and your controls will stay in position even when you let go. To return to direct control of the touchpads, click the unlock button again. To fly to a selected object, click the "Fly To" button. To Land on a selected object, click the "Land" button. To jump to your default position and home body, click the "Defaults" button.

1. Click the text boxes to enter specific values.
2. Touchpad to adjust latitude and longitude (up = move forward, right = move right).
3. Touchpad to adjust altitude (up = increase altitude).
4. Touchpad to adjust heading and pitch.
5. Lock button

Data and Time Section



The time control buttons at the bottom of the screen control the rate of time in the simulation, and work the same way as the buttons on the Digitarium remote. The fast forward button accelerates the time rate in a positive (forward) direction, and can be pressed multiple times. The rewind button accelerates the time rate in a negative (backward) direction. The play button moves forward in real time. To return to the current date and time, click the "Now" button.

Click the edit boxes at the top of the screen to change your date or time directly. You can click the "Calendar" or "Sidereal" buttons to move through time in calendar or sidereal days.

TIP Rather than adjusting your latitude, longitude, and timezone to simulate another, it is often easier to simply change your latitude. Obviously this will not be sufficient for events such as eclipses, where longitude is critical, but it is often a quick shortcut in many other situations.

Objects View

The Objects View is divided into two sections, one for quickly selecting popular bodies, and one for selecting constellations.

Objects Section

The Objects section allows you to:

- select and track objects in the sky
- zoom in or out on selected objects
- fly to other bodies
- toggle planet labels and orbits
- turn on time lapse

To select an object just click the labeled button. You can only select one object at a time. To unselect an object click the “Unselect” button. For unlisted objects, use the search box in the upper right of this section, start typing the name, and then hit enter to select once the auto-completed name matches the object you want to select.

To zoom in you need to have an object selected. When you are in manual zoom mode (see the Settings view), you can hold down the zoom buttons to zoom in or out as desired.

Constellations Section

The Constellations Section allows you to:

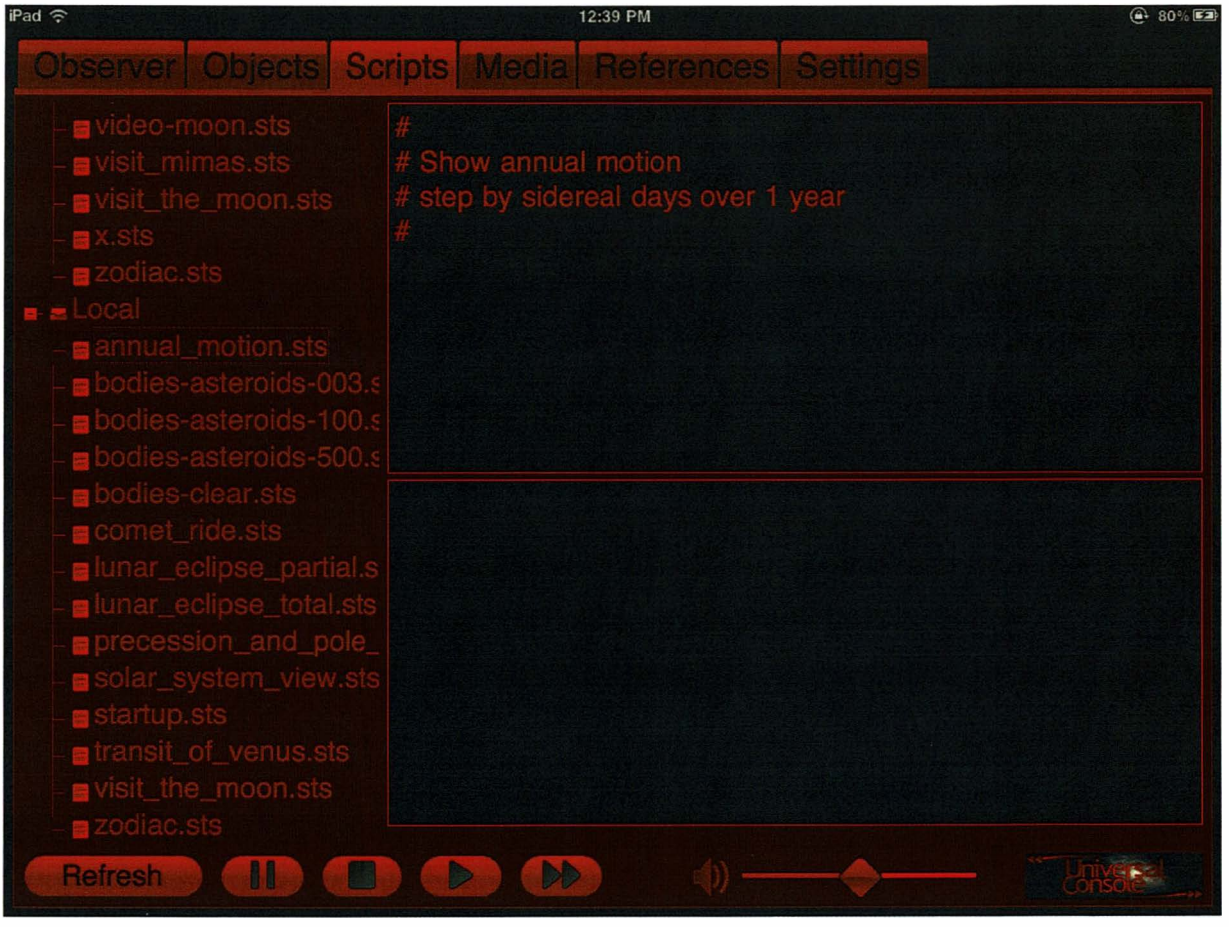
- toggle constellation labels, art, and lines
- toggle star labels
- change your sky culture

In the above screenshot, constellation names and lines are turned on and four constellations are selected.

To select a constellation just click the labeled button. You can select multiple constellations at a time. To unselect a constellation, click the labeled button again.

If you want to display constellation labels in the native language rather than your sky language, turn off the “Translate” button.

Scripts View



The Scripts view allows you to select and play StratoScript™ scripts from your internal hard drive.

On the left is a tree of the Local (maintained by Digitalis) and Internal (maintained by you) scripts on your system. Drag to scroll up/down/left/right as needed. If you have just synchronized files to your internal hard drive, you can hit the “Refresh” button to generate an updated tree. Click on a script in the tree to select it.

When a script is selected, any comments at the top of the script will be displayed in the upper right viewing box. Drag to scroll within this box if needed.

The lower right viewing box shows any script errors while a script is playing. Note that some script errors will not produce error messages. It is always better to initially debug a script on a desktop version of Nightshade where you have full access to the error log.

The playback controls at the bottom of the view allow you to control script playback. Click the play button to begin script playback. You can click the fast forward button multiple times to fast forward at faster rates through the script.

If a script is playing, the play button icon will be red rather than black. Likewise, if a script is paused, the pause button icon will be red.

To the right of the playback controls is a volume control slider. If your script has audio, you can easily adjust the playback volume here. Note that this is equivalent to using the volume control on the Media view or using the Digitarium remote control.

Media View

The Media view allows you to easily select images or videos to show on your dome, adjust media placement and projection types, play automated slide shows, and even play audio tracks in the background.

Directory Tree

On the left is a directory tree of the Internal hard drive (maintained by you) in your system. If you have a USB drive inserted, this will also show up here. Drag on the directory tree to scroll up/down/left/right as needed. If you have just synchronized files to your internal hard drive or switched USB drives, hit the "Refresh" button to generate an updated tree.

Thumbnail List

When you click on a folder in the tree, the folder will be highlighted in black and the media in that directory will be drawn as thumbnails across the top of the view. For large folders or files there may be a short delay before the thumbnails show up.

Video files are signified by thumbnails with film sprockets at the sides. Audio files are signified by a waveform pattern. If a file format is not supported, it will not show up in the thumbnail list. If there are more files than fit on the view, you can use the arrow buttons on the sides of the thumbnail list to page through the full list.

Dome Preview

The large black circle with cardinal points is a simplified ***dome preview*** which allows you to place media directly onto the dome where you want it. Note that the dome preview is a reflection of the dome, as if you were sitting in the South and facing North with your screen laid flat in front of you.

Media Slots

A ***slot*** is a place where a media file can be shown. A square with a red pulsating border is the currently selected slot. If a slot is empty, it has a dark red interior. If a slot contains a media file, a thumbnail is shown in the slot and the media will be visible on the dome. To select a different slot, simply click on another slot in the dome preview.

By default, the Media view starts with an empty slot above the South horizon. This is also the default location if you create a new slot by clicking on the "New Slot" button.

Adjusting Slots

Simply drag a slot to move it. This can be done whether or not the slot is empty.

You can click on multiple slots at the same time and move these independently.

To rotate a slot, touch the slot with one finger and then use another finger to rotate around the first finger. If you vary the distance between the second and first finger, you will scale the slot.

To rotate a slot hold down the Shift key and drag.

To scale a slot use the mouse wheel.

Selecting a Thumbnail

If you click on a thumbnail in the thumbnail list, the full filename is displayed just below the row of thumbnails so that you can confirm you have selected the correct file. The currently selected thumbnail is surrounded by a red border in the thumbnail list.

Playing Media

To place the media file associated with the currently selected thumbnail into the currently selected slot, simply click again on the selected thumbnail. If the media file is an image, it will show up on the dome in that approximate location. If the media file is a video, it will show up and begin playing.

However, audio-only files will only show up in the ***audio slot*** located to the lower left of the dome preview, even if you select another slot before clicking on the audio thumbnail.

Replacing or Clearing Slot Contents

To replace the contents of the currently selected slot, simply click on another thumbnail twice (once to select, again to place on the dome). To empty the media file from the currently

selected slot, but keep the slot otherwise unchanged, click on the “Clear” button. To clear and erase all existing slots, click the “Clear All” button.

Projection Modes

A slot can be in the default ***perspective mode*** or in ***fulldome mode***. To switch between perspective and fulldome mode click the “Fulldome” toggle button with the slot selected.

In perspective mode, media files are distortion corrected to look correct on a small portion of the dome. In perspective mode, slots can be moved, scaled, rotated, and mirrored. When a perspective mode slot is moved, the bottom stays parallel to the horizon as much as possible.

In fulldome mode, a media file will be scaled to fit your dome, and the slot can only be rotated. This is most useful for fulldome videos or fisheye images.

Mirroring

To mirror a perspective mode slot so that it displays on two sides of the dome for easier viewing, simply click the “Mirror” toggle button while the slot is selected.

Playback Controls

The playback buttons at the bottom of the view control the currently selected slot. To switch to the previous or next media file in the same folder, click on the previous and next buttons respectively.

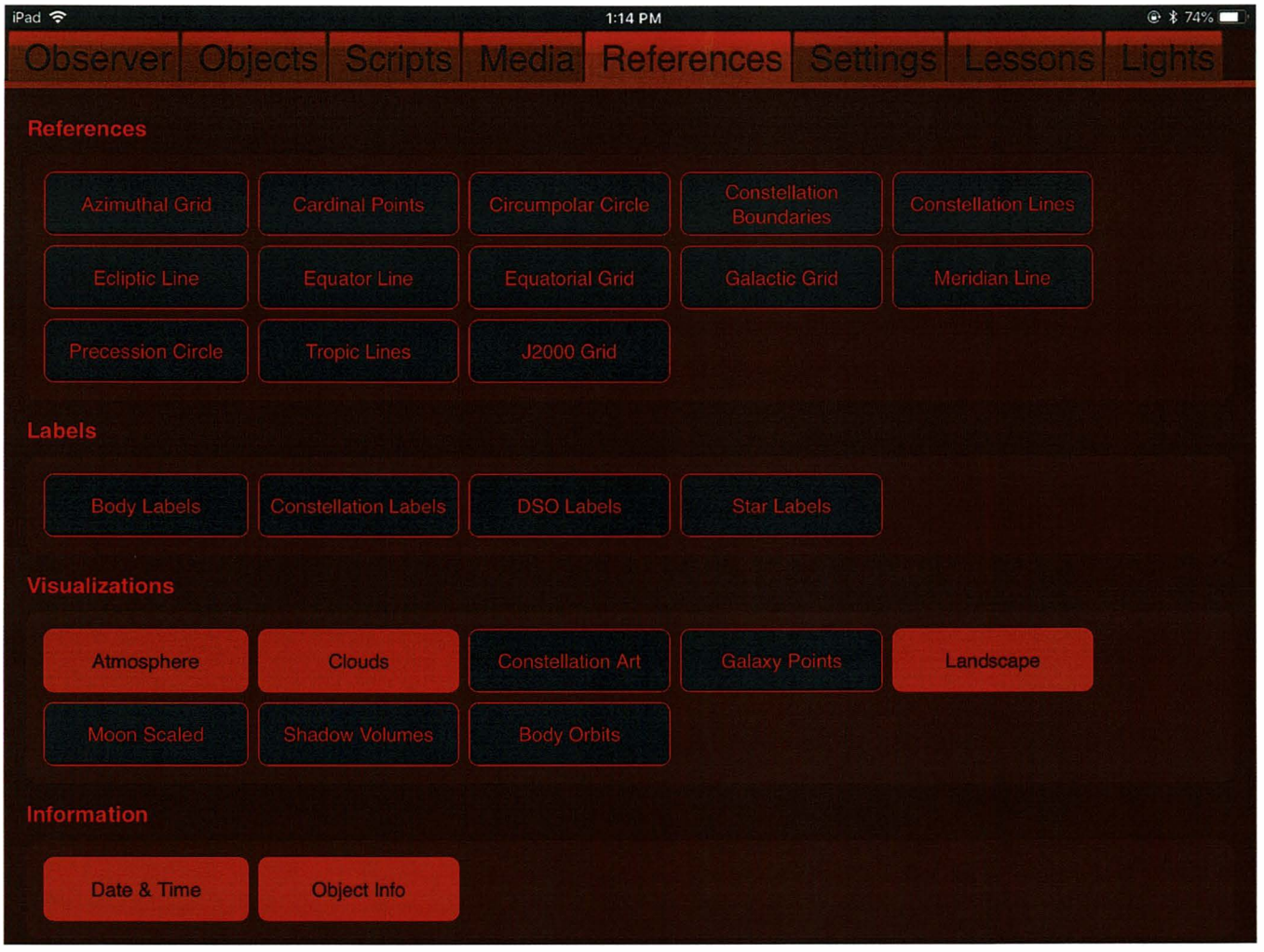
With an image slot, if you press the play button a simple slideshow will begin taking you through the other image files in that folder. Click the stop button to end the slideshow.

For a video or audio file, you can stop, pause, or resume playing the media. Before playing an audio file you can click the loop button below the audio slot to toggle between the default of playing the track once, or looping so that the file will repeat indefinitely. You can not change this once an audio track is already playing. Note that only one audio track and only one video file can play at any one time. Also note that a video will always overlay any images being displayed.

The volume control slider on the right adjusts the playback volume for audio or video files. This is equivalent to using the volume control slider on the Scripts view, however the volume control buttons on the Digitarium remote control will not work here unless a script is also running.

Note that if you display images with transparent backgrounds (PNG is a good format for this) you can move spacecraft, figures, etc. around the dome without any distracting square edges.

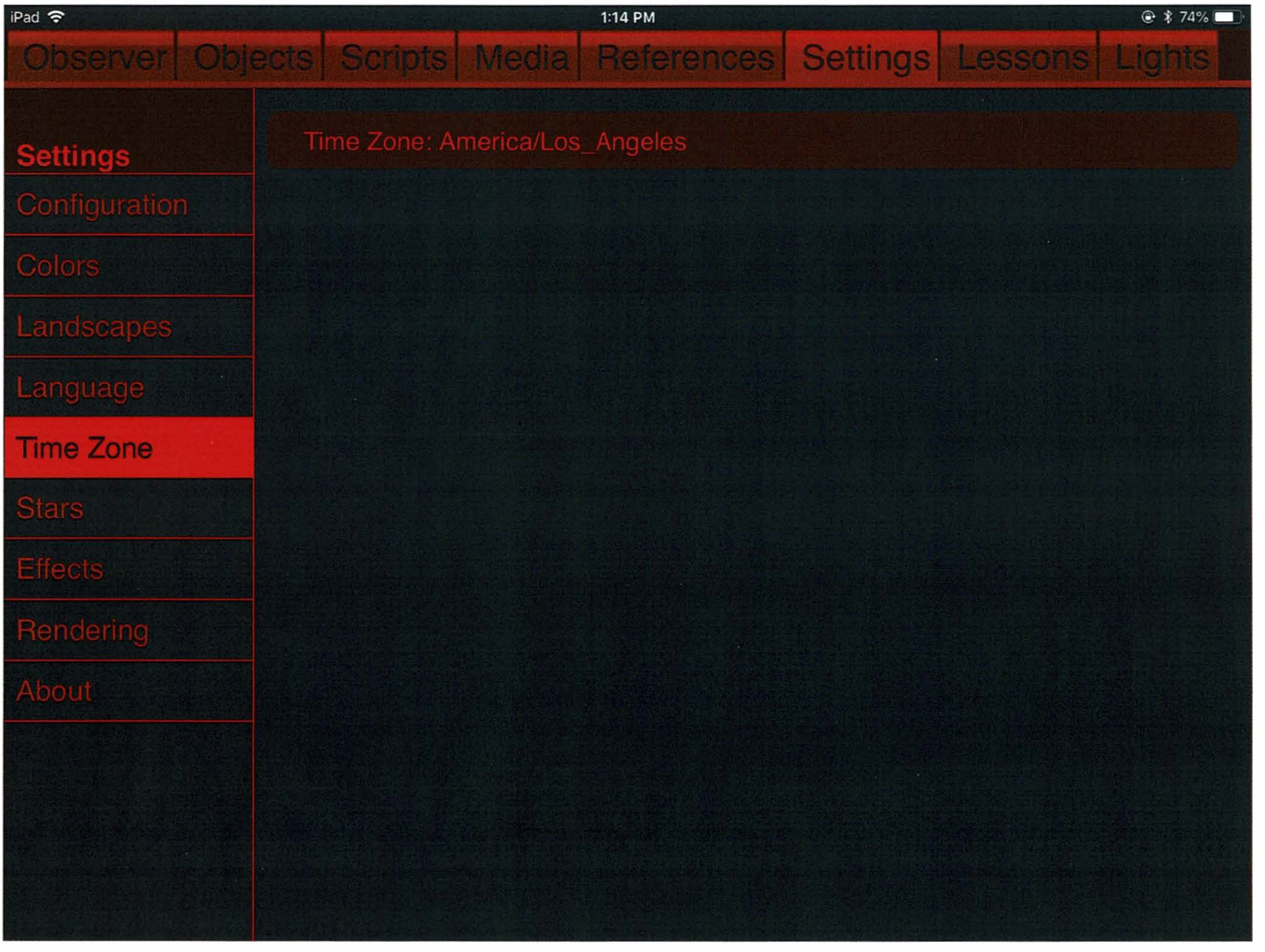
References View



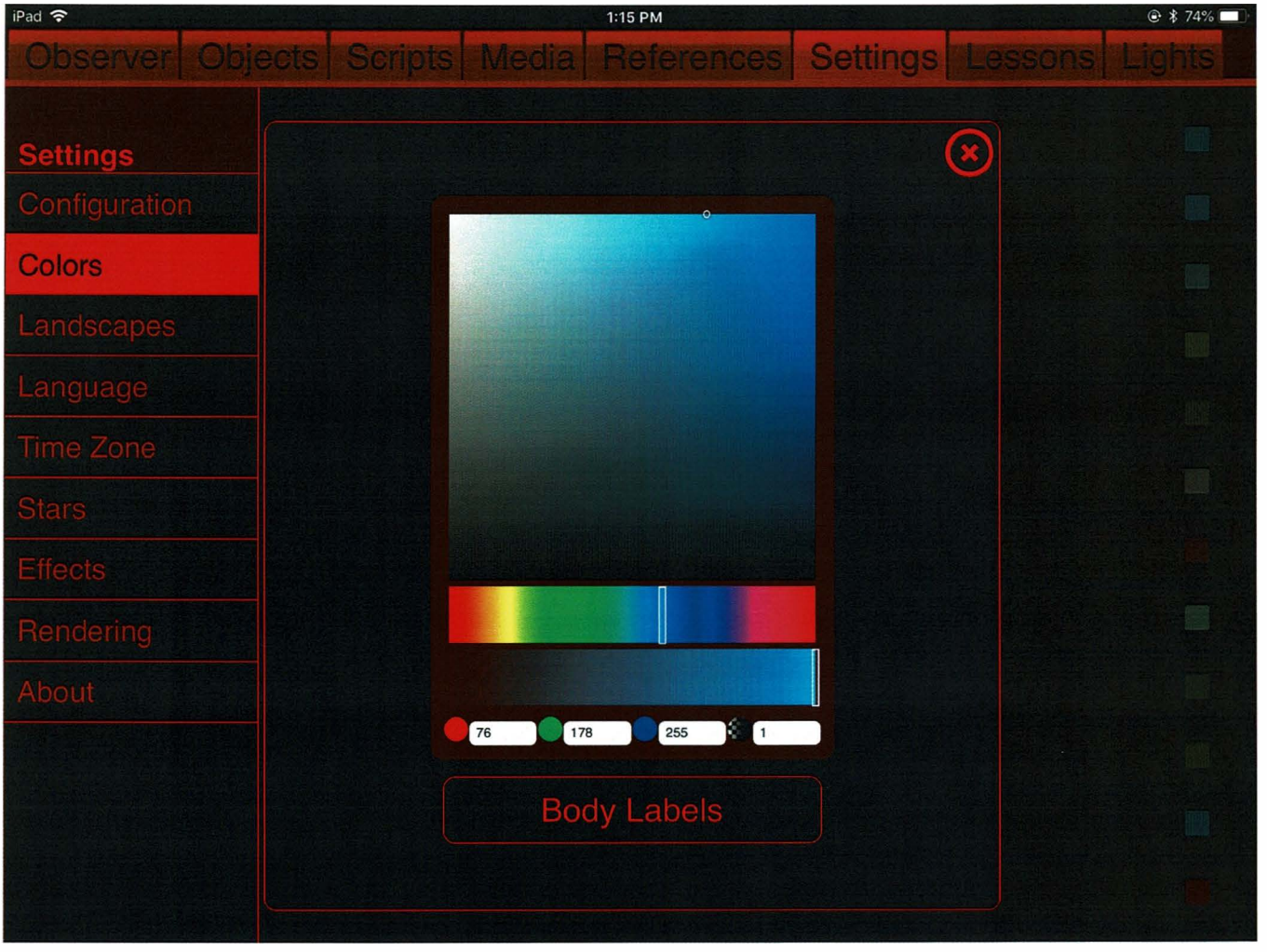
The References view allows you to quickly toggle reference lines and other visual settings, including setting the current landscape.

For background on each feature, see the Digitarium Software User Manual.

Settings View



The Settings view allows you to change configuration settings that are otherwise accessed through the text menu using the Digitarium remote control. On this view you can change your sky and user interface languages, alter other settings, and save and load your default settings.



To change colors of drawn lines or labels, navigate to the Colors item, then select the item you want to change the color of from the list. The current color will be shown in the small square next to the item's name in the list. The color selector control consists of a ***color saturation square***, a horizontal ***hue selector*** (looks like a rainbow), and a horizontal ***opacity selector***.

You can click within the color saturation square to adjust the saturation of the current hue. A small circle shows the current saturation selection and the color preview gives you a larger sample of the current color. To change the hue, click on the desired hue in the hue selector.

The sky language is used for labeling objects in the sky. The UI language affects only your Universal Console interface.

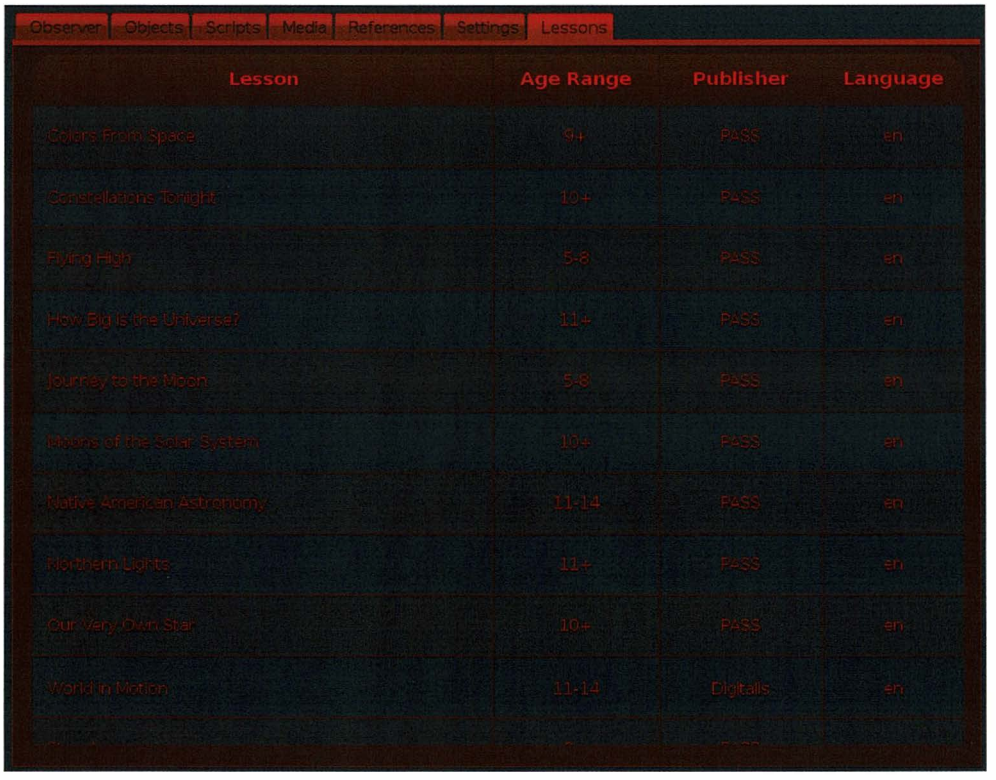
Setting effects are discussed in the "Menu Mode" section of the Digitarium Software User Manual.

The Rendering item allows you to select **light exposure, Gamma, or Saturation**, and adjust these settings with the slider bar below. You can find more information about these Rendering settings in the "Menu Mode" section of the Digitarium Software User Manual.

Click the "About" button for Universal Console version information.

Lessons View

The Lessons view allows you to access Augmented Lessons that are specifically developed for use with the Universal Console.



Lesson Index

When the Lessons view is first selected you will see an index of all available augmented lessons which reside on your Digitarium's internal hard drive (example shown above). New lessons can be synced to your internal hard drive in the same way that new media is synced.

The lesson index includes the name, target age range, publisher, and language of each lesson. Simply click/tap on the lesson name to load the lesson.

If you do not have any Augmented Lessons or want more, please go to the Digitalis Community Site (http://community.digitaliseducation.com/digitalis-lessons). Lessons can be customized to your needs or created from scratch by someone with basic experience writing HTML and StratoScript scripts.

Navigation

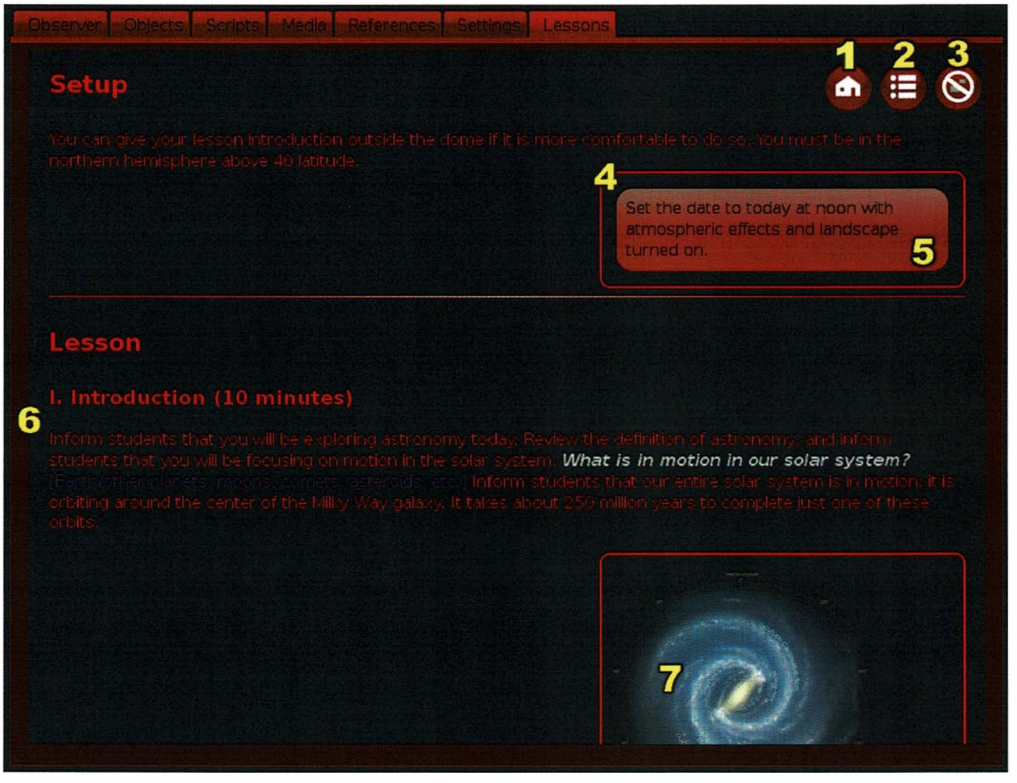
Once you are viewing an individual lesson you can leave the lesson to go to other tabs as needed, and then hit the Lessons tab to return where you left off.

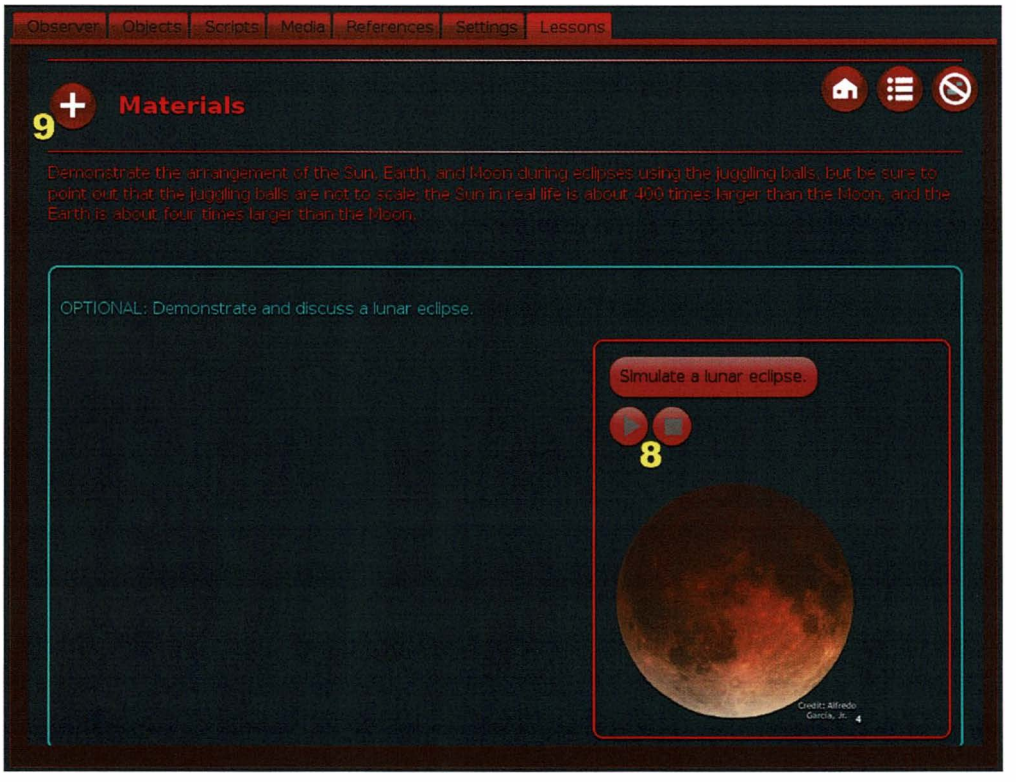
Lessons typically include everything a presenter should need to give a full presentation, including narration text, images, videos, and scripted actions. Just scroll down.

Feature Identifier

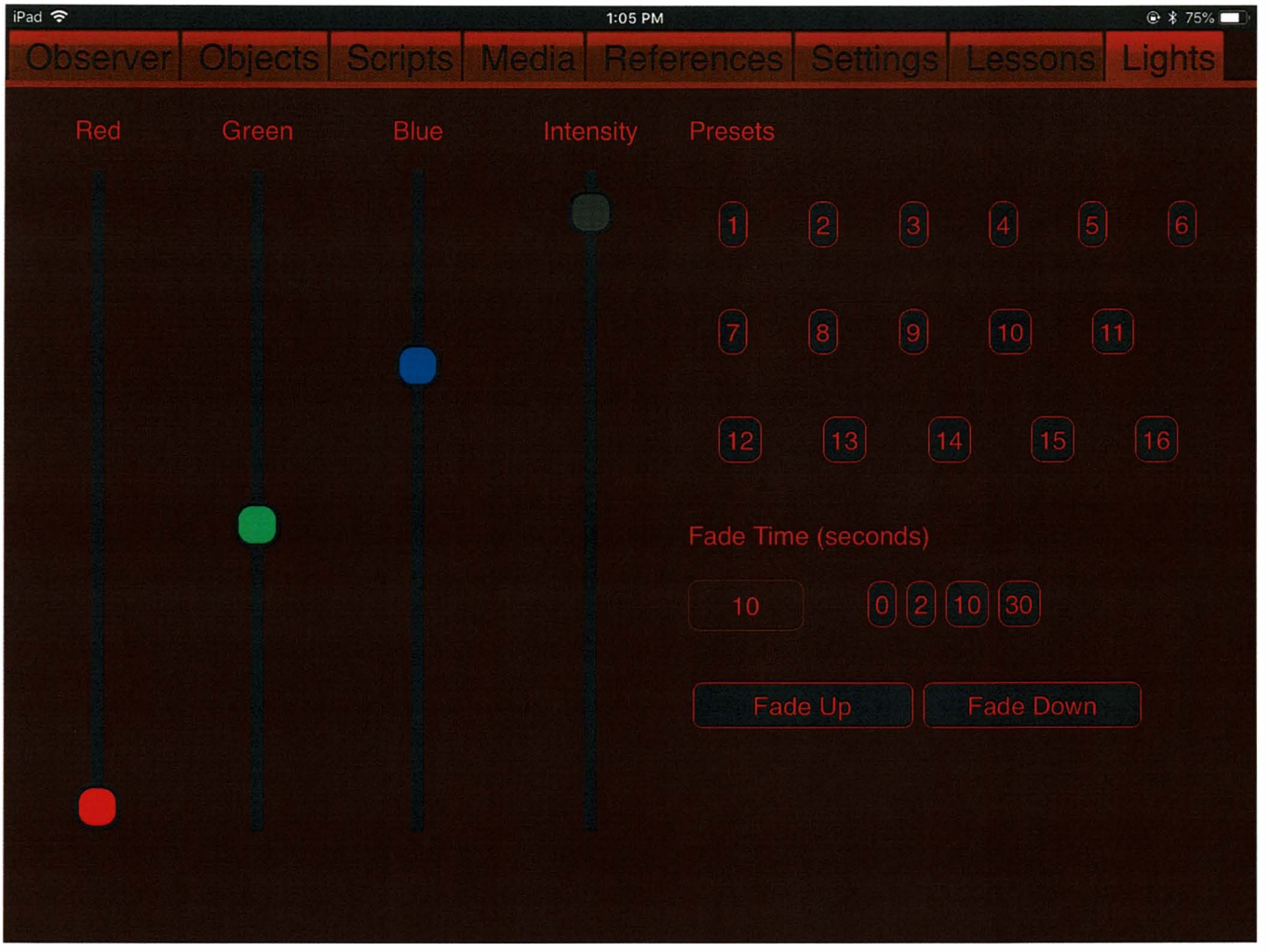
The images below identify key features of an Augmented Lesson:

1. Close the current lesson and go to the **lesson index**.
2. Jump to the lesson's **Table of Contents**.
3. **Drop all media** (images/videos/audio) which are currently being shown or played.
4. **'Action'** boxes have red borders and appear on the right side of the screen. These are things you should do as the presenter. Actions include media, system commands, and physical activities.
5. **'Effects'** are red buttons. Clicking such a button will result in the effect taking place on your Digitarium system.
6. **'Narration'** text is left justified and offers narrative guidance for the lesson.
7. **Image/video/audio thumbnails** located inside action boxes are clicked to load the image or play the audio or video on your Digitarium system.
8. **Play**, **pause**, and **stop buttons** allow you to control audio, videos, and some complex script effects.
9. Click the plus sign to **expand collapsed sections**, and click the minus sign to collapse them when desired.




Observer
Objects
Scripts
Media
References
Settings
Lessons
9
Materials
Demonstrate the arrangement of the Sun, Earth, and Moon during eclipses using the juggling balls, but be sure to point out that the juggling balls are not to scale: the Sun in real life is about 400 times larger than the Moon, and the Earth is about four times larger than the Moon.
OPTIONAL: Demonstrate and discuss a lunar eclipse.
Simulate a lunar eclipse.
8
Credit: Alfredo Garcia, Jr. 4

Lights View



Digitalis has collaborated with Bowen Technovation so that you can control one of their excellent AstroFX Aurora LED RGB or RGBW cove lighting systems from your Digitarium system. If your network is configured properly (see Router Configuration Requirements on page 26) you will see the Lights tab show up when starting up a Universal Console session.

The Intensity slider allows you to adjust the brightness of the cove without changing your color setting. The Red, Green, Blue, and White (if applicable) sliders can be dragged to adjust the final combined color of the cove lights. Note that slider changes take effect over a fade time, which is set on the middle right of this screen. You can either enter the number of seconds manually, or click the shortcut buttons to the right of the text box instead.

The Fade Up and Fade Down buttons set the cove intensity full on or full off, respectively, using the current fade duration setting.

The 16 preset buttons activate preset 'scenes' that you can set up using your Aurora control console.

Router Configuration Requirements

Note: Always consult your local network administrator or IT department when setting up routers or changing networks so that they can assist you and comply with local policies and security considerations.

Basic Configuration

If using a wired network to the control unit, your router needs to support DHCP in order for the Digitarium control unit to obtain an IP address and communicate on the network.

You do not need to use a wireless router if you do not plan on using a wireless device like an iPad. In this situation you could use a wired router, or just use your existing network, depending on your local network policies.

Ideally your network has Internet access so that you can easily perform software updates, but this is not required for the Universal Console interface to function.

We recommend configuring your router's DHCP settings to always assign the same IP address to your control unit so that you can easily connect each time you start up a Universal Console session. Adjusting this setting will be easiest if the control unit is running and connected to the router so that you can identify it (IP assignment is done by MAC address, a unique identifier that exists in every network interface).

Basic Wireless Settings

We recommend setting up your Wi-Fi network as a secure network dedicated to your Digitarium in order to prevent unauthorized access and reduce latency from other traffic. A suggested security option is WPA2-PSK for speed and security.

Bowen Technovation Integration

For your Digitarium to control a Bowen AstroFX Aurora cove lighting system, you must set up your router to use the 192.168.2.x network and the control unit must have a wired ethernet connection. When both the Digitarium control unit and Bowen control server are booted up attached to the router, the Digitarium will have a 192.168.2.x IP address and be able to communicate to the Bowen system (which is always IP 192.168.2.245).

If you have a Bowen AstroFX Commander system, which can control your Digitarium system, you need to configure your router's DHCP settings to assign an IP address of 192.168.2.100 to the Digitarium control unit (based on its MAC address). This will be easiest if the control unit is running and connected to the router already. After a reboot with the Commander computer and control unit connected to the router, you will be able to control the Digitarium from the Commander console.

Software Updates

Free Universal Console software updates are announced through the Digitalis community site at:

http://community.DigitalisEducation.com

Please register for an account if you have not already done so to get email announcements and share with other Digitarium users. Our software update history is publicly posted at:

http://DigitalisEducation.com/support.html

To perform a software update, refer to your Digitarium Software User Manual.

UPDATE WARNING: *Due to bugs in the iPad, every time you update your control unit with a new Universal Console software release, you will need to force your iPad to clear its application cache for the Universal Console. Otherwise you may get strange behavior.*

On your iPad:

1. *Go to Settings -> General -> Date & Time.*
2. *Turn off "Set Automatically" and manually set the date a year into the future.*
3. *Reload the Universal Console application from your home screen bookmark icon.*
4. *Go back and restore your previous time settings.*

Troubleshooting

Symptom	Possible Solution
No IP address shown on Digitarium control unit.	**1.** Did you have the wired network connected before booting the control unit? If not, reboot. **2.** Is your network set up to use DHCP for IP assignment? If not, you can use a low cost router and place this between the control unit and your normal network. Assign a static IP to the router following the manufacturer's instructions and your local network administrator's policies.
Can not connect to IP address of Digitarium.	**1.** Is your computing device connected to the network?  *Click the button on the lower right side (or upper left side depending on your iPad's current orientation) of the device once to blank the screen and a second time to wake it back up. Slide the on-screen slider to unlock the device. This should restart the Wi-Fi connection without having to exit the Universal Console interface.* **2.** Are you on the correct network?  *The network could be switched without your knowledge if you have "Ask to join other networks" set to "ON" in the Wi-Fi settings. Turn this off to avoid this problem.* **3.** Is the control unit still connected to the network? Look at menu item 8.9 using the remote control and verify that an IP address is listed and that this is the one you are connecting to (unless you are connecting directly via WiFi to a Digitarium control unit that supports this). If your IP address changes from time to time, you can assign the control unit a static IP address in your router so that it will not change. See the router manufacturer's instructions and/or your local network administrator.
Universal Console suddenly stops controlling Digitarium.	**1.** The iPad 1 (at least with iOS 4) had a power saving feature which disconnected WiFi after 30 minutes, and there was no option to turn off this feature. One option is to upgrade to iOS 5 or see the workaround (1) immediately above. **2.** See test (2) immediately above. **3.** Try restarting your Universal Console session. **4.** If this happens frequently, make sure your computing device operating system is up to date and try using a more reliable wireless router if you are using Wi-Fi (check for Wi-Fi interference as well).

Symptom	Possible Solution
No sound when playing a video or audio file.	**1.** Are you sure the video has an audio track? **2.** Do you have speakers plugged in, powered, turned on, and turned up loud enough to hear? **3.** Turn up the audio volume.
Can not remember password.	Use the Digitarium remote control to go to menu item 8.12 and eset your password.
Bottom of interface cut off or missing	Is your browser resolution at least 1024x768? Try enlarging your browser window.  *Did you start the Universal Console application by clicking on the icon on your home screen that you created in the First Time Set Up on page 6? This is not optional.*
User interface is intermittently unresponsive using Firefox	Try upgrading Firefox.
Using 3 or more fingers on the iPad leads to the iPad freezing up.	 *This is an Apple bug with multitouch multitasking. Try to avoid using more than 2 fingers at a time on the iPad.*
Unable to leave the Universal Console on the iPad	 *If the round button on the face of the iPad will not close the Universal Console, hold down that button and the power button on the edge of the iPad together for a few seconds until the iPad turns off. Then restart the iPad.*
General strange behavior or Augmented Lessons not working fully.	 *Did you possibly upgrade your iOS version without checking if this version works with the Universal Console or are you running an older unsupported iOS version? See the warning on page 4.* *Have you cleared your application cache after a Universal Console software update, as described on page 27?*
Thumbnails show up as question mark icons.	You probably have used up all the space on your internal drive and there was no room left to store thumbnails. Try removing some files from your master external drive and synchronizing your files again.

How to Get Help

If you are experiencing problems with your Digitarium system, please:

1. Reread the manuals to make sure you haven't missed a possible solution.
2. Contact your local distributor, or (for English) technical support use:

- email: support@digitaliseducation.com
- phone: +1.360.616.8915
- fax: +1.360.616.8917

Software Licenses

The Digitarium system is driven by software, both proprietary and open source.

Proprietary Digitalis software is covered under our standard End User License Agreement. You will need to review and accept this license when you log in to your Universal Console for the first time and possibly again after updating your system.

Open source software licenses are listed at: http://digitaliseducation.com/licenses.html

Digitarium®

Serial Number and

Warranty Information

Digitalis®

EDUCATION SOLUTIONS, INC.

Digitarium Individual Serial Numbers
(Keep in a safe place)

The following information is recorded here for your convenience. We would like to request that you keep this information in a safe place, and have it ready whenever you call Digitalis for support on your system. Having this information helps us provide better service for you.

We wish you good luck, and please don't hesitate to call us at the above phone number with any questions you might have regarding your system, we are available to help!

-the Digitalis Team

The serial numbers for your system components are as follows:

System Model: Digitarium Kappa 2 Professional

Operating Platform: OP10

Software License(s): Nightshade NG Professional, Universal Console

Planetarium Control Unit S/N: 4001099

Projector Make/Model: Barco F50 WQXGA DLP High Brightness

Projector S/N: 2018380089

Lens S/N: 4-0128

Digitalis Warranty Expires: October 21st, 2021

Support Type:
- ☐ Priority
- ☐ Priority Plus
- ☒ Standard

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EDUCATION SOLUTIONS, INC.

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DigitalisEducation.com

Effective January 30, 2015.

Standard Three Year Limited Warranty

Digitalis Education Solutions, Inc. (Digitalis) warrants that Digitarium® planetarium systems and Digitalis inflatable domes will be free from defects of workmanship and materials for a period of three (3) years from the original purchase invoice date from Digitalis (Warranty Period). During the Warranty Period, should a defect arise which results from a breach of warranty, Digitalis will, at its sole option, repair or replace the product free of charge other than shipping charges (and any duty/tax charges if outside the US). In no event will Digitalis' liability exceed the product purchase price.

Digitalis does not warrant components manufactured and branded by other manufacturers (Barco or Panasonic digital projectors, for example). However, during the Digitalis Warranty Period, Digitalis will expedite warranty repairs through the original manufacturer for components purchased from but not manufactured by Digitalis.

THERE ARE NO EXPRESSED OR IMPLIED WARRANTIES OTHER THAN THOSE STATED HEREIN, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Digitalis will not replace burned-out lamps, and cannot guarantee that the manufacturer's advertised lamp life expectancy will be reached. However, if a lamp fails within 90 days of purchase, please contact Digitalis as this may be covered under a warranty from the lamp manufacturer.

Accessory purchases through our online store are not covered by this warranty unless explicitly stated in the online product description.

This warranty is void if the product has been subjected to damage, unreasonable use, improper service, modification, power surges, or other causes not arising from defects in original materials or workmanship. This warranty does not cover failure or damage from normal wear and tear.

Customer is responsible for a reasonable degree of troubleshooting before making a warranty claim. Digitalis distributors and sales agents will assist with this effort in their territories with backup from Digitalis support staff. Digitalis will assist the customer directly in the US and other countries serviced directly by Digitalis. Warranty claims must be made during the Warranty Period to the Digitalis support department.

Digitalis shall not be liable for any incidental or consequential costs, including lost profits, or other expenses or damages resulting from any failure, defect, or malfunction of a product.

This warranty is governed by and construed in accordance with the laws of the State of Washington, without reference to choice of law rules. The U.N. Convention on Contracts for the International Sale of Goods does not apply to this warranty. All claims to enforce this warranty shall be brought and heard exclusively in the Washington state courts located in King County, Washington. Customer consents to the exclusive jurisdiction and venue of such court.

Extended Five Year Limited Warranty: At the time of purchase, a five (5) year limited warranty can be purchased at additional cost. This is otherwise identical to the standard three year limited warranty above, but the period is extended to a total of five years from the original purchase invoice date.

Returns: A Return Merchandise Authorization (RMA) number must be obtained from Digitalis before returning any item. Follow our return instructions for your return to be accepted and to avoid additional fees.

Technical Support: Digitalis technical support is available by email (support@DigitalisEducation.com) or phone (+1-360-616-8915) during normal business hours, in English, for the lifetime of your system. Normal business hours are currently 7:30AM to 4:00PM Pacific Time Zone, Monday through Friday except for New Years Day, Memorial Day, July 4th, Labor Day, Thanksgiving and the day after, and Christmas and the day after.

Priority Support: Enhanced support with 24/7 phone coverage, priority response, and other benefits can be purchased for an affordable annual service fee. Please contact us for options.

PUK CODE

This projector may be controlled by a PIN (Personal Identity Number) code. The PIN code is 4 digits, and if the PIN code is activated, you must issue the right code to unlock the projector.

To activate the PIN code, see the UTILITIES sub menu.

If a wrong PIN code is issued, you may try again two times. If you fail three times in a row, a PUK (unlock) code is needed. The PUK code is supplied with the product.

If you also fail three times with the PUK code, the projector locks up permanently, and can only be unlocked by a special service unlock code.

To access this code, you will need to contact your dealer or a service station. The service unlock code will be generated based on a secure, encrypted number that is produced by the projector itself. The projector will produce a new number every time.

The individual numbers for this projector is:

- Part number : **R9023194**
- Serial number : **2018380089**
- Default PIN : **1234**
- PUK code : **2933527**

SAFETY & WARNINGS

english

This document contains important information about safety precautions and the set-up and use of the projector. Please read the manual carefully before you operate the projector.

SAFETY
This device complies with relevant safety regulations for data processing equipment for use in an office environment. Before using the projector for the first time, please read the safety instructions thoroughly.

WARNING
Use only the cables and cords supplied with the projector or original replacement cables. Using other cables or cords may lead to malfunction and permanent damage of the unit.

Always use 3-prong / grounded power cord to ensure proper grounding of the unit. Never use 2-prong power cords, as this is dangerous and could lead to electrical shock.

Never open the unit. The projector contains no user serviceable parts. Refer all repairs to qualified personnel only.

Make sure that no objects enter into the vents and openings of the set. Do not spill any liquids on the projector or into the vents or openings of the unit.

Always remove lens cap before switching on the projector. If the lens cap is not removed, it may melt due to the high energy light emitted through the lens. Melting the lens cap may permanently damage the surface of the projection lens.

Do not look into the projection lens when the projector is switched on. The strong light may permanently damage sight.

Do not look into the laser beam when activated on the remote control. Laser light may permanently damage sight. Do not point laser beam at people or animals.

Only place the projector on a stable surface, or mount it securely using an approved ceiling-mount.

Do not drop the projector.

Always operate the projector horizontally, within the range of the adjustable rear feet. Operating the unit in other positions may reduce lamp life significantly, and may lead to overheating, resulting in malfunctioning.

Always allow ample airflow through the projector. Never block any of the air vents. Never cover the unit in any way while running. Allow for sufficient distance to walls and ceilings to avoid overheating. Minimum safety distance to any side of the unit is 50 cm / 20" in any direction.

CAUTION! Hot air is exhausted from the rear vent. Do not place objects that are sensitive to heat nearer than 50cm / 20" to the exhaust vent.

The projector is designed for indoor use only. Never operate the unit outdoors.

Do not operate the projector outside its temperature and humidity specifications, as this may result in overheating and malfunctioning.

Only connect the projector to signal sources and voltages as described in the technical specification. Connecting to unspecified signal sources or voltages may lead to malfunction and permanent damage of the unit.

Allow the unit to cool down for 60 minutes before lamp change.

INFORMATION & WARNING - POTENTIAL HEALTH ISSUES RELATED TO MERCURY VAPOR

This projector uses a very powerful UHP™ lamp for illumination to produce an extremely bright image.

This technology is similar to other high-pressure discharge lamps that are extensively used in cars, street lights and other lighting appliances today. These lamps, like fluorescent lighting, contain small amounts of mercury. The amount of mercury present in a lamp is far below the limits of danger set by the authorities.

It is very important that lamps containing mercury are treated properly to minimize potential health hazards.

The UHP™ lamp, like any other high brightness projector lamp, is under high-pressure when operating. While the lamp and the projector are carefully designed to minimize the probability of lamp rupture, the lamp may break while operating and small amounts of mercury vapor may be emitted from the projector. The probability of rupture increases when the lamp reaches its nominal life. It is therefore highly recommended that the lamp is replaced when the rated lifetime is reached.

As a general precaution, secure good ventilation in the room when operating the projector. If lamp rupture occurs, evacuate the room and secure good ventilation. Children and pregnant women in particular should leave the room.

When replacing a worn lamp, dispose of the used lamp carefully by proper recycling.

Mercury is a naturally occurring, stable metallic element that may pose a safety risk to people under certain conditions. According to the Public Health Statement for Mercury published by the Agency for Toxic Substances and Disease Registry ("ATSDR", part of the United States Public Health Service), the brain, central nervous system and kidneys are sensitive to the effects of mercury, and permanent damage can occur at sufficiently high levels of exposure. Acute exposure to high concentrations of mercury vapor can cause conditions such as lung and airway irritation, tightness in the chest, a burning sensation in the lungs, coughing, nausea, vomiting and diarrhea. Children and fetuses are particularly sensitive to the harmful effects of metallic mercury to the nervous system.
Seek medical attention if any of the above symptoms are experienced or if other unusual conditions are experienced following lamp rupture.

WEEE INFORMATION
This product conforms to all requirements of the EU Directive on waste electrical and electronic equipment (WEEE). This product shall be recycled properly. It can be disassembled to facilitate proper recycling of it's individual parts.
This product is using projection lamps that shall be recycled properly. Consult your dealer or relevant public authority regarding drop-off points for collection of WEEE.

安全警告

汉语

这个文件包含关于安全防范，投影仪的安装和使用的重要信息。请在操作投影仪前认真阅读本手册。

安全
该设备严格遵守办公环境中数据处理装备的相关安全规则。第一次使用投影机之前，请完整阅读安全说明。

警告
只使用投影仪配备的电缆和电线或原装替代电缆。使用其他电缆或电线可能会导致故障和造成设备永久性的损伤。

始终使用三相/接地电源线，以确保设备正确接地。禁止使用二相电源线，以防发生触电的危险。

禁止打开设备。用户不可私动投影仪的零件。所有维修仅限技术人员执行。

确保无任何物体进入设备通风口和其他开口处。切勿将液体溅到投影仪上或使之进入设备的通风口和其他开口处。

启动投影仪前，请先取下镜头盖。如果未取下镜头盖，从镜头放射出的高能光束会使盖子融化，熔化的镜头盖可能彻底损坏投影仪镜头的表面。

启动投影仪时，切勿直视投影仪的镜头。里面的强光会永久性的损伤视力。
切勿直视遥控器上出现的激光束。激光会永久性的损害视力。禁止将激光对准他人或动物。

仅将投影仪置于稳定的表面，或者使用验证合格的吸顶进行安全装配。

不要让投影仪掉落下来。

总是水平地在可调试的后支架范围内操作投影仪。否则会严重地缩短灯的使用寿命，还会因为过热从而出现故障。

保证投影仪始终有足够的空气流通。不得阻塞任何通风孔。在设备运行状态下严禁以任何方式遮盖设备。与墙和天花板保持足够的距离以免温度过高。在任何方向离设备任何一面的最小安全距离是 5 0 厘米/ 2 0 英寸。

警告！热空气是通过后面的出口排出的。不要将对热度敏感的物体放在靠近排气口 5 0 厘米/ 2 0 英寸的任何位置。

投影仪仅供室内使用。严禁在室外使用此设备.

不得在规定的温度和湿度范围之外使用投影仪，否则会导致过热及功能障碍。

投影仪仅与符合技术规范的信号源和电压连接。否则与未指明的信息源或电压连接会导致功能故障和设备的彻底损伤。

待设备冷却 60 分钟后再换灯。

信息与警告 - 与水银蒸汽有关的健康隐患

该投影仪使用极亮的超高功率（UHP™）的灯照明以取得理想的高亮度图像。

该技术与其他广泛使用在汽车、街头照明和其他照明器具上的高压放电灯类似。这些灯像荧光照明设备一样，含有少量水银，不过，灯中水银含量远远低于官方设定的危险界限。

重要的是，要正确处理含有水银的灯，将其对健康的潜在危险降至最低。

像任何其他高亮度投影仪的灯一样，超高功率（UHP™）灯是在高压状态下运行的。虽然灯像投影仪都已经过精心设计以将灯破裂的可能性降到最低，但仍有在操作过程中由于水银蒸汽可能会从投影仪中溢出，从而导致灯管破裂的可能。当灯接近其正常生命周期时，灯破裂的可能性随着增高。因此，我们强烈地推荐，当灯的额定生命周期接近时，将灯更换。

一项通用的防范措施是在投影仪操作的房间里，确保良好的通风。如果发生灯破裂的情况，人员撤出房间，确保良好通风状况. 小孩和孕妇尤其需要马上撤出房间。

在更换旧灯时，请对旧灯恰当回收，妥善处理。

水银是一种自然产生的，稳定的金属元素。一定条件下，这种元素会对人体带来安全风险。按照美国有毒物质和疾病登记局（"ATSDR"，美国公共卫生服务部的下属部门）发布的水银公共卫生声明中说，大脑，中枢神经系统和肾脏对水银的影响都很敏感。受水银的强烈影响会带来永久性的伤害. 剧烈地暴露于高浓度水银蒸汽会产生肺和呼吸道不适，胸闷，肺烧痛，咳嗽，恶心，发呕和腹泻. 孩子和胎儿对水银对神经系统的危害性影响尤其敏感.

如果在灯破裂后有任何上述症状发生，或者如果其他非常状况发生，请即时就医。

WEEE 相关信息
此产品符合欧盟关于报废电子电器设备指令（WEEE）。此产品可适当回收。还可对其进行分解以回收利用它的独立部件。
此产品采用的投影灯可被适当回收。请咨询交易商或相关公共部门以获知此类报废电子电器设备的回收点。

601-0165-02
2012-12

english

WARNING
This product contains chemicals, including lead, known to the State of California to cause birth defects or other reproductive harm. Recycle properly, do not dispose of in ordinary waste!"

SERVICE PERSONNEL INFORMATION WARNING
Use UV radiation eye and skin protection during servicing.

REMOTE CONTROL WARNING
Laser radiation class II product; wavelength 670nm; maximum output 1mW.

Remote control complies with applicable requirements of 21 CFR 1040.10 and 1040.11.

Remote control complies with applicable requirements of EN 60 825-1: 1994 + A11

WARNING SYMBOLS

READ USER GUIDE
Attention! Read the user guide for further information!

DANGEROUS VOLTAGE
Danger! High voltage inside the product!

HOT
Warning! Hot surfaces!

WAIT
Warning! Wait until cooled down!

MERCURY
Warning! Lamp contains mercury! Recycle properly, do not dispose of in ordinary waste!

UV
Warning! UV radiation inside the product!

RECYCLE
Warning! Recycle properly, do not dispose of in ordinary waste!

NO TELEPHONE
Warning! Do not connect to telephone lines!

ALTITUDE
Altitude ≤2000M only

CLIMATE
Non-tropical areas only

汉语

警告

本产品含有包括铅在内的化学制品，在加利福尼亚显为人知，这会导致先天性的缺陷或其他生殖性伤害。正确处理该产品废弃物，决不能将其置于一般垃圾中。

维修人员信息警告
维修时需穿戴 UV 辐射眼睛和皮肤保护。

遥控警告
激光辐射二级产品。波长 6 7 0 纳米. 最大输出量 1 兆瓦。

遥控符合 21 CFR 1040.10 和 1040.11 的应用规定。

遥控按 EN 60 825-1: 1994 + A11 的应用条件操作

警告符号

阅读用户指南
注意！请进一步阅读用户指南！

高压危险
危险！该产品内有高压！

高温
警告！表面有高温！

等待
警告！等待设备冷却下来！

水银
警告！灯中含有水银！正确处置，切勿置于一般垃圾中！

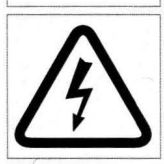
紫外线
警告！产品内有紫外线辐射！

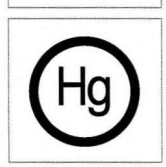
重复利用
警告！正确处置该产品废弃物，切勿置之于一般垃圾中！

禁止打电话
警告！切勿与电话线连接！

海拔
仅适用于在海拔2000m以下地区使用

气候
仅适用于在非热带气候条件下使用





China RoHS information:

The Ministry of Information Industry (MII) of the People's Republic of China overall legislation: "Management Methods for the Control of Pollution from Electronic Information Products", commonly referred to as China RoHS, restricts the six substances lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr(VI)), polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE) to certain maximum concentration values (MCV).

In order to prevent serious human and environmental effects during use and disassembly of discarded products, the following Hazardous Substance Disclosure Table lists a few major parts that may contain any of the six substances over the MCV:

Part Name	Toxic or hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Lamp	O	x	O	O	O	O
Optical prism lens	x	O	O	O	O	O
Components on printed circuit board	x	O	O	O	O	O
DC brush motor	x	O	O	O	O	O
O: Indicates that this toxic or hazardous substance contained in all the homogenous materials for this part is below the limit requirement in SJ/T11363-2006. X: Indicates that this toxic or hazardous substance contained in at least one of the homogenous materials used for this part is above the limit requirement in SJ/T11363-2006. Lamp is marked: Hg. Relevant optical prism lens, printed circuit boards and DC brush motors are marked: China RoHS: Pb						

Users of electrical and electronic equipment should not dispose of waste electrical and electronic equipment as unsorted municipal waste. The product should be recycled properly. The product is using projection lamps that should be recycled properly.
Products have the pollution control logo:

The number in the logo symbolizes the Environmental Protection Use Period (EPUP) in years. Period during which toxic or hazardous substances or elements contained will not leak or mutate under normal operating conditions so that the use of the product will not result in any severe environmental pollution, any bodily injury or damage to any assets.

The logo also signifies that the product should be recycled immediately after its environmental protection use period has expired.

中国 RoHS 信息：

中华人民共和国信息产业部 (MII) 规定：通常称为中国 RoHS 的“电子信息产品污染物控制管理方法”将六类物质即铅 (Pb)、贡 (Hg)、镉 (Cd)、六价铬 (Cr(VI))、多溴化联二苯 (PBB) 以及多溴化联二苯醚 (PBDE) 限制到一定最大浓度值 (MCV)。

为了防止在使用和分解废弃产品期间对人类和环境造成严重影响，以下危险物质披露表列举了可能含有六种物质中超过 MCV 的一些主要部件：

部件名称	有毒或危险物质及元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴化联二苯 (PBB)	多溴化联二苯醚 (PBDE)
投影灯	O	x	O	O	O	O
光学棱镜	x	O	O	O	O	O
印刷电路板元件	x	O	O	O	O	O
直流电刷电机	x	O	O	O	O	O
O： 表示该部件所有均质材料中的这种有毒或危险物质低于 SJ/T11363-2006 的限制要求。 X： 表示该部件至少一种均质材料中所含的这种有毒或危险物质高于 SJ/T11363-2006 的限制要求。 投影灯标记： Hg。相关光学棱镜、印刷电路板和直流电刷电机标记： 中国 RoHS： Pb						

电气和电子设备的使用者不得将废弃电气和电子设备作为未分类生活垃圾处置。产品应正确再循环。产品正在使用应正确再循环的投影灯。

产品具有污染控制标志：

标志内部的数字表示环保使用期限 (EPUP)，单位为年。在该期间，在正常使用条件下，含有的有毒或危险物质或元素不会泄漏或变异，因此使用产品不会导致任何严重环境污染、任何人身伤害或任何财产损坏。

该标志还表示产品在环保使用期已经到期时应立即再循环。

Quick Start Guide
F50

1 getting started

This Quick Start Guide has been designed to help you quickly getting started using your new projector. If you require further help, or have questions on the details of how to operate this unit, please refer to our web site in order to download the complete product documentation. You can also access FAQ's and download detailed white papers in order to get to know the more specific product features and benefits.

Packaging contents:


projector unit


remote control


power cable


product documentation

2 mount projection lens, get to know the connector panel

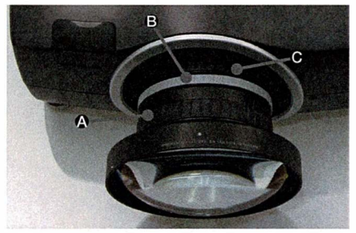
Carefully mount the projection lens. Remove protection end caps on lens and bayonet mount, then insert, and turn clockwise until it stops and a click sounds. The connector panel at the back features a wide range of connectors for all sorts of source connections. Decide which one(s) that meet(s) your requirement(s).

3 connect sources, connect power, power on

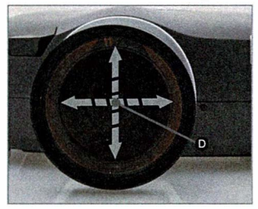
Make sure the projector is switched off, and not connected to power when connecting to sources. Connect video and computer sources, then insert the power cable. Power up sources, including computers and other playback devices. Power up the projector by pressing the power key (⏻). A steady, blue indicator light will indicate it is in operation.
CAUTION! Connecting sources to a powered projector may result in product failure. It is recommended that the power cable connector (projector-end) or the mains power socket are accessible whilst the product is in use to enable mains power to be disconnected or switched off when connecting source devices. This should be considered during product installation. In order to prevent damage to the projector caused by over-voltages (e.g. lightning), connect to a line (mains) circuit which has overvoltage protection when installing.

4 adjust projector settings

Manually adjust zoom (C) to set the correct image size, shift (D) to position correctly (motorized), focus (A) for clarity and iris (B) for adjusting contrast and focus depth. Adjust image level with the 2 feet in the front (E) and the 1 at the rear.



A: Focus B: Iris C: Zoom Manually adjust until optimal picture quality

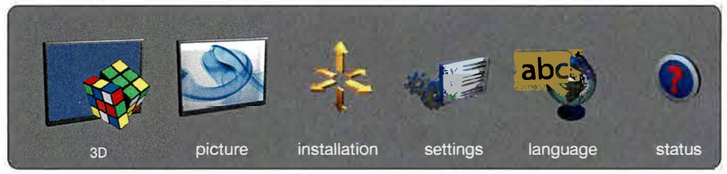


D: Lens shift (operated from keypad or remote)

E: Adjustable front feet/rear foot

5 adjust image and system settings

Change and adjust settings such as brightness and contrast, ceiling mount and rear projection display, as well as color calibration, and other system settings by using the remote control or through the menu system that is accessible from the on-board keypad.



6 power off and allow to cool down

To power off, press the power (⏻) key once, and confirm by pressing again. Allow to cool down until all fans have stopped (a minimum of 30 seconds), and a steady yellow indicator light shows that the projector has been safely turned off (status/color table below). Disconnect any cables, sources and power cables before uninstalling the projector.

STATUS	COLOR
On (active)	Blue
Wait on	Blue flashing
Standby (off)	Yellow
Wait	Yellow flashing
Lamp failure	Red
Overheating	Red flashing
Configure/ upgrade	Yellow fast flashing
Error	Red fast flashing

Features in the quick start pictures/drawings may be different from your projector depending on model/version.
When referring to the term F50 in this document, it means that the content is applicable for the following Barco products:

- F50 1080 (1920x1080)
- F50 WUXGA (1920x1200)
- F50 WQXGA (2560x1600)
- F50 Panorama (2560x1080)

Please visit our web site to download full user manual or find related information

R9001024-01

english

SAFETY
This device complies with safety regulations for Information Technology Equipment intended to operate in "normal" environments (offices and homes). Before using the projector for the first time, please read the safety instructions thoroughly.

WARNING
Use only the cables and cords supplied with the projector or original replacement cables. Using other cables or cords may lead to malfunction and permanent damage of the unit.

Always use 3-prong / grounded power cord to ensure proper grounding of the unit. Never use 2-prong power cords, as this is dangerous and could lead to electrical shock. For the grounding of the coax connection, equal ground potential must be ensured. To be installed by trained personnel.

Never open the unit. The projector contains no user serviceable parts. Refer all repairs to qualified personnel only. Make sure that no objects enter into the vents and openings of the set.

Do not spill any liquids on the projector or into the vents or openings of the unit.

Always remove lens cap before switching on the projector. If the lens cap is not removed, it may melt due to the high energy light emitted through the lens. Melting the lens cap may permanently damage the surface of the projection lens.

Do not look into the projection lens when the projector is switched on. The strong light may permanently damage sight.

Only place the projector on a stable surface, or mount it securely using an approved ceiling-mount.

Do not drop the projector.

Always operate the projector according to the rotation guidelines described in the user manual. Operating the unit in other positions may reduce lamp life significantly. and may lead to overheating, resulting in malfunctioning.

Always allow ample airflow through the projector. Never block any of the air vents. Never cover the unit in any way while running. Allow for sufficient distance to walls and ceilings to avoid overheating.

Minimum safety distance to any side of the unit is 50 cm / 20" in any direction (15 cm / 6" to ceiling).

CAUTION! Hot air is exhausted from the rear vent. Do not place objects that are sensitive to heat nearer than 50 cm / 20" to the exhaust vent.

The projector is designed for indoor use only. Never operate the unit outdoors.

Do not operate the projector outside its temperature and humidity specifications, as this may result in overheating and malfunctioning.

Only connect the projector to signal sources and voltages as described in the technical specification. Connecting to unspecified signal sources or voltages may lead to malfunction and permanent damage of the unit.

Allow the unit to cool down for 60 minutes before lamp change. Refer to user's user manual.

INFORMATION AND WARNING ABOUT POTENTIAL HEALTH ISSUES RELATED TO MERCURY VAPOUR.
This projector uses a very powerful UHP™ lamp for illumination to produce an extremely bright image.

This technology is similar to other high-pressure discharge lamps that are extensively used in cars, street lights and other lighting appliances today. These lamps, like fluorescent lighting, contain small amounts of mercury. The amount of mercury present in a lamp is far below the limits of danger set by the authorities. It is very important that lamps containing mercury are treated properly to minimize potential health hazards.

The UHP™ lamp, like any other high brightness projector lamp, is under high-pressure when operating. While the lamp and the projector are carefully designed to minimize the probability of lamp rupture, the lamp may break while operating and small amounts of mercury vapour may be emitted from the projector. The probability of rupture increases when the lamp reaches its nominal life. It is therefore highly recommended that the lamp is replaced when the rated lifetime is reached.

As a general precaution, secure good ventilation in the room when operating the projector. If lamp rupture occurs, evacuate the room and secure good ventilation. Children and pregnant women in particular should leave the room.

When replacing a worn lamp, dispose of the used lamp carefully by proper recycling.

Mercury is a naturally occurring, stable metallic element that may pose a safety risk to people under certain conditions. According to the Public Health Statement for Mercury published by the Agency for Toxic Substances and Disease Registry ("ATSDR", part of the United States Public Health Service), the brain, central nervous system and kidneys are sensitive to the effects of mercury, and permanent damage can occur at sufficiently high levels of exposure. Acute exposure to high concentrations of mercury vapour can cause conditions such as lung and airway irritation, tightness in the chest, a burning sensation in the lungs, coughing, nausea, vomiting and diarrhoea. Children and fetuses are particularly sensitive to the harmful effects of metallic mercury to the nervous system.

Seek medical attention if any of the above symptoms are experienced or if other unusual conditions are experienced following lamp rupture.

WEEE INFORMATION
This product conforms to all requirements of the EU Directive on waste electrical and electronic equipment (WEEE). This product shall be recycled properly. It can be disassembled to facilitate proper recycling of it's individual parts.

This product is using projection lamps that shall be recycled properly. Consult your dealer or relevant public authority regarding drop-off points for collection of WEEE. For details, please visit the Barco website at: http://www.barco.com/en/AboutBarco/weee.

WARNING
This product contains chemicals, including lead, known to the State of California to cause birth defects or other reproductive harm. Recycle properly, do not dispose of in ordinary waste!

SERVICE PERSONNEL INFORMATION
WARNING
Use UV radiation eye and skin protection during servicing.

WARNING SYMBOLS
- READ User Manual Attention! Read the user manual for further information!
- DANGEROUS VOLTAGE Danger! High voltage inside the product!
- HOT Warning! Hot surfaces!
- WAIT Warning! Wait until cooled down!
- MERCURY Warning! Lamp contains mercury! Recycle properly, do not dispose of in ordinary waste!
- UV Warning! UV radiation inside the product!
- RECYCLE Warning! Recycle properly, do not dispose of in ordinary waste!
- NO TELEPHONE Warning! Do not connect to telephone lines!

deutsch

SICHERHEIT
Dieses Gerät erfüllt die relevanten Sicherheitsbestimmungen für Datenverarbeitungsgeräte zum Einsatz in Büros. Vor erstmaliger Verwendung des Projektors lesen Sie bitte die Sicherheitshinweise aufmerksam durch.

WARNUNG
Verwenden Sie ausschließlich Kabel, die mit dem Projektor geliefert wurden bzw. Originalersatzkabel. Die Verwendung von anderen Kabeln kann zu Funktionsfehlern oder dauerhafter Beschädigung des Geräts führen.

Verwenden Sie immer ein 3-poliges / geerdetes Stromkabel, um die sichere Erdung des Gerätes zu gewährleisten. Verwenden Sie auf keinen Fall 2-polige Kabel, da diese gefährlich sind und einen Stromschlag verursachen können. Bei der Erdung des Koaxkabels ist dafür zu sorgen, dass das Erdpotential gleichmäßig ist. Installation muss von ausgebildetem Fachpersonal durchgeführt werden.

Öffnen Sie das Gerät niemals. Der Projektor enthält keine Teile, die vom Benutzer gewartet werden müssen. Reparaturarbeiten dürfen nur von qualifiziertem Personal vorgenommen werden. Versichern Sie sich, dass keine Gegenstände in das Gebläse oder die Öffnungen des Geräts gelangen.

Schütten Sie keine Flüssigkeiten über den Projektor oder in das Gebläse bzw. die Öffnungen des Geräts.

Nehmen Sie immer die Deckel von den Linsen, bevor Sie den Projektor einschalten. Werden die Deckel nicht von den Linsen genommen, können sie auf Grund des durch die Linsen abgegebene Licht mit hohem Energiegehalt schmelzen. Schmelzen die Deckel, kann die Oberfläche der Projektionslinsen dauerhaft beschädigt werden.

Schauen Sie nicht in die Projektionslinsen, wenn der Projektor eingeschaltet ist. Das starke Licht könnte die Augen dauerhaft schädigen.

Stellen Sie den Projektor nur auf einer stabilen Fläche auf oder hängen Sie ihn sicher unter Verwendung einer Deckenhalterung auf.

Lassen Sie den Projektor nicht herunterfallen.

Immer den Projektor entsprechend der Drehung Leitlinien in der Bedienungsanleitung beschrieben. Wird das Gerät in einer anderen Stellung betrieben, kann die Lebensdauer der Lampe deutlich verkürzt werden, und es können Überhitzungen auftreten, die zu Betriebsstörungen führen.

Lassen Sie immer den Luftfluss durch den Projektor strömen. Die Belüftungsöffnungen dürfen nie versperrt werden. Decken Sie das Gerät nie ab, wenn es in Betrieb ist. Halten Sie ausreichend Abstand zu Wänden und Decken, um zu vermieden, dass sich das Gerät überhitzen kann.

Der Mindestsicherheitsabstand an allen Seiten des Geräts beträgt 50 cm/ 20 Zoll in jede Richtung (15 cm/ 6" bis zur Decke).

VORSICHT! Aus den hinteren Belüftungsöffnungen strömt heiße Luft. Legen Sie keine wärmeempfindlichen Gegenstände näher als 50 cm / 20 Zoll an die Luftaustrittsöffnungen.

Der Projektor ist nur für die Verwendung in geschlossenen Räumen konzipiert. Verwenden Sie das Gerät niemals im Freien.

Verwenden Sie den Projektor nie außerhalb der vorgegebenen Temperatur- und Feuchtigkeitswerte, da dies zu einer Überhitzung und Betriebsstörung führen kann.

Schließen Sie den Projektor nur an Signalquellen und Spannungen an, wie in den technischen Daten angegeben. Bei Anschluss an nicht geeignete Signalquellen oder Spannungen kann es zu Funktionsfehlern oder dauerhafter Beschädigung des Geräts kommen.

Lassen Sie das Gerät 60 Minuten lang abkühlen, bevor Sie die Lampe auswechseln. Bitte Benutzer Handbuch referieren.

ANGABEN UND WARNHINWEISE ZU EVENTUELLEN GESUNDHEITSGEFÄHRDUNGEN IM ZUSAMMENHANG MIT QUECKSILBERDAMPF.
In diesem Projektor wird eine leistungsstarke UHP™-Lampe zur Beleuchtung eingesetzt, die ein extrem helles Bild erzeugt.

Diese Technologie ist ähnlich wie andere Hochdruckentladungslampen, sie heute häufig in Pkws, Straßenlampen und anderen Leuchtkörpern verwendet werden. Diese Lampen enthalten, gleich wie Neonröhren, geringe Quecksilbermengen. Die in den Lampen vorhandenen Quecksilbermengen liegen weit unter den von den Behörden festgelegten Gefahrengrenzen. Es ist von großer Wichtigkeit, dass Lampen mit Quecksilbergehalt sachgemäß behandelt werden, um eventuelle gesundheitliche Gefährdungen zu minimieren.

Die UHP™-Lampe steht während dem Betrieb, ähnlich anderen sehr hellen Projektorlampen, unter hohem Druck. Obwohl die Lampe und der Projektor sachgemäß konstruiert wurden, um die Wahrscheinlichkeit eines Lampenbruches zu minimieren, kann die Lampe während dem Betrieb zerbersten und geringe Mengen Quecksilberdampf aus dem Projektor strömen. Die Wahrscheinlichkeit des Bruches nimmt mit Erreichen der Lebensdauer der Lampe zu. Deshalb wird dringend empfohlen, die Lampe auszuwechseln, wenn sie das angegebenen Lebensalter erreicht hat.

Als allgemeine Vorsichtsmaßnahme ist während des Betriebs des Projektors eine gute Belüftung des Raumes sicher zu stellen. Sollte die Lampe bersten, sollte der Raum geräumt und eine gute Belüftung sicher gestellt werden. Insbesondere Kinder und Schwangere sollten den Raum verlassen.

Nach Auswechseln einer verbrauchten Lampe muss die verbrauchte Lampe sachgerecht entsorgt und wiederverwertet werden.

Quecksilber ist ein in der Natur vorkommendes, stabiles Metallelement, das unter bestimmten Umständen ein Sicherheitsrisiko für den Menschen darstellen kann. Gemäß der Erklärung zur öffentlichen Sicherheit des Quecksilbers, die von der Agentur für toxische Substanzen und Krankheitsregister („ATSDR", als Bestandteil des öffentlichen Gesundheitssystems der USA) veröffentlicht wurde, reagieren das Gehirn, das zentrale Nervensystem und die Nieren empfindlich auf die Belastung durch Quecksilber; so können bei ausreichend hohen Belastungsniveaus dauerhafte Schäden auftreten. Bei akuter Belastung durch hohe Quecksilberdampfkonzentrationen können Zustände wie Reizung der Lungen und Atemwege, Brustdruck, Brenngefühle in den Lungen, Husten, Übelkeit, Erbrechen und Durchfall auftreten. Kinder und Ungeborene sind besonders empfindlich auf die schädlichen Wirkungen des Quecksilbermetalls auf das Nervensystem.

Suchen Sie einen Arzt auf, wenn eines der o.g. Symptome auftritt oder andere ungewöhnliche Zustände nach Bersten einer Lampe eintreten.

WEEE-ANGABEN
Dieses Produkt erfüllt alle Auflagen aus der EU-Richtlinie für Elektro- und Elektronik-Altgeräte (WEEE). Dieses Produkt kann sachgemäß recycelt werden. Es kann zerlegt werden, um die Einzelteile ordnungsgemäß zu recyceln. Dieses Produkt verwendet Projektorlampen, die sachgemäß recycelt werden müssen. Fragen Sie Ihren Händler oder die zuständigen Behörden nach Entsorgungsstellen für Elektro- und Elektronik-Altgeräte. Für weitere Informationen, besuchen Sie bitte die Website unter: http://www.barco.com/en/AboutBarco/weee.

WARNUNG
Dieses Produkt kann Chemikalien, wie z. B. Blei, enthalten, von denen im Staat Kalifornien bekannt ist, dass sie angeborene Schäden oder andere Fortpflanzungsschäden verursachen. Sachgemäß recyceln und nicht mit dem gewöhnlichen Abfall entsorgen!

INFORMATIONEN FÜR DAS WARTUNGSPERSONAL
WARNUNG
Verwenden Sie während der Servicearbeiten einen Augen- und Hautschutz gegen UV-Strahlen

WARNSYMBOLE
- LESEN SIE DAS BENUTZERHANDBUCH Vorsicht! Nähere Angaben finden Sie im Benutzerhandbuch!
- GEFÄHRLICHE SPANNUNG Gefahr! Hohe Spannung im Inneren des Geräts!
- HEISS Warnung! Heiße Flächen!
- WARTEN Warnung! Abkühlen lassen!
- QUECKSILBER Warnung! Die Lampe enthält Quecksilber! Sachgemäß recyceln, und nicht mit dem gewöhnlichen Abfall entsorgen!
- UV Warnung! UV-Strahlung im Inneren des Geräts!
- RECYCELN Warnung! Sachgemäß recyceln und nicht mit dem gewöhnlichen Abfall entsorgen!
- KEIN TELEFON Warnung! Nicht an Telefonleitungen anschließen!

francais

SÉCURITÉ
Cet appareil est conforme aux normes de sécurité relatives à l'utilisation en bureaux des appareils de traitement de données. Avant la première utilisation du projecteur, veuillez lire entièrement les consignes de sécurité.

MISE EN GARDE
Utilisez uniquement les câbles et les cordons fournis avec le projecteur ou des câbles de remplacement d'origine. L'utilisation de câbles ou de cordons différents peut entraîner un mauvais fonctionnement et des dégâts irréversibles sur l'appareil.

Utilisez toujours un cordon d'alimentation 3 broches avec prise de terre pour garantir une mise à la terre correcte de l'appareil. N'utilisez jamais des cordons d'alimentation 2 broches, ceci est dangereux et peut entraîner une décharge électrique. Pour une mise à la terre adéquate du raccord coaxial, il faut assurer un potentiel de terre identique. Installation à réaliser par du personnel qualifié.

N'ouvrez jamais l'appareil. Le projecteur ne contient pas de pièces accessibles par l'utilisateur. Adressez-vous à du personnel qualifié pour toutes les réparations. Assurez-vous qu'aucun objet n'entre par les orifices et les ouvertures du poste.

Ne renversez aucun liquide sur le projecteur ou dans les orifices ou les ouvertures de l'appareil.

Enlevez toujours le cache-optique avant la mise en marche du projecteur. Si le cache-optique n'est pas enlevé, il peut fondre à cause de la forte puissance de la lumière émise à travers la lentille. La fonte du cache-optique peut endommager la surface de l'objectif de projection de façon irréversible.

Ne regardez pas dans l'objectif de projection quand le projecteur est en marche. La puissance de la lumière peut endommager la vue de façon irréversible.

Placez-le projecteur uniquement sur une surface stable ou installez-le soigneusement en utilisant un montage plafond certifié.

Ne faites pas tomber le projecteur.

Toujours faire fonctionner le projecteur en fonction de la rotation des directives décrites dans le manuel de l'utilisateur. Faire fonctionner l'appareil dans d'autres positions peut réduire la durée de vie de la lampe de façon significative, et peut entraîner une surchauffe résultant d'un mauvais fonctionnement.

Laissez toujours suffisamment de place autour du projecteur pour permettre la circulation de l'air. Ne bouchez jamais les prises d'air. Ne couvrez jamais l'appareil de quelque façon que ce soit pendant le fonctionnement. Prévoyez une distance suffisante jusqu'aux murs et jusqu'au plafond pour éviter une surchauffe.

La distance minimale de sécurité de chaque côté de l'appareil est de 50 cm/20 pouces dans n'importe quelle direction (15 cm / 6" au plafond).

ATTENTION! L'orifice arrière dégage de l'air chaud. Ne placez pas d'objets sensibles à la chaleur à moins de 50 cm/20" des orifices de ventilation.

Le projecteur est conçu pour un usage intérieur uniquement. Ne faites jamais fonctionner l'appareil en extérieur.

Ne faites pas fonctionner le projecteur en dehors de ses caractéristiques de température et d'humidité, ceci peut entraîner une surchauffe et un mauvais fonctionnement.

Raccordez juste le projecteur aux sources de signal et aux voltages comme indiqué dans les caractéristiques techniques. Se connecter aux sources de signal ou aux voltages non indiqués peut entraîner un mauvais fonctionnement et des dégâts irréversibles sur l'appareil.

Laissez refroidir l'appareil 60 minutes avant de changer la lampe.

INFORMATION ET AVERTISSEMENT SUR LES QUESTIONS DE SANTÉ POTENTIELLES DUES AUX VAPEURS DE MERCURE.
Ce projecteur utilise une lampe UHP™ très puissante pour fournir un éclairage afin de produire une image extrêmement lumineuse.

Cette technologie est semblable à d'autres lampes à décharge haute pression énormément utilisées dans les voitures, les éclairages de rues et autres appareils d'éclairage aujourd'hui. Ces lampes, comme les éclairages fluorescents, contiennent des petites quantités de mercure. La quantité de mercure présente dans une lampe est bien au-dessous des limites de danger posées par les autorités. Il est très important que les lampes contenant du mercure soient traitées correctement pour réduire au maximum les risques potentiels sur la santé.

La lampe UHP™ comme n'importe quelle autre lampe haute luminosité de projecteur, est sous haute tension en mode fonctionnement. Bien que la lampe et le projecteur soient soigneusement conçus pour réduire au maximum les risques de rupture de la lampe, la lampe peut se briser pendant le fonctionnement et de petites quantités de mercure peuvent se dégager du projecteur. Les risques de rupture augmentent quand la lampe atteint sa durée de vie théorique. Il est donc vivement recommandé de remplacer la lampe quand la durée de vie estimée est atteinte.

Par précaution, assurez une bonne ventilation dans la salle pendant le fonctionnement du projecteur. Si une rupture de la lampe se produit, évacuez la salle et assurez une bonne ventilation. Les enfants et les femmes enceintes en particulier doivent quitter la salle.

Quand vous remplacez une lampe usagée, éliminez-la soigneusement via un circuit de recyclage adapté.

Le mercure est présent à l'état naturel, c'est un élément métallique stable qui peut présenter un risque pour des personnes dans certaines conditions. Selon la Déclaration de Santé Publique relative au Mercure publiée par l'Agence des Substances Toxiques et du Registre de Maladie section du Service de Santé Publique des Etats-Unis), le cerveau, le système nerveux central et les reins sont sensibles aux effets du mercure, et une lésion irréversible peut apparaître à des taux d'exposition suffisamment élevés. Une vive exposition à des concentrations élevées de vapeur de mercure peut entraîner des maladies comme une irritation des poumons et des voies respiratoires, une oppression au niveau de la poitrine, des sensations de brûlure dans les poumons, toux, nausées, vomissements et diarrhée. Les enfants et les fœtus sont particulièrement sensibles aux effets nocifs du mercure métallique sur le système nerveux.

Demandez une assistance médicale si vous ressentez un des symptômes énumérés ci-dessus ou si d'autres maladies inhabituelles sont ressenties suite à une rupture de la lampe.

INFORMATION WEEE
Cet appareil est conforme à la Directive EU relative au recyclage des équipements électriques et électroniques (WEEE). Cet appareil doit être recyclé correctement. Il peut être démonté pour faciliter le recyclage de chaque pièce séparément. Cet appareil utilise des lampes de projection qui doivent être recyclées correctement. Consultez votre revendeur ou les autorités publiques compétentes concernant les points de collecte WEEE. Pour plus de détails, veuillez visiter le site web Barco à: http://www.barco.com/en/AboutBarco/weee.

MISE EN GARDE
Cet appareil contient des produits chimiques, câble compris, connus de l'Etat de Californie pour entraîner des malformations ou des maux reproductifs. Recyclez correctement ; ne les jetez pas dans une déchetterie quelconque!

INFORMATION POUR LE PERSONNEL D'ENTRETIEN
MISE EN GARDE
Protégez les yeux et la peau des radiations UV pendant l'entretien

SYMBOLES D'AVERTISSEMENT
- LISEZ LE GUIDE D'UTILISATION Attention! Lisez le guide d'utilisation pour plus d'information!
- VOLTAGE DANGEREUX Danger! Voltage élevé dans l'appareil!
- CHAUD Avertissement Surfaces chaudes!
- ATTENDEZ Avertissement Attendez jusqu'au refroidissement!
- MERCURE Avertissement La lampe contient du mercure! Recyclez correctement, n'éliminez pas dans une déchetterie quelconque!
- UV Avertissement Radiation UV à l'intérieur de l'appareil!
- RECYCLEZ Avertissement Recyclez correctement, ne les jetez pas dans une déchetterie quelconque!
- PAS DE TELEPHONE Avertissement Ne vous connectez pas aux lignes téléphoniques!

español

SEGURIDAD
Este aparato cumple las normas de seguridad correspondientes a equipos de proceso de datos para su uso en un entorno de oficinas. Antes de usar el proyector por primera vez, lea detenidamente las instrucciones de seguridad.

ADVERTENCIA
Utilice únicamente los cables y conectores suministrados con el proyector o piezas de recambio originales. El uso de otros cables o conectores puede ocasionar un mal funcionamiento y el daño permanente del aparato.

Utilice siempre un cable de alimentación de 3 clavijas puesto a tierra para garantizar una correcta conexión a tierra del aparato. No utilice nunca cables de alimentación de 2 clavijas ya que resulta peligroso y podría ocasionar una descarga eléctrica. Para la puesta a tierra de la conexión coaxial, se deberá igualar el potencial de tierra. La instalación debe realizarse por personal debidamente capacitado.

No abra nunca el aparato. El proyector no contiene ninguna pieza que pueda ser reparada por el usuario. Para cualquier reparación, diríjase a un servicio técnico cualificado. Asegúrese de que no entren objetos por las ranuras de ventilación o las aberturas del aparato.

No derrame líquidos sobre el proyector ni en las ranuras de ventilación o las aberturas del aparato.

Antes de encender el proyector, quite siempre la tapa del objetivo. En caso contrario, éste puede fundirse a causa de la gran energía de la luz emitida a través del objetivo. Si la tapa se funde, la superficie del objetivo puede quedar dañada de forma permanente.

No mire al objetivo con el proyector encendido. Una luz demasiado fuerte puede ocasionar daños permanentes a la vista.

Coloque el proyector únicamente sobre una superficie estable o sujételo firmemente mediante un montaje de techo homologado.

Evite la caída del proyector.

Siempre hacer funcionar el proyector con arreglo al principio de rotación las directrices que se describen en el manual del usuario. La utilización del aparato en otras posiciones puede reducir significativamente la vida útil de la lámpara y producir un sobrecalentamiento que ocasione un mal funcionamiento.

Deje en todo momento un espacio amplio para que el aire fluya por el proyector. No tape nunca ninguna de las ranuras de ventilación. Tampoco debe cubrir en modo alguno el aparato mientras esté funcionando. Deje una distancia suficiente con las paredes y el techo para evitar un sobrecalentamiento.

La distancia mínima de seguridad a los lados del aparato es de 50 cm (20 pulgadas) en cualquier dirección (15 cm / 6" en el techo).

¡PRECAUCIÓN! De la ranura de ventilación trasera sale aire caliente. No coloque objetos sensibles al calor a menos de 50cm (20 pulgadas) de la ranura de escape.

El proyector está diseñado para uso exclusivo en interiores. No utilice nunca el aparato en el exterior. No haga funcionar el proyector fuera de sus especificaciones de temperatura y humedad, ya que podría producir un sobrecalentamiento y ocasionar un mal funcionamiento.

Conecte el proyector únicamente a las fuentes de señal y tensiones descritas en las especificaciones técnicas. La conexión a fuentes de señal o tensiones distintas de las especificadas puede ocasionar un mal funcionamiento y el daño permanente del aparato.

Deje que el aparato se enfríe durante 60 minutos antes de cambiar la lámpara.

INFORMACIÓN Y ADVERTENCIAS SOBRE POSIBLES PROBLEMAS DE SALUD RELACIONADOS CON LOS VAPORES DE MERCURIO.
Este proyector utiliza una lámpara UHP™ muy potente para que la iluminación produzca una imagen extremadamente brillante.

Este tecnología es similar a la de otras lámparas de descarga luminosa de alta presión ampliamente utilizadas hoy en día en automóviles, farolas y otros dispositivos de alumbrado. Estas lámparas, al igual que los tubos fluorescentes, contienen pequeñas cantidades de mercurio. La cantidad de mercurio presente en una lámpara está muy por debajo de los límites de riesgo establecidos por las autoridades. Es muy importante que las lámparas que contienen mercurio sean tratadas adecuadamente para minimizar posibles riesgos para la salud.

La lámpara UHP™, al igual que cualquier otra lámpara de proyector de gran luminosidad, funciona a alta presión. Si bien la lámpara y el proyector han sido diseñados cuidadosamente para minimizar la probabilidad de rotura de la lámpara, ésta puede romperse durante el funcionamiento y el proyector puede emitir vapores de mercurio en pequeñas cantidades. La probabilidad de ruptura aumenta a medida que la lámpara concluye su vida útil. Por lo tanto, se recomienda especialmente sustituir la lámpara cuando se estime que ha concluido su vida útil.

Como precaución general, asegure una buena ventilación de la habitación cuando el proyector esté funcionando. Si se produce una ruptura de la lámpara, evacue la habitación y procure una buena ventilación. Particularmente, los niños y las mujeres embarazadas deben abandonar la habitación.

Cuando sustituya una lámpara gastada, deseche la lámpara usada siguiendo las indicaciones de reciclaje adecuadas.

El mercurio es un elemento metálico estable de origen natural que puede suponer un riesgo para la seguridad de las personas en determinadas circunstancias. Según el resumen de salud pública sobre el mercurio publicado por la "ATSDR" (Agencia para Sustancias Tóxicas y el Registro de Enfermedades, que forma parte del Servicio de Salud Pública de los Estados Unidos), el cerebro, el sistema nervioso central y los riñones son sensibles a los efectos del mercurio, y la exposición a unos niveles suficientemente altos puede ocasionar lesiones permanentes. La exposición intensa a altas concentraciones de vapor de mercurio puede producir irritación pulmonar y de las vías respiratorias, presión en el pecho, sensación de quemazón en los pulmones, tos, náusea, vómitos y diarrea. Los niños y los nonatos son especialmente sensibles a los efectos dañinos del mercurio metálico sobre el sistema nervioso.

Consulte a un médico si experimenta cualquiera de estos síntomas u otros síntomas no habituales tras la ruptura de una lámpara.

recogida de residuos de equipos eléctricos y electrónicos.

INFORMACIÓN WEEE
Este producto cumple todos los requisitos de la Directiva de la UE sobre residuos de equipos eléctricos y electrónicos. Este producto debe reciclarse adecuadamente. Puede desmontarse para facilitar el adecuado reciclado de cada una de sus piezas. Este producto usa lámparas de proyección que deben reciclarse adecuadamente. Consulte a su distribuidor o al organismo público pertinente acerca de los puntos limpios para la recogida de residuos de equipos eléctricos y electrónicos. Para obtener más información, visite la página web de Barco: http://www.barco.com/en/AboutBarco/weee.

ADVERTENCIA
Este producto contiene sustancias químicas, incluyendo plomo, que según le consta al Estado de California, ocasionan defectos de nacimiento u otros daños de índole reproductiva. ¡Siga las indicaciones de reciclado adecuadas, no deseche el producto con los residuos habituales!

INFORMACIÓN PARA EL PERSONAL DE SERVICIO TÉCNICO
ADVERTENCIA
Durante la reparación, use protección para los ojos y la piel contra la radiación UV

SÍMBOLOS DE ADVERTENCIA
- LEA LA GUÍA DEL USUARIO ¡Atención! ¡Lea la guía del usuario para obtener más información!
- TENSIÓN PELIGROSA ¡Peligro! ¡Alta tensión en el interior del producto!
- CALIENTE ¡Advertencia! ¡Superficies calientes!
- ESPERE ¡Advertencia! ¡Espere hasta que se enfríe!
- MERCURIO ¡Advertencia! ¡La lámpara contiene mercurio! ¡Siga las indicaciones de reciclado adecuadas, no deseche el producto con los residuos habituales!
- UV ¡Advertencia! ¡Radiación UV en el interior del producto!
- RECICLADO ¡Advertencia! ¡Siga las indicaciones de reciclado adecuadas, no deseche el producto con los residuos habituales!
- NO USE EL TELÉFONO ¡Advertencia! ¡No lo conecte a las líneas telefónicas!

italiano

SICUREZZA
Il presente dispositivo è conforme alle norme di sicurezza per le apparecchiature di elaborazione dati uso ufficio. Prima di adoperare il proiettore per la prima volta, leggere con attenzione le istruzioni sulla sicurezza.

AVVERTENZA
Usare solo i cavi e il cablaggio forniti con il proiettore oppure cavi di ricambio originali. L'uso di cavi o cablaggio diversi può causare guasti e danneggiare l'unità in modo permanente.

Utilizzare sempre un cavo di alimentazione tripolare e con messa a terra, per garantire la corretta messa a terra dell'unità. Non adoperare mai cavi di alimentazione bipolari onde evitare il rischio di scosse elettriche. Per la messa a massa della connessione coassiale, è imperativo assicurare un potenziale di terra uguale. L'installazione deve essere affidata a personale esperto.

Non aprire mai l'unità. Il proiettore non contiene componenti da sottoporre a manutenzione. Affidare le riparazioni esclusivamente al personale qualificato. Attenzione a non far penetrare alcun oggetto nelle prese d'aria e nelle aperture dell'apparecchio.

Non versare liquidi sul proiettore né nelle prese d'aria o aperture dell'unità.

Togliere sempre il copriobiettivo prima di accendere il proiettore, onde evitare il rischio che venga fuso dalle radiazioni luminose ad alta potenza che fuoriescono dall'obiettivo. La fusione del copriobiettivo può danneggiare in modo permanente la superficie degli obiettivi.

Non guardare l'obiettivo quando il proiettore è acceso: la forte luce può causare danni permanenti alla vista.

Collocare il proiettore su una superficie stabile oppure montarlo saldamente usando una staffa omologata per fissarlo al soffitto.

Non far cadere il proiettore.

Sempre il proiettore secondo la rotazione orientamenti descritti nel manuale dell'utente. L'utilizzo dell'unità in posizioni diverse può ridurre sensibilmente la durata delle lampada e può causare il surriscaldamento, con conseguenti guasti.

Consentire sempre un flusso d'aria abbondante attraverso il proiettore. Non ostruire mai le prese d'aria. Non coprire mai l'unità mentre è in uso. Per evitare il surriscaldamento, lasciare una distanza sufficiente da pareti e soffitto.

La distanza di sicurezza minima da qualsiasi lato dell'unità è di 50 cm / 20" in qualsiasi direzione (15 cm / 6" a soffitto).

ATTENZIONE: dallo sfiato posteriore fuoriesce aria bollente. Gli oggetti termosensibili vanno collocati a una distanza minima di 50 cm / 20" dallo sfiato.

Il proiettore può essere utilizzato esclusivamente in ambienti chiusi e non all'aperto.

Per non causare surriscaldamenti e guasti, non utilizzare il proiettore se la temperatura e l'umidità sono difformi da quanto riportato nei dati tecnici.

Il proiettore va collegato solo alle tensioni e sorgenti di segnale descritte nei dati tecnici. Il collegamento a sorgenti di segnale o tensioni diverse può causare guasti e danni permanenti all'unità.

Prima di sostituire le lampade, attendere 60 minuti per lasciare raffreddare l'unità.

INFORMAZIONI E AVVERTENZE SUI POTENZIALI RISCHI SANITARI CORRELATI AI VAPORI DI MERCURIO.
Per produrre immagini estremamente luminose, questo proiettore fa uso di una potentissima lampada UHP™.

Questa tecnologia è simile a quella di altre lampade a scarica ad alta tensione oggi molto diffuse su automobili, illuminazione stradale ed altre applicazioni. Queste lampade, al pari delle luci fluorescenti, contengono esigue quantità di mercurio. La quantità di mercurio presente in una lampada è di gran lunga al di sotto dei limiti minimi imposti dalle autorità. Per ridurre al minimo i potenziali rischi per la salute, è fondamentale trattare correttamente le lampade che contengono mercurio.

La lampada UHP™, come qualsiasi altra lampada per proiettore ad alta luminosità, funziona ad alta pressione. Sebbene lampada e proiettore siano stati progettati accuratamente per ridurre al minimo il rischio di rottura della lampada, ciò può accadere durante l'uso, causando la fuoriuscita di piccole quantità di vapori di mercurio dal proiettore. Le probabilità di rottura aumentano quando la lampada raggiunge il termine della durata di servizio. Pertanto si consiglia vivamente di sostituire la lampada quando raggiunge il termine della sua durata nominale.

Come precauzione generica, ventilare adeguatamente gli ambienti quando si utilizza il proiettore. Se la lampada si rompe, allontanare tutti i presenti dall'ambiente e ventilarlo a fondo. In particolare, allontanare bambini e donne in gravidanza.

Quando si sostituisce una lampada usata, questa va smaltita a norma di legge.

Il mercurio è un elemento metallico stabile che esiste in natura e che in talune condizioni può costituire un rischio per la sicurezza degli uomini. Secondo la pubblicazione Public Health Statement for Mercury edita dall'agenzia per le sostanze tossiche ATSDR (Agency for Toxic Substances and Disease Registry, parte del servizio sanitario nazionale degli USA), il cervello, il sistema nervoso centrale e i reni sono sensibili agli effetti del mercurio e l'esposizione a livelli sufficientemente alti, può causare lesioni permanenti. L'esposizione acuta ad alte concentrazioni di vapori di mercurio può causare, ad esempio, irritazioni ai polmoni e alle vie respiratorie, senso di costrizione al petto, sensazione di bruciore ai polmoni, tosse, nausea, vomito e diarrea. Bambini e feti sono particolarmente sensibili agli effetti dannosi del mercurio metallico sul sistema nervoso.

In caso di manifestazione di uno dei sintomi di cui sopra, o se si avvertono altri sintomi anomali in seguito alla rottura della lampada, consultare un medico.

INFORMAZIONI SU WEEE
Questo dispositivo è conforme a tutti i requisiti della direttiva UE (WEEE) sullo smaltimento di apparecchiature elettriche ed elettroniche. Questo prodotto deve essere riciclato correttamente e può essere smontato per agevolare il riciclaggio dei singoli componenti. Anche le lampade di proiezione utilizzate su questo apparecchio devono essere riciclate correttamente. Per informazioni sui punti di raccolta WEEE, consultare il rivenditore o l'autorità preposta. Per ulteriori informazioni, visitare il sito web Barco: http://www.barco.com/en/AboutBarco/weee.

AVVERTENZA
Questo prodotto contiene sostanze chimiche, incluso il piombo, che lo Stato della California riconosce all'origine di difetti prenatali o altre anomalie genetiche. Riciclare correttamente, non buttare con i rifiuti ordinari.

INFORMAZIONI PER IL PERSONALE ADDETTO ALL'ASSISTENZA
AVVERTENZA
Durante gli interventi, proteggere la pelle e gli occhi utilizzando schermi anti-UVA

SIMBOLI DI AVVERTENZA
- LEGGERE LA GUIDA D'USO Attenzione! Per maggiori informazioni, leggere la guida d'uso.
- TENSIONE PERICOLOSA Pericolo. Alta tensione all'interno del prodotto.
- CALDO Avvertenza: superfici calde.
- ATTENDERE Avvertenza: attendere il raffreddamento.
- MERCURIO Avvertenza: la lampada contiene mercurio. Riciclarla correttamente e non buttare tra i rifiuti ordinari.
- UV Avvertenza: radiazioni UV all'interno del prodotto.
- RICICLAGGIO Avvertenza: riciclare correttamente, non buttare con i rifiuti ordinari.
- NESSUN TELEFONO Avvertenza: non collegare alle linee telefoniche.

norsk

SIKKERHET
Denne projektoren er testet og godkjent i forhold til gjeldende sikkerhetsregler for bruk innendørs i kontormiljø. Vennligst les bruksanvisningen før du benytter projektoren første gang.

ADVARSEL
Benytt kun kabler og ledninger som leveres med projektoren eller originale erstatninger. Bruk av uegnede eller feil kabler kan føre til feilsituasjoner og permanent skade på enheten.

Benytt alltid jordet strømledning. Ujordet ledning skal ikke benyttes. Bruk av ujordet nettledning er farlig og kan føre til elektrisk støt. For jording av coax-forbindelsen må det sørges for lik jordingsmulighet. Må innstalleres av kvalifisert personell.

Enheten må aldri åpnes av bruker. Den inneholder ingen deler som kan repareres av bruker. All service skal utføres av kvalifisert personell.

Sørg for at fremmede objekter ikke kommer inn i ventitasjonsåpningene.

Ikke søl væsker på projektoren eller inn i ventilasjonsåpningene.

Linselokket skal alltid fjernes før projektoren skrus på. Hvis linselokket ikke fjernes, kan det smelte på grunn av det sterke lyset. Et smeltet linselokk kan skade projeksjonslinsen permanent.

Ikke se inn i projeksjonslinsen når projektoren er på. Det sterke lyset kan skade synet permanent.

Plasser projektoren på et stabilt underlag, eller monter den ved hjelp av et godkjent takfeste.

Ikke mist projektoren.

Bruk alltid projektoren i henhold til rotasjonsbeskrivelsen beskrevet i brukermanualen. Dersom projektoren settes opp i andre posisjoner, kan lampelevetiden reduseres kraftig. Enheten kan i tillegg gå varm, noe som kan føre til feil.

Sørg alltid for tilstrekkelig lufttilførsel for å sikre god kjøling. Ventilasjonsåpningene må ikke tildekkes. Enheten må aldri dekkes til når den er på. Sørg for tilstrekkelig avstand til vegger og tak. Minimum anbefalt avstand er 50 cm i alle retninger (15 cm / 6" til tak).

FORSIKTIG! Varm luft blåses ut av den bakre ventilasjonsåpningen. Ikke plasser varmefølsomme objekter i nærheten av åpningen. Minimum anbefalt avstand er 50cm.

Projektoren er konstruert for innendørs bruk. Enheten skal ikke brukes utendørs. Projektoren skal ikke benyttes utenfor de spesifiserte maksimumsverdier for tempeartur og luktighet, siden dette kan føre til overoppheting og feillunksjon.

Projektoren må kun tilkobles signalkilder og spenninger som beskrevet i den tekniske spesifikasjonen. Forbindelse til ukjente signalkilder eller spenninger kan føre til feil og permanent skade på enheten.

La enheten kjøles ned i 60 minutter før lampeskifte.

INFORMASJON OG ADVARSEL OM MULIGE HELSESKADER I FORBINDELSE MED KVIKKSØLVDAMP
Projektoren benytter en meget sterk UHP™ lampe til belysning, noe som gir et ekstremt lyssterkt bilde.

Denne teknologien tilsvarer andre høytrykks utladningslamper som benyttes i biler, gatelys o.l. Disse lampene, lik lysstoffrør og sparepærer, inneholder små mengder kvikksølv som ligger langt under de faregrenser som er satt av myndighetene. Det er svært viktig at lamper som innehoder kvikksølv håndteres korrekt for å minimalisere mulig helsefare.

UHP™ lampen, som andre lyssterke projektorlamper, opererer under høyt trykk når de er i bruk. Selv om både lampen og projektoren er konstruert for å minimere sannsynligheten for lampe-eksplosjon, kan det hende at lampen ryker når den er i bruk. I så fall kan små mengder kvikksølvdamp lekke ut av projektoren. Sannsynligheten for at lampen kan ryke øker etter hvert som lampen eldes. Det anbefales derfor sterkt å bytte lampen når lampen har nådd sin nominelle levetid.

Som en generell anbefaling bør rommet som projektoren benyttes i være godt ventilert. Hvis lampen ryker, bør rommet evakueres og luftes. Barn og gravide kvinner bør spesielt forlate rommel.

Når lampen byttes, må den brukte lampen resirkuleres som farlig avfall og ikke kastes i ordinær søppel.

Kvikksølv er et naturlig forekommende, stabilt metallisk stoff som kan medføre helserisiko under visse forhold. I følge det offentlige utsagnet for kvikksølv, som er utgitt av 'Agency for Toxic Substances and Disease Registry' ("ATSDR", en del av De Forente Staters folkehelsetjeneste), er hjernen, sentralnervesystemel og nyrene følsomme for kvikksølv, og de kan skades permanent dersom de eksponeres for større doser. Akutt overeksponering kan føre til lunge- og luftveisirritasjoner, brystsmerter, brennende følelse i lungene, hosting, kvalme, oppkast og diarré. Barn og fostre er spesielt følsomme for skadelige følger av metallisk kvikksølv i nervesystemet.

Søk medisinsk støtte hvis man opplever noen av de ovennevnte symptomer, eller hvis man opplever andre uventede symptomer etter en lampe-eksplosjon.

WEEE INFORMASJON
Dette produktet tilfredsstiller alle krav i EU direktivet 2002/96/EC somgjelder brukt elektrisk og elektronisk utstyr. Dette produktet skal resirkuleres forsvarlig. Det kan demonteres slik at de enkelte deler kan resirkuleres forsvarlig. Dette produktet benytter projeksjonslampe som skal resirkuleres forsvarlig. For mer informasjon, se Barco sin webside: http://www.barco.com/en/AboutBarco/weee.

ADVARSEL
Dette produktet inneholder kjemikalier, inkludert bly, som kan forårsake fødselsskader og andre forplantningsskader. Sørg for korrekt resirkulering. Kast ikke lamper eller andre deler i vanlig søppel.

INFORMASJON TIL SERVICEPERSONALE
ADVARSEL
Benytt UV beskyttende briller og beskytt huden under service.

SYMBOLER
- LES BRUKSANVISNINGEN Les bruksanvisningen for mer informasjon!
- HØYSPENNING Fare! Høyspenning inne i enheten!
- VARM Advarsel! Varme flater!
- VENT Advarsel! Vent til enhelen er avkjølt!
- KVIKKSØLV Advarsel! Lampen inneholder kvikksølv! Resirkuler som spesialavfall. Må ikke kastes i vanlig avfall!
- UV Advarsel! Ultrafiolett (UV) stråling inne i enheten!
- RESIRKULER Advarsel! Resirkuler som spesialavfall. Må ikke kastes i vanlig avfall!
- IKKE TELEFON Advarsel! Må ikke kobles til telefonlinje!

Model certification name: GP9

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