

Frequently Asked Questions about the Digital STARLAB

1. Why did LTI decide to enter the digital planetarium market?

Learning Technologies, Inc. (LTI) decided to enter the digital planetarium market because of its versatility for teaching, especially motions in the sky and deep sky objects. The scope of information that can be taught in a digital learning environment is staggering. We wanted to be at the forefront of this dynamic and cutting-edge technology. The Digital STARLAB is an excellent addition to our existing line of planetarium equipment.

2. For what market segments and venues is this new product intended?

This product was created for use in portable domes, as well as small fixed domes less than 24 feet (7.3m) in diameter such as those used in schools, museums, planetarium facilities and science centers.

3. Can I use this projector in my old STARLAB dome?

Yes, the projector was designed to work in both of the Standard and Giant STARLAB domes. For an even better projection surface, however, we offer our new STARLAB Digital Domes that range in size from 4 to 8 meters. It also works very well in fixed domes under 24 feet in diameter.

4. Do the LTI reps and dealers around the world sell and support this product?

Yes, but contact LTI to confirm who the representative is in your area. Some regions are covered by local representatives, others directly by LTI.

5. How can I see a demonstration of Digital STARLAB?

Contact LTI to set up a free local demonstration, or to find out when a demonstration will be conducted in your area.

6. Is this projector an LTI design and do they manufacture it?

Yes. The development of the projection system was funded by a grant from the National Science Foundation (NSF). The lens, case, and courseware were all designed by LTI.

The projection system is assembled at LTI in Somerville, Massachusetts. The custom fisheye lens is designed to be used specifically with our projector, and can't be used with any other projector.

7. What is included in a Digital STARLAB system?

Digital STARLAB includes the following components:

- Projector with Custom Fisheye Lens and Remote Control
- Case/Portable Stand
- Macintosh Laptop Computer with Three-year AppleCare Protection Plan
- Three Licenses of Starry Night Small Dome™ Software
- JBL Duet Speakers
- Twelve, Integrated, Standards-based Lessons for Grades K-12
- Two Full Curriculum Modules
- Powerstrip, DVI Cable, Projector and Computer Power Cords
- Installation Instructions, Manuals
- 1 Year Warranty on All Other Parts
- Training and Support from LTI

8. Is there going to be a PC platform operator interface since my organization only supports these?

No. We decided to begin with one platform initially to reduce support confusion and simplify software issues. Starry Night™ was originally designed for use with Macs, so this was a natural choice for our debut.

9. How can I convince my organization/institution to make a platform exception for the Digital STARLAB?

The Macintosh laptop is a stand-alone device to be used ONLY as a control driver for this projection system.

10. Can I remotely locate the operator interface?

Yes. The laptop computer can be connected anywhere in your dome with a longer video cable.

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11. It looks like the carrying case is also the projector stand. What can you tell me about this arrangement?

The carrying case was designed to become the stand in a portable dome configuration as a space saving option. A custom stand can be made to hold the projector in your fixed dome, or you can use the stand/carrying case to put the system away when not in use. LTI will work with fixed dome installations to create an appropriate stand for each venue.

12. What warranties apply to the various projection system components?

LTI supports a one (1) year warranty on the entire system (projector, lens, computer, software, etc.). The computer itself is protected by three (3) years of AppleCare support through Apple, Inc. At present, an extended warranty is not available.

13. Is the warranty voided if I use the laptop for other uses and load business or other personal software on it?

Yes. Starry Night Small Dome™ is a memory-intensive, resource-using software that requires it to be run by itself. We cannot promise that other software will not interfere with the use of the planetarium software, so if other software is installed on the laptop, the software warranty is voided. This computer is a part of a planetarium system, and should be used in that capacity. It is not intended for use as a regular personal computer.

14. Will LTI offer extended warranties and/or repair services after the hardware warranties expire?

Currently there are no extended warranties beyond the 1 year mentioned above, but after the hardware warranty has expired, LTI offers a repair program (much like that for our other products).

15. Will LTI offer repair services after the hardware warranties expire?

Yes, the same as we do for all of our products.

16. What are some of the key features and benefits of this projection system that differentiates it from the competition?

The key benefits of this system include:

- Outstanding contrast of 12,000:1, superior resolution of 1080, precise star shape and minimized color aberration that combine to produce the most accurate and breathtaking starfield

- Integrated curriculum that allows you to immediately begin delivering lessons
- Easy-to-use, best-in-class software with searchable database for research and viewing deep sky objects
- Seamless integration with classroom-based desktop exercises
- Includes pre-programmed, standards-based curriculum package for grades K-12

17. Why is high contrast more important than high brightness?

Since the primary use of this system is in a small planetarium dome, brightness isn't a factor. We are looking for a dark sky and small points of light in a small, dark environment. High brightness is only useful and necessary in large, bright venues. Contrast is very important in small display environments. The blackness of the night sky is obvious when the audience is very close to the projection surface. With a contrast ratio of 12,000:1, Digital STARLAB offers the best contrast available in its class.

18. Why is constant pixel shape so important that it justifies a patent-pending lens?

Since the projector was designed to display an accurate starfield, star shape is very important. Other fisheye lenses keep the size the same for all pixels, but this sacrifices the shape of the stars, making elongated star shapes on the lower half of the dome. Keeping the shape consistent is much more important for accurate and realistic star viewing.

19. What other functions does this lens perform?

The high-performance lens corrects for most lateral color aberration. This means that the stars won't look like rainbows (separating in color) in the projection. It also projects a full 180° hemisphere on the dome down to the horizon.

20. What does DLP stand for?

DLP® stands for Digital Light Processing. It is a semiconductor chip system, designed by Texas Instruments, to give a high-contrast, beautiful digital image. For more information, visit www.DLP.com.

21. Why is this technology better than LCD?

LCD, or Liquid Crystal Display, is a panel that goes between the light and the image being projected. LCD projectors typically have a much lower contrast than DLP projectors, which makes the black night sky appear gray.

22. What happens if a DLP chip fails?

DLP chips rarely fail. The digital nature of DLP technology

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means that it's virtually immune to environmental factors that can cause an image to degrade over time. DLP projection systems display an original-quality picture time and time again with zero hassle and minimal maintenance. And with more than 7 million systems shipped to more than 75 manufacturers since 1996, DLP technology has a proven track record for outstanding dependability. (www.DLP.com)

23. How long does the projector lamp last and how much does it cost to replace?

The projection lamp lasts approximately 2000 hours. It is very easy to replace, and you can order one from LTI for \$500.

24. Can the projector show movies simultaneously with other images?

Yes. A versatile media player in the software allows full control over the size and positioning of the projected image. Multiple video instances, as well as simultaneous projection of still images are also possible.

25. How many auxiliary devices can I connect to the projector?

While the projector itself can support the attachment of other types of video devices, the lens restricts its use with other non-computer input. Only the computer and software adapt for the size and shape of an image the lens needs to project on the whole hemisphere. If you plug in an auxiliary source, much of the picture will be missing due to the nature of the fisheye lens.

26. Does it support full dome video? Where are they available?

Yes, Digital STARLAB does support full dome video. They are available from Lochness Productions (www.lochnessproductions.com) or Spitz, Inc. (www.spitzinc.com).

27. Does the system support wireless connections to my LAN so I can access real-time Internet streaming, Podcasting, or other esoteric media?

The laptop computer comes with AirPort and Bluetooth technology, so if you have a network, the computer should be able to connect to it. However, you will not be able to project these types of media directly onto the dome. They can be saved as movies, and then projected through the software.

28. Can I connect the audio to my planetarium sound system?

Yes, through the output jack on the laptop.

29. What software does the Digital STARLAB projection system operate and why is it an advantage?

The projection system exclusively uses Starry Night Small Dome™ software. It is part of the most popular desktop astronomy software family on the market from Imaginova. It is very easy to use. Additionally, students can save their 'Go' files from one of the Starry Night educational packages running on classroom computers and load these files into the Digital STARLAB user interface laptop for projection with Starry Night Small Dome.

30. Does this software require a site license?

The software is licensed for the computer that comes with the system, and two other computers. Contact LTI for site licensing of Starry Night Pro™, Middle School™ or High School™ for the classroom.

31. Can I also run the software on my desktop or laptop?

You can use the software on the computer that comes with the system, as well as two other Apple computers. These additional licenses allow your organization to practice and develop lessons without interfering with the projection system schedule, all included with your purchase.

32. How do I update the software database? Do I have to pay for this capability?

The software will ask you, each time you turn it on, if you would like to update the database. This is a free service, but you need to be connected to the Internet.

33. How do I upgrade the software version? Do I have to pay for this capability?

The version that is sold with your system will work with your system the way it is now. Later versions (2.0, 3.0, etc.) may become available in the future. Most likely, they will require an upgrade to your hardware to run, so we will package the hardware and software together as an upgrade when that occurs.

34. Do I push a button to automatically show a program unattended?

No, the curriculum that comes with the program needs to be manually run. It is designed for classroom use where the teacher is interactively running the lesson. There are full dome movies available for use with the system, but they are not interactive.

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35. How do I get training on this digital projection system? What is included and do I have to pay for this training?

Training by one of our team of representatives is included as part of the system purchase, as with all other systems we sell. The software is user-friendly, but it will take some getting used to, like any software package. Since the software runs like many other versions of Starry Night™, if you already are familiar with the software, it will be easier to begin using your system. The LTI Web site and our electronic newsletter, STARLAB e-News, will list further opportunities for workshops and training. To sign up to receive STARLAB e-News, go to www.starlab.com.

36. What kind of content, lessons, modules, etc. come with the standard system?

Twelve (12) standards-based lessons are included with the system, as well as two (2) full curriculum modules. One is called *Astronomy of the Americas*, and is based on the PASS Volume 11 with the same title. The other unit is based on the *Orders of Magnitude*, where the lesson begins small on Earth, and keeps zooming out, stopping along the way to cover earth science, solar system astronomy, as well as galactic astronomy.

Lessons:

Primary Lessons (Grades K-4)

- P1. Night and Day
- P2. Going Through a Phase – Moon Phases
- P3. Location, Location, Location – Finding Your Way Around the Sky
- P4. Myths Around the World – Constellations and Star Lore

Secondary School Lessons (Grades 5-8)

- S1. A Change of Season
- S2. Now You See It, Now You Don't – Solar and Lunar Eclipses
- S3. Welcome to the Neighborhood – Overview of the Solar System
- S4. Moving Out – The Motion of the Planets
- S5. Big Macs – Meteors, Asteroids and Comets

Advanced Lessons (Grades 9-12)

- A1. A Calendar in the Stars – Seasonal Constellations
- A2. Star light, Star bright – The properties and life cycle of Stars
- A3. Our Little Island – The Milky Way Galaxy

37. Is there any documentation available for teachers to help them with the built-in lessons?

Yes. A comprehensive Teacher's Manual comes with each Digital STARLAB system. It has pre- and post-lesson suggested activities. It also expands on the content of each individual lesson to help the teacher become more comfortable with the curricula.

For technical questions about the Digital STARLAB, please contact LTI's Engineering Manager, Trish Adamo at:

tadamo@starlab.com or 800-537-8703.

Please visit our Web site at www.starlab.com to learn more about the Digital STARLAB.