

# **Europa imaging system power draw**





## Overview

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The wide-angle camera, or WAC, sees large portions of Europa's landscape. The narrow-angle camera, or NAC, has a more "zoomed-in" view and sees smaller portions of the landscape, but with more pixels per unit area than the WAC. The NAC is a reflecting telescope, and uses a large mirror to collect light.

Scientists will use EIS to study surface features and how they relate to each other and to sub-surface structures. The instrument will search for signs of recent geologic activity on.

The EIS team is based at The Johns Hopkins Applied Physics Laboratory (APL) in Maryland EIS's principal investigator, planetary scientist Elizabeth "Zibi" Turtle, previously was an.

What is mapping imaging spectrometer for Europa?

Mapping Imaging Spectrometer for Europa (MISE) is the mission's infrared spectrometer that will map the composition and distribution of ices, salts, organics, and the warmest hotspots on Europa. The maps will help scientists understand the moon's geologic history and determine if Europa's suspected ocean is suitable for life.

What is Europa Clipper's imaging spectrometer?

The flight model of Europa Clipper's imaging spectrometer in a cleanroom at NASA's Jet Propulsion Laboratory in Southern California. 2. Infrared light reflected from Europa will be analyzed to determine the moon's surface composition. Europa Clipper will also determine the moon's surface composition.

How will a gravity experiment reveal Europa's internal structure?

Europa's physical properties affect radio signals, which will help reveal the moon's interior. A gravity experiment will analyze frequency shifts in the spacecraft's signals to Earth (the same signals used in communication and navigation) to study Europa's internal structure.



## Europa imaging system power draw

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### The Europa Thermal Emission Imaging System (E-THEMIS)

The Europa Thermal Emission Imaging System (E-THEMIS) on the Europa Clipper spacecraft will investigate the temperature and physical properties of Europa using thermal infrared (TIR) images in three wavelength bands centered from 7-14  $\mu\text{m}$ , 14-28  $\mu\text{m}$  and 28-80  $\mu\text{m}$ . E-THEMIS will map >80% of the surface Europa at multiple times of day at a ...

### Europa Clipper

- Underwater volcanoes, if present, could power hydrothermal systems like those that fuel life at the bottom of Earth's oceans. On Earth, when seawater comes into contact with hot magma, the interaction results in ...



### Europa Imaging System

The Europa Imaging System (EIS) is a visible spectrum wide and narrow angle camera on board the Europa Clipper mission that will map most of Europa at 50 m (160 ft) resolution, and will provide images of selected surface areas at up to 0.5 m resolution.. EIS will provide comprehensive data sets, including cartographic and three-dimensional geologic maps, ...

### [NASA's Europa Clipper Mission](#)

Radar for Europa Assessment and Sounding Ocean to Near-surface (REASON): Probes beneath the ice to study the subsurface



structure. Europa Clipper  
Magnetometer:Analyses Europa's magnetic environment; Power Source: Spacecraft has large solar arrays to collect enough light for its power needs as it operates in the Jupiter system.



### Europa Imaging System Narrow-Angle Camera Delivered to JPL

After years of work to design, build, and run tests, engineers and scientists at the Johns Hopkins Applied Physics Laboratory (APL) bid farewell to the Europa Imaging System (EIS) Narrow-Angle Camera (NAC) for NASA's Europa Clipper mission. The instrument departed APL's campus in Laurel, Maryland, on March 31 for a cross-country trip to NASA's Jet [...]



### Q& A: How the Europa Clipper will set cameras on a distant icy ...

With its latest space mission successfully launched, NASA is set to return for a close-up investigation of Jupiter's moon Europa. Yesterday at 12:06 p.m. EDT, the Europa Clipper lifted off via SpaceX Falcon Heavy rocket on a mission that will take a close look at Europa's icy surface. Five years from now, the spacecraft will visit the moon, which hosts a water ocean ...



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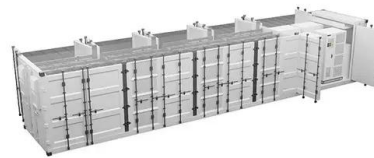
### Power Subsystem Approach for the Europa Mission

An important take-home lesson is the need to develop energy storage technologies and power systems that can withstand the radiation fluxes and temperature extremes encountered in the solar system



### U of A scientists have their eyes on Europa, Jupiter's mysterious, ...

At the heart of the science instrument suite on board the orbiter is the Europa Imaging System, or EIS (pronounced "ice"), which will capture Europa's valleys, ridges, dark bands and other features in detail. To reach Jupiter in April 2030. To power its extensive instrument suite in the faint sunlight that reaches Jupiter, Europa Clipper



### U of A scientists have their eyes on Europa, Jupiter's mysterious, ...

To power its extensive instrument suite in the faint sunlight that reaches Jupiter, Europa Clipper carries the largest solar arrays NASA has ever used for an interplanetary ...

### THE EUROPA IMAGING SYSTEM (EIS): HIGH ...

Introduction: Based on the Europa Clipper mission concept [1], NASA's Europa Multiple Flyby Mission, planned for launch in 2022, will perform more than 40 flybys of Europa with altitudes at closest approach as low as 25 km. The instrument payload [2] includes the Europa Imaging System (EIS), a camera





### Can Life Exist on an Icy Moon? NASA's Europa Clipper Aims to ...

Capturing sharply detailed pictures of Europa's surface with both a narrow and a wide-image camera is the task of the EIS (Europa Imaging System). "The EIS imagers will give us incredibly high-resolution images to understand how Europa's surface evolved and is continuing to change," Cable said. Gases and Grains

### The Europa Imaging System (EIS): High-Resolution, 3-D ...

Europa at 0100-m pixel scale (to date, only ~14% of Europa has been imaged at 0500 m/pixel), as well as regional stereo imaging. The gimbal slew rate is designed to be able to perform very high -resolution stereo imaging from as close as 50 -km altitude during high -speed (~4.5 m/s) flybys to ...



### Why Europa?

Meanwhile, the Europa Thermal Emission Imaging System will look for relative hot spots "where maybe there's some warm, mushy ice or even some upwelling from below," Daubar says. Such locations would be prime targets for any future lander mission, which could sample and analyze the liquid for signs of habitability or even the presence of life.

### Europa Clipper Press Kit

The Europa Thermal Emission Imaging System will measure how the surface retains heat, which can provide information about the structure and materials present. It will also look for hot spots from erupting plumes or underground lakes. The arrays need to be so big to collect enough sunlight to power the spacecraft's instruments, electronics



### [Europa Clipper Instrument Summaries](#)

Europa Imaging System (EIS) consists of two visible imaging cameras: o Narrow Angle Camera (NAC) o Wide Angle Camera (WAC) Primary Science Objectives o Characterize visible ...



### [THE EUROPA IMAGING SYSTEM \(EIS\) FLIGHT ...](#)

Introduction: The Europa Imaging System (EIS; Fig. 1) for NASA's Europa Clipper Mission [1-3] combines a narrow-angle camera (NAC) and a wide-angle camera (WAC) to address high ...



### **The Europa Thermal Emission Imaging System (E-THEMIS) ...**

The Europa Thermal Emission Imaging System (E-THEMIS) on the Europa Clipper spacecraft will investigate the temperature and physical properties of Europa using thermal infrared (TIR) images in three wavelength bands centered from 7-14 um, 14-28 um and 28-80 um. The Sensor volume is 23.7 cm x 31.8 cm x 29.8 cm. E-THEMIS consumes an





### APX-24

Max output power: 2.4KW: Input power :  
 100~120 / 200~240VAC (50Hz/60Hz) Inverter  
 frequency: 102KHz 40 KHz: Inverter Filament: KV  
 range: 40KV~100KV (1KV STEP) mAs range :  
 0.32mAs~100mAs: X-ray tube: TOSHIBA  
 D-125SB: Manufacturer Model # Focal spot:  
 1.2mm: Target Angle: 16° Anode heat storage  
 capacity: 35KJ: Maximum anode cooling rate:  
 250W

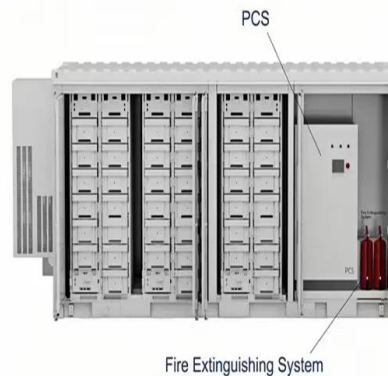


### THE EUROPA IMAGING SYSTEM (EIS): HIGH...

The instrument payload [2] includes the Europa Imaging System (EIS), a camera suite designed to transform our understanding of Euro-pa through global decameter-scale coverage, topo  
 ...

### Europa 3D Model

A 3D model of Jupiter's moon Europa, an icy moon with a hidden subsurface ocean. Skip to main content . Missions . Search All NASA Missions; A to Z List of Missions; Solar System Home; Explore This Section. Europa 3D Model. April 22, 2019. Credit: NASA Visualization Technology Applications and Development (VTAD)



### Europa Imaging System Narrow-Angle Camera Delivered to JPL

After years of work to design, build, and run tests, engineers and scientists at the Johns Hopkins Applied Physics Laboratory (APL) bid farewell to the Europa Imaging System (EIS) Narrow-Angle Camera (NAC) for NASA's Europa Clipper mission. The instrument departed APL's campus in Laurel, Maryland, on March 31 for a

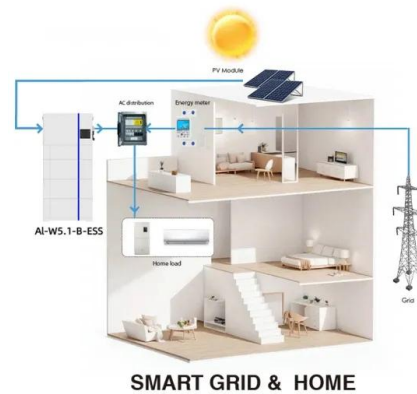


cross-country trip to NASA's Jet Propulsion ...



The x ray imaging system . PPT

The x ray imaging system - Download as a PDF or view online for free Symbols Used to Draw Circuits We will be using the symbols to define the circuits in the x-ray machine ; 4. Stored energy: works on conventional 110 volt power but batteries must be replaced. 57. The Basic X-ray Circuits Circuits that make up the basic x-ray machine.



**Education News & Blogs - NASA Jet Propulsion Laboratory**

These cameras will study Europa's geologic activity and measure surface elevations. The Europa Thermal Emission Imaging System will use infrared light to measure surface texture and characterize warmer regions where the liquid ocean may be closer to the surface. It will also show any visible evidence of water eruptions.

**NASA**

The Europa Imaging System (EIS) comprises a narrow-angle camera (NAC) and a wide-angle camera (WAC) with the goal of providing comprehensive high- and medium-resolution images of Europa. The data will be used to generate cartographic and geologic maps and GIS, color, and photometric data products; to provide regional and high-resolution





### The Mapping Imaging Spectrometer for Europa (MISE)



The Mapping Imaging Spectrometer for Europa (MISE) is an infrared compositional instrument that will fly on NASA's Europa Clipper mission to the Jupiter system. MISE is designed to meet the Level-1 science requirements related to the mission's composition science objective to "understand the habitability of Europa's ocean through composition and chemistry" and to ...

### Power Subsystem Approach for the Europa Mission

power subsystem products meet all their requirements. Validation is a check to ensure that the power subsystem would meet the project and mission objectives, when operated in the context of the other subsystems, the flight system, and the mission system. 3.2 Power Subsystem Functionality The Europa Power Subsystem has the following major functions:



### Europa Clipper Set to Revolutionize Jovian Science

Other instruments include the Europa Thermal Emission Imaging System (E-THEMIS), which will attempt to identify regions of cryovolcanic activity, the Europa Imaging System (EIS), which will map 95% of Europa's surface in unprecedented spatial resolution, and multiple spectrometers for characterizing the composition of Europa's surface and

### [NASA's Europa Clipper Science Instruments](#)

Europa Imaging System (EIS) is a wide-angle camera and a narrow-angle camera, each with an eight-megapixel sensor, that will produce high-resolution color and stereoscopic ...



### Instruments , Spacecraft - NASA's Europa Clipper

Europa Imaging System (EIS) A wide-angle camera and a narrow-angle camera, each with an eight-megapixel sensor, will produce high-resolution color and stereoscopic images of Europa. ...

#### [Europa Clipper Instrument Summaries](#)

Europa Imaging System (EIS) consists of two visible imaging cameras: o Narrow Angle Camera (NAC) o Wide Angle Camera (WAC) Primary Science Size, Mass, Power 23.7 cm x 31.8 cm x 29.8 cm, 19.1 kg, 42.6 W (Survival: 10.6 W) Optics Three mirror anastigmat telescope 69-mm effective aperture



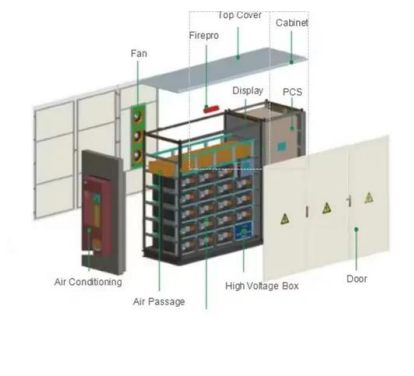
### EIS

The Europa Imaging System (EIS) will transform our understanding of Europa, revealing its landforms and geology through global mapping, topographic and color imaging, and unprecedented high-resolution images to give us new ...



## THE EUROPA IMAGING SYSTEM (EIS) FLIGHT ...

Introduction: The Europa Imaging System (EIS; Fig. 1) for NASA's Europa Clipper Mission [1-3] combines a narrow-angle camera (NAC) and a wide-angle camera (WAC) to address high-priority geology, composition, ice shell and ocean science objectives. Both cameras have framing and pushbroom imaging



### Europa Clipper

- Underwater volcanoes, if present, could power hydrothermal systems like those that fuel life at the bottom of Earth's oceans. On Earth, when seawater comes into contact with hot magma, the interaction results in chemical energy. (Europa Imaging System) A wide-angle camera and a narrow-angle camera, each with an eight-megapixel sensor

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