

# 07

## Power supply system having an emergency power supply cutoff function

Power Supply Route of Launch Support Test Set

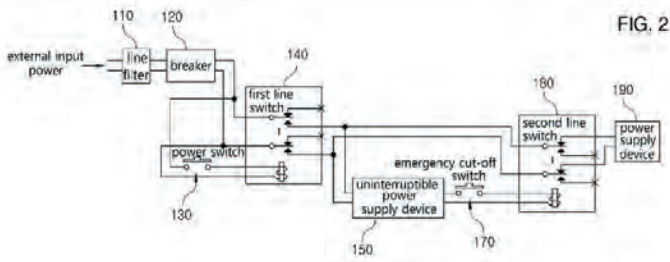


FIG. 2

### Inventor

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### Team

Spacecraft Control System Department

### Status of right

• US : 9537349

### Title

• POWER SUPPLY SYSTEM HAVING AN EMERGENCY POWER SUPPLY CUTOFF FUNCTION

### TLO of the KARI

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## Outline of Technology

It is directed to a satellite power supply system capable of cutting off the power supply using the uninterruptible power supply device even when the remote controller is out of order in the emergency.

### ■ Problems with conventional technology

- When a remote controller inside the LSTS is out of order, it is impossible to cut off the power supply of the power supply device.

- When an emergency occurs during the launch process, it is necessary to cut off the satellite power supply or to abort the battery charging process.

- When the power is still supplied to the satellite and the satellite battery in the emergency, it can cause a serious damage.

- ▶ If the remote controller is broken down, a machine with power supply working at far area could not be switch off and still would be working on.



## Technical features and advantages

### Distinctiveness

- Cutting off the power supply of the power supply device using the uninterruptible power supply device even when the remote controller is out of order in the emergency.

### Technical effects

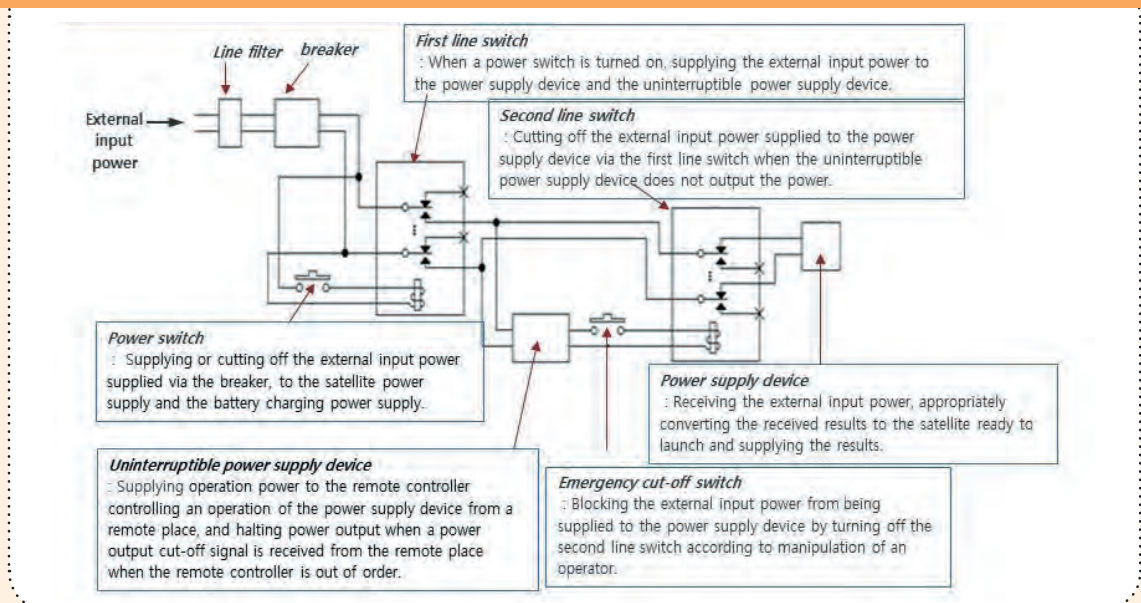
- Capable of autonomously halting the power output when a power output cut-off signal is received from the remote place.

### Economic effects

- Capable of reducing satellite maintenance fees by preventing accidents that may be caused when power supply is maintained in the emergency.
  - Manufacturing a satellite costs about 200 billion KRW, and launching the same costs about 5 million to 40 million KRW or more.
- In addition to stable power supply, stable cut-off can be implemented.
  - Applicable to various industries that make much of power supply and cut-off such as nuclear power plants and equipment for controlling hazardous substances.

## Technical detail

Constitution of Power Supply Having Emergency Power Supply Cutoff Function

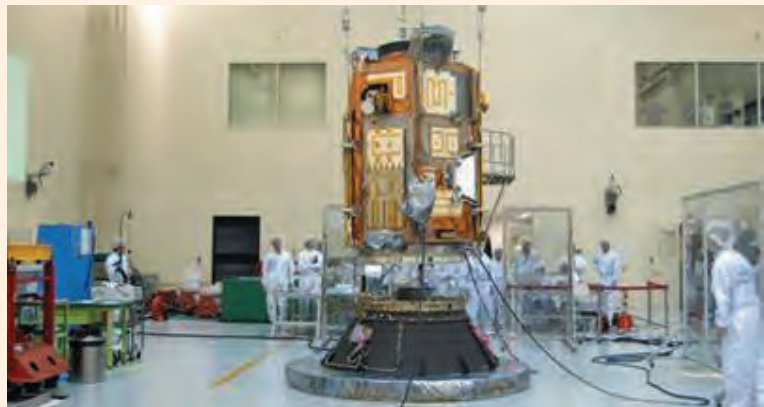
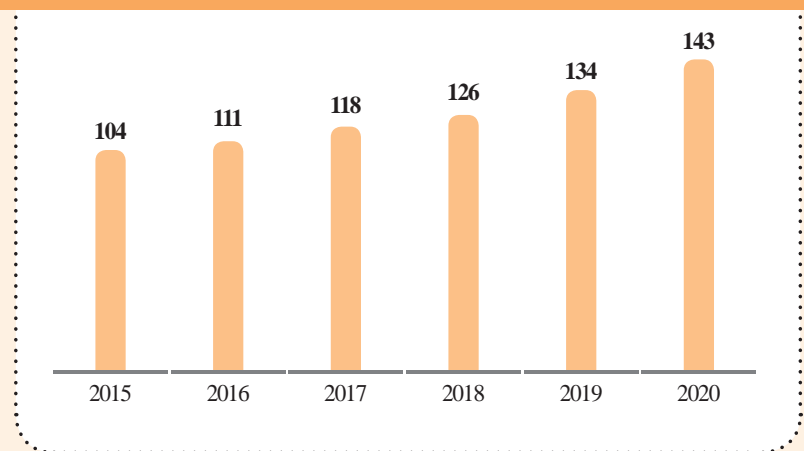


## Power supply system having an emergency power supply cutoff function

### Market and future prospects

- As the high-tech manufacturing markets such as data centers and semiconductor in addition to satellites expand, there is a growing interest of global companies in the UPS market.
- The global UPS market size grew to about USD 11.1 billion USD as of 2016, and is expected to grow to 14.3 billion USD by 2020. Also, it is expected to grow at an average annual growth rate (CAGR) of 9.16% from 2017 to 2021.

Global UPS Market Size



# Applications

Demand for Technique	Applications
Development of power supply device/matrix	Field of launch vehicle power supply device
	Field of equipment for controlling hazardous substances such as nuclear power plant, etc.
	Data center
	Field of semiconductor

