



Liebert®

LTS™

10A - 32A

Reliable Power Redundancy
for Business Engines



Reliable Redundant protection to your mission critical Applications

The Liebert® LTS is a two-pole automatic transfer device with the capacity of 10/16/32 A.

It performs the core functions of detection and transfer in the dual-bus system composed of two ways of AC power, and is used in the high-end uninterruptible power supply applications that require high power supply reliability.

Redundant Design

To ensure that the equipment can still operate normally upon the failure of one single power.

Compact Size

Optimized 1U size designed to integrate in same server rack

Full DSP Control

Ensures strong data processing capacity and improves the system reliability.

Advanced Power-off Detection

Enables quick judgment of power-off failure.

Advanced Communication

Realizes the remote management through SNMP card (option)

Applications

- Computer equipment rooms
- Internet data centers
- Telecom&Financial data centers
- Industrial process control centers

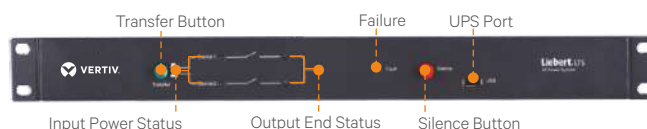
Redundancy

Currently, only the high-end servers are equipped with dual power. Other types of equipment, including hub, exchange, router, elementary server, and specialized instrument and meter, are single-power products. You can connect the key equipment to two ways of redundant power through Liebert LTS. The main power and the standby power can directly connect to the Liebert LTS on the rack can provide redundancy control on the power. Once the main power fails, it will automatically switch to the standby power.

Reliability

The Liebert LTS adopts the control technology of “First Disconnect Then Connect”

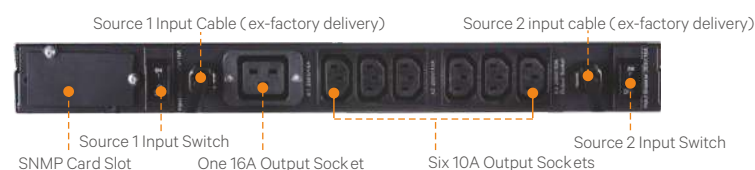
- If one-way power fails, the Liebert LTS can ensure the uninterruptible power supply to the equipment through the redundant power supply
- Once short circuit occurs, the Liebert LTS can ensure that the failure will not extend to the standby power, and thus ensure the uninterruptible power supply to the mission critical equipments



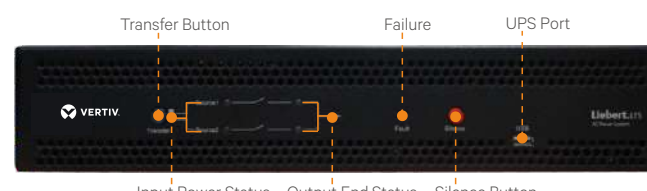
10A And 16A Front Panel Schematic Diagram



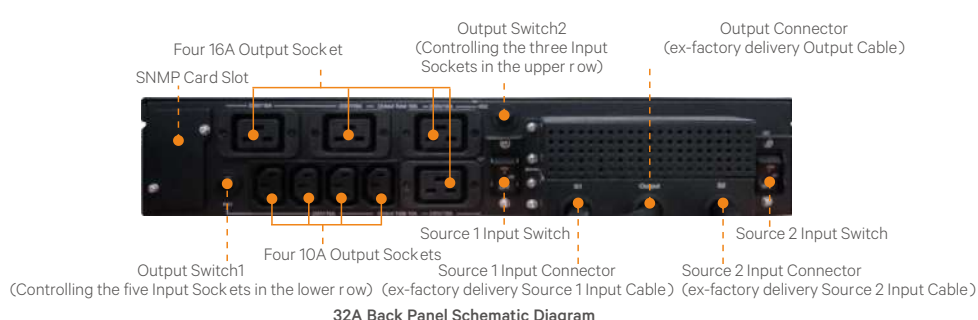
10A Back Panel Schematic Diagram



16A Back Panel Schematic Diagram



32A Front Panel Schematic Diagram



32A Back Panel Schematic Diagram

Specifications

Rating	10A	16A		32A
Input				
Input connectors type	C14 x 2	IEC309 x 2 (Model 1)	IEC-C20 x 2 (Model 2)	Hard-wired
Input source	Two ways of input sources			
Input mode	1Φ+N+PE			
Rated voltage	220/230Vac			
Rated frequency	50/60Hz			
Voltage range	150 ~ 300Vac			
Frequency range	Rated frequency ±5Hz			
Voltage distortion	<10%			
Output				
Output connectors type	C13	C13 & C19		C13 & C19
Rating & Quantity	10A x 8	10A x 6, 16A x 1		10A x 4, 16A x 4
Power factor	0.8 ~ 1.0 lead or lag			
Overload capacity	125%, 30min (tested at 30℃)			
Efficiency (100% linear load)	99%			
Transfer				
Numbers of poles	2 poles			
Automatic transfer interval	<6ms (typical), <11ms (maximum)			
Environment Parameters				
Operating temperature	0 ~ 40℃			
Storage temperature	-40 ~ 70℃			
Relative humidity	5 ~ 95%, no condensation			
Elevation	3000m			
Pollution level	Level II			
Mechanical Parameters				
Dimension (H x W x D)	44mm x 430mm x 250mm			84mm x 430mm x 340mm
Weight	4.5kg			5kg

*Specifications are subject to change without any prior notification



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Liebert®

Network Power Switch

Power Protection for
Business Critical Continuity





We helped some of the largest names in the industry bring new capacity online faster and at a lower cost when search and social media increased demand for storage and computing.



We were the first to introduce an integrated enclosure system to distributed networks.



Our portfolio spans power, thermal and infrastructure management products, software and solutions.

Protecting your critical technologies takes more than just great software and equipment. It takes a level of experience that only comes from years of finding solutions when the industry needed them most. We were the first to protect mainframes with precision cooling systems.



And now as challenges and demands grow, we continue to find better ways to help you strengthen your most vital applications. Formerly the Network Power business of Vertiv, we've brought together the most trusted and experienced names in critical infrastructure.



Complemented by a network of nearly 250 service centers worldwide. It's a combination of experience and resources that allow us to better adapt to what's needed, anticipate what's next and continue to find solutions in ways other companies simply can't.



Intelligent static transfer switches

Network Power Switch - I, Network Power Switch - II

Ensures maximum reliability to critical loads by eliminating system failures that are caused by power distribution problems.

Network Power Switch - I

NPS-I R31 16, 32, 63 A Single Phase - 1 Pole

Network Power Switch - I N

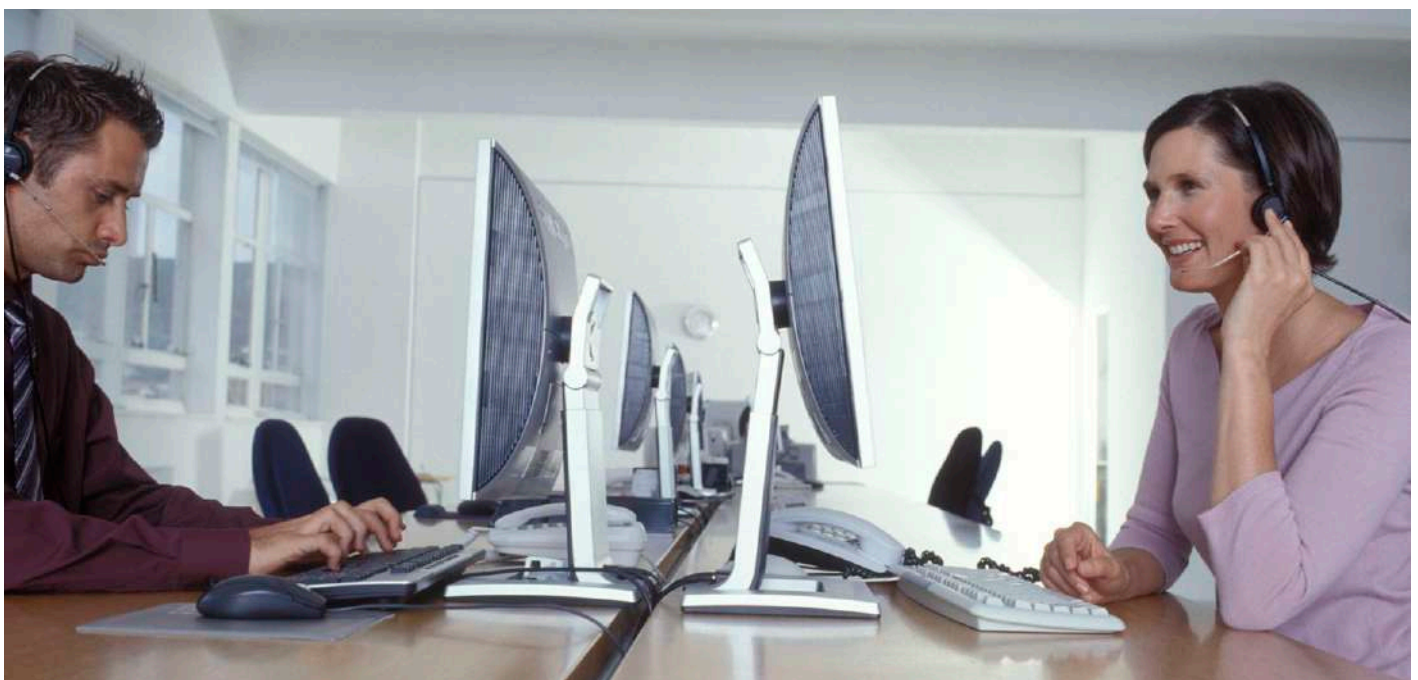
NPS-I R32 16, 32, 63 A Single Phase - 2 Pole

Network Power Switch - II

NPS-II FL3 60 to 400 A Three Phase - 3 Pole

Network Power Switch - II N

NPS-II FL4 100 to 300 A Three Phase - 4 Pole



FEATURES

Uses Power Semiconductors as Switching Element

It acts like protective barrier to the load. When power supply feeding to the load goes beyond the preset limits (Frequency or voltage) the switch instantly disconnects from load and protects it.

Independent Micro-controller

Makes it independent of source functioning and its control scheme. The smart control enables user to select the priority of source.

Simple & Rugged design

Low component count, giving high level of reliability.

User friendly display & Control

Display provides status of incoming power source and the condition of static switch.

Exceptional Performance

It is tailored to suit the requirements of different operating conditions. It tracks the Input Voltage, Phase & Frequency, Distortion levels at the terminal points. If these parameters are within the limits then depending upon the priority selection, it activates the respective switch. This ensures the power availability to the load

MODBUS RS 232/485 Interface (optional)

To connect your building Management System (BMS) for monitoring of all status & alarms

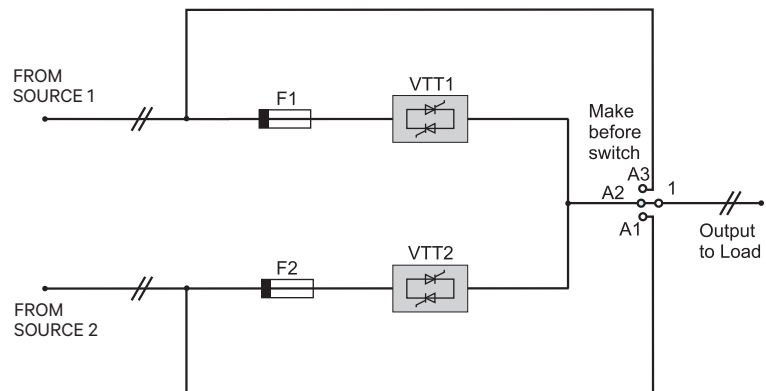
Potential Free contacts (optional)

For remote monitoring of the switch activity

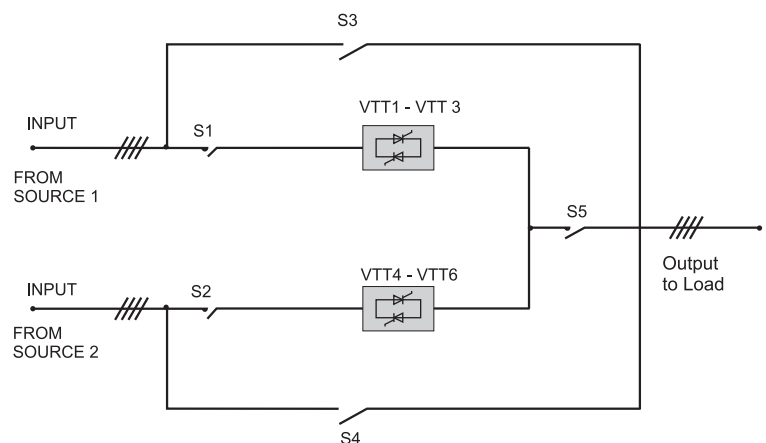
The NPS-I & NPS-II switches allows instantaneous transfer of load between two power sources. It can be used to ensure complete redundancy of power supply upto the last piece of wire. It is useful in many applications, where redundant power supply is available, either from two UPS systems or one UPS and bypass source.

These switches are comprising of semiconductor switches, they ensure continuity of power to the load in the event of failure of one of the power sources. They have different user selectable parameters and in-built microprocessor.

SINGLE LINE DIAGRAM



NPS-I



NPS-II

Liebert® Network Power Switch

Power Protection for Business Critical Continuity



FUNCTION

In a typical connection (see diagram) two different power sources (UPS, Stabiliser, Power conditioner etc.) are connected to the critical load through NPS-I / NPS-II switch, which will intelligently monitor the power from the sources. Depending upon the preset limits, it will allow the power to be passed to the critical load & thus making it as the best solution for mission critical applications.

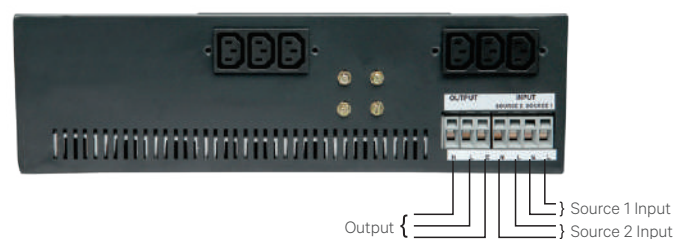
APPLICATIONS

- Data Centers
- Call Centers
- Process Control
- Automation

FRONT VIEW (3U SIZE)



REAR VIEW (3U SIZE)



Liebert® Network Power Switch

Power Protection for Business Critical Continuity



Model	NPS-I R31			NPS-I R32		
No. of Switching Poles	1 Pole (Ph)			2 Pole (Ph + N)		
Nominal Output Current ⁽¹⁾	16 A	32 A	63 A	16 A	32 A	63 A
Nominal Voltage ⁽¹⁾⁽⁴⁾	220 / 230 / 240 V, 1 Phase (110 / 120 V optional)					
Voltage Tolerance ⁽²⁾	- 15% to + 10% (Default)					
Nominal Frequency	50 / 60 Hz, ± 2 Hz (Default)					
Efficiency ⁽⁵⁾	> 99%			>98%		
Overload Capacity	125 to 150% for 10 min., 150 to 200% for 1 min., 200 to 400% for 5 sec., 400 to 700% for 600 ms, >700% for 250 ms					
Duty	Continuous					
Protections	Input Under Voltage, Input Over Voltage, Output Overload, Output Short Circuit					
Transfer / Re-transfer Time ⁽²⁾	< 5 ms for Sync. condition					
	< 5 ms / < 15 ms (selectable) for No Sync. Condition					
Manual Bypass facility	Make before break					
Acoustic Noise Level ⁽⁶⁾	<45 dBA					
Operating Temperature	0 to 40° C					
Relative Humidity	Up to 95% (Non-condensing)					
Altitude	< 1000 meter, above sea level (without de-rating)					
Reference standard	IEC 62310					
Enclosure Protection	IP 20					
Cooling	Natural Cooling					
Dimension (in mm) WxDxH	440 x 450 x 132 19" Rack mountable, 3U Height					
Color	RAL 7021					
Weight (Approx)	15 kg					
Cable Entry	Rear Side					
LED Indications	Source 1 Healthy		Source 1 Feeding load		Source 1 Priority	
	Source 2 Healthy		Source 2 Feeding load		Source 2 Priority	
	Source 1 Fuse Fail		No Sync			
	Source 2 Fuse Fail		Alarm			
	Load on Manual Bypass - Source 1		Load on Manual Bypass - Source 2		Load on Static Switch	
PFC ⁽¹⁾	Source 1 Abnormal or Back Feed		Source 2 Abnormal or Back Feed		Alarm	
Other Features	• DSP Based control • Back feed protection • Inbuilt Static Switch fault detector • INSTAMON Software for monitoring all status & alarm (Optional)			• Hot Swappable Electronics static switching module • Fixed or variable source priority mode and selection of preferred source • Short circuit protection by electronic circuit		
Communication Interface (optional)	RS 232 or Ethernet Connectivity, RS 485 MODBUS					
Output Sockets	16 A	3 Outlets as per IEC320-C13 (Default) (Rating 10 A / 250 VAC)	or	1 Outlet as per IEC320-C19 (Optional) (Rating 16 A / 250 VAC)		
	32 A	6 Outlets as per IEC320-C13 (Default) (Rating 10 A / 250 VAC)	or	2 Outlet as per IEC320-C19 (Optional) (Rating 16 A / 250 VAC)		

(1) Factory setting (2) Settable from "Insta Mon Software" (3) Settable from "Insta Mon Software" as well as from "Operator control panel"

(4) Allowable source voltage distortion (THD) < 10% (5) For tolerance see IEC 60146-1-1 (6) Acoustic Noise Level from 1 meter (Ref. ISO 3746)V

Liebert® Network Power Switch

Power Protection for Business Critical Continuity



Model	NPS-II FL3				NPS-II FL4		
Ampere Rating	60 / 100 A	200 A	300 A	400 A	100 A	200 A	300 A
Input / Output	3 Phase				3 Phase		
No. of Switching Poles	3 Pole (Ph)				4 Pole (Ph+N)		
Nominal Output Current	60 / 100 A	200 A	300 A	400 A	100 A	200 A	300 A
Nominal Voltage	400 / 415 V (3 Ph + N)						
Voltage Tolerance	Low band : -30% to +15% (Default), Medium band : -25% to +15%, Narrow Band : -15% to +15%						
Nominal Frequency	Nominal : 48 - 52 Hz, Wide 40 - 70 Hz (Default)						
Efficiency ⁽¹⁾	> 98%				> 97%		
Overload Capacity	110% for 1 hour, 150% for 1 min, 1000% for 100 ms						
Duty	Continuous						
Protections	Input Under Voltage, Input Over Voltage, Output Overload, Output Short Circuit						
Transfer / Retransfer Time	Low Sensitivity : < 8 ms, Medium Sensitivity : < 5 ms (Default), High Sensitivity : < 3 ms						
Manual Bypass facility	Provided						
Acoustic Noise Level ⁽²⁾	< 60 dBA						
Operating Temperature	0 to 40° C						
Relative Humidity	up to 95% (Non-condensing)						
Altitude	< 1000 meter, above sea level (without de-rating)						
Testing Standard	IEC 62310 -3						
Enclosure Protection	IP 20						
Cooling	Forced Cooling						
Dimension (in mm)	- Width	800	800	1000	1000	800	1000
	- Depth	600	600	600	600	600	600
	- Height	1750	1750	1950	1950	1750	1950
Weight in kg (approx)	225	225	275	350	225	250	275
Color	RAL 7021						
LCD Display parameters	Source 1 R phase voltage Source 1 Y phase voltage Source 1 B phase voltage	Source 2 R phase voltage Source 2 Y phase voltage Source 2 B phase voltage		Output Load R Output Load Y Output Load B		Date & Time	
LED Indications	Source 1 Healthy Source 2 Healthy	Source 1 Feeding Source 2 Feeding		Source 1 Priority Source 2 Priority		Sensitivity Low Sensitivity Medium Sensitivity High	
Fault Indications	SPP, Overload						
Communication Interface	RS 485 Modbus (optional)						

(1) For tolerance see IEC 60146-1-1 (2) Acoustic Noise measured @ 1.0 meter as per ISO 3746

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