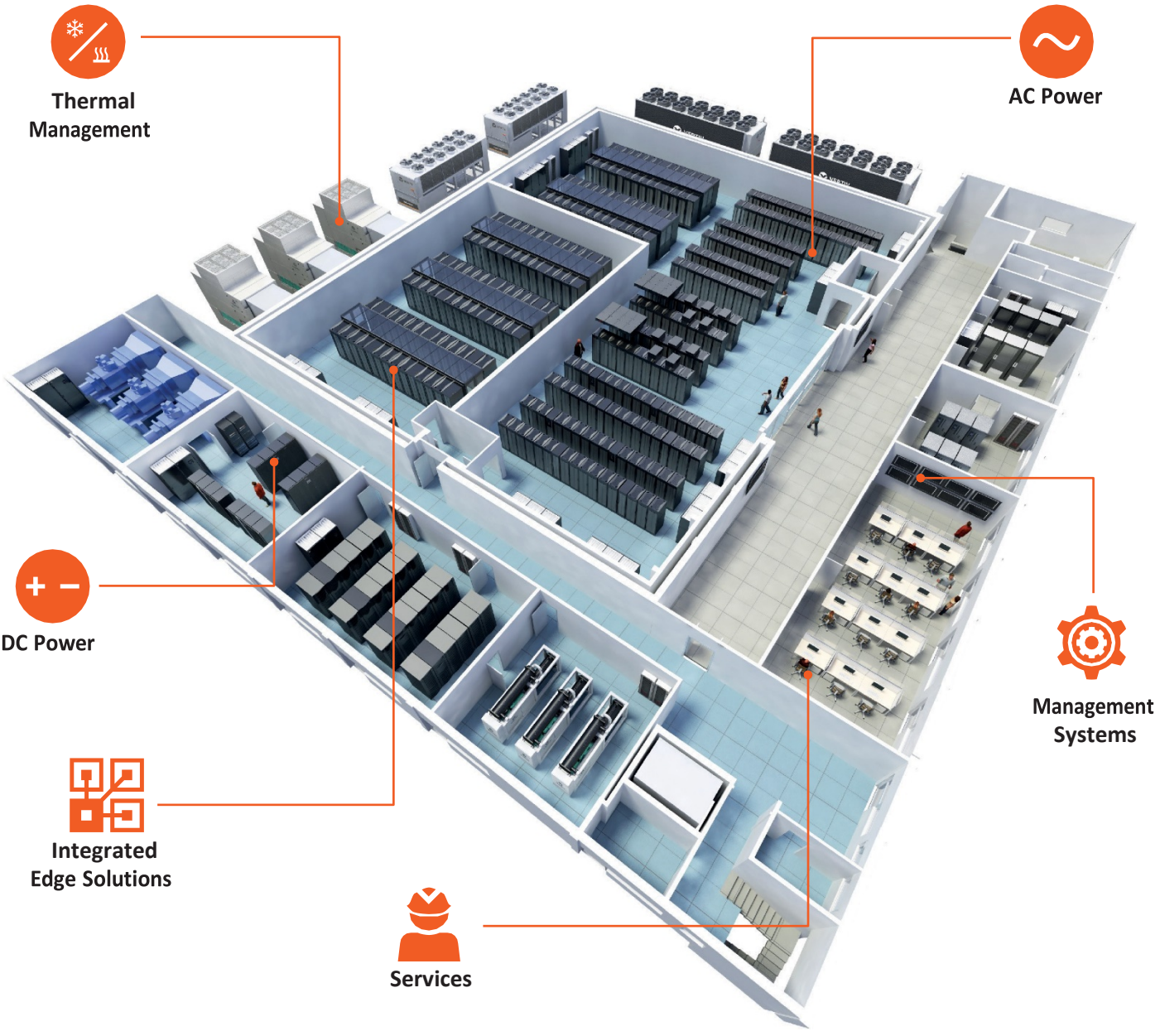
Liebert® Network Power Switch

Power Protection for
Business Critical Continuity

Vertiv solves the most important challenges facing today's data centers, communication networks and commercial & industrial facilities with a portfolio of power, cooling and IT infrastructure solutions, and services that extends from the cloud to the edge of the network.

Architects of Continuity™



What are our core differentiators?

- *VISIONARY EXPERTISE*
- *IMMERSIVE COLLABORATION*
- *RELENTLESS AGILITY*
- *INTELLIGENT ECOSYSTEM*

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

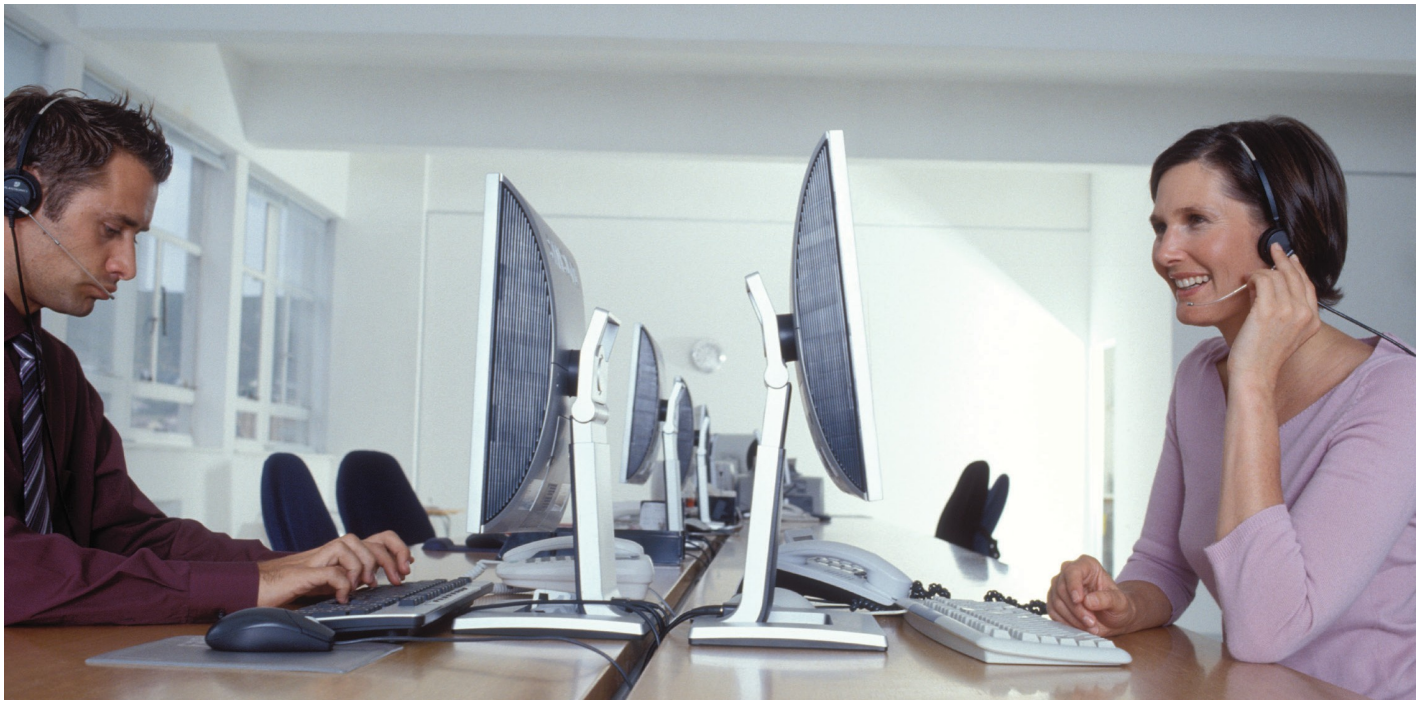
NPS-I R31 16, 32, 63 A Single Phase -2 Pole

Network Power Switch – II

NPS-II FL3 60 to 400A 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

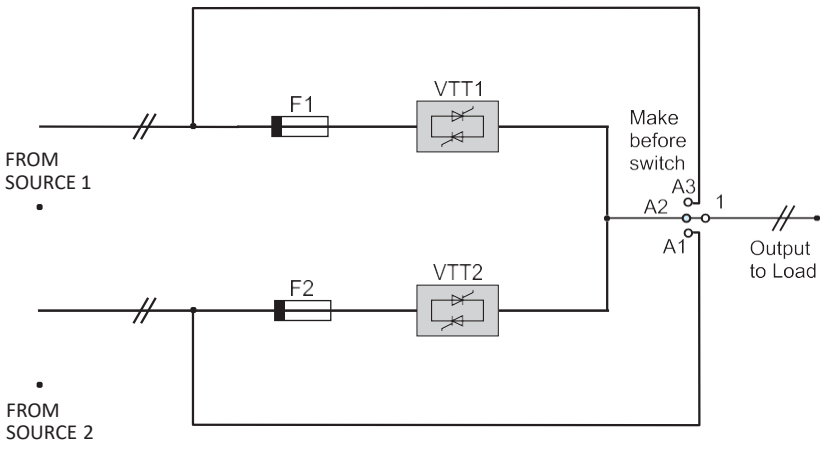
MODBUS RS 232/485 Interface (optional)
To connect your building Management System (BMS) for monitoring of all status & alarms

Potential Free contacts (optional)
For remote monitoring of the switch activity

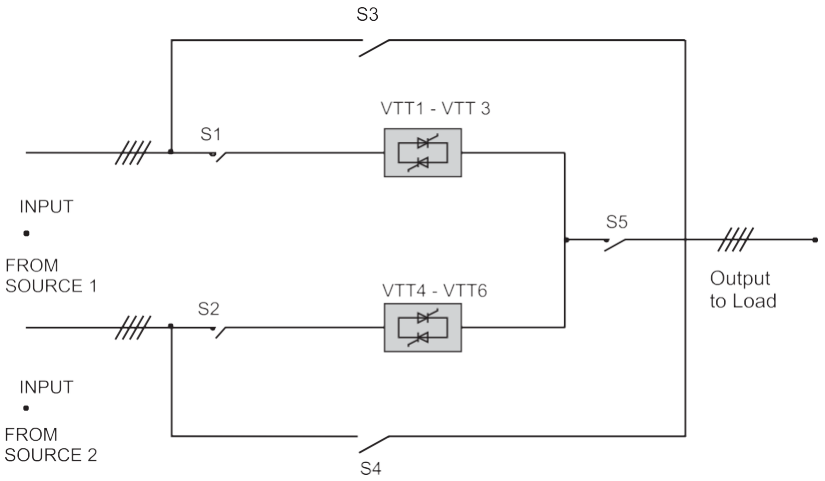
The NPS-I & NPS-II switches allows instantaneous transfer of load between two power sources. It can be used to ensure complete redundancy of power supply upto the last piece of wire. It is useful in many applications, where redundant power supply is available, either from two UPS systems or one UPS and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

FUNCTION

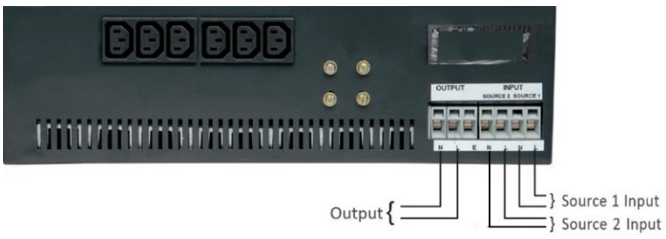
In a typical connection (see diagram) two different power sources (UPS, Stabilizer, Power conditioner etc.) are connected to the critical load through NPS-I / NPS-II switch, which will intelligently monitor the power from the sources. Depending upon the preset limits, it will allow the power to be passed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



Technical Specifications

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) Efficiency-AC to AC (7)	At full load & nominal input voltage Static Switch Rating / Efficiency (%) for 1P / Efficiency (%) for 2P 16A / 110Vac — 97 — 96 16A / 230Vac — 98.5 — 98 32A / 110Vac — 98 — 96.5 32A / 230Vac — 99 — 98 63A / 110Vac — 98 — 97 63A / 230Vac — 99 — 98					
Overload Capacity (8)	106% to 125% for < 1 Hrs., 125 to 150% for < 10 min., 150 to 200% for < 1 min., 200 to 400% for < 700 ms., 400 to 700% for < 100 ms, >700% for < 60 ms					
Duty	Continuous					
Protections (8)	Input Under Voltage, Input Over Voltage, Output Overload, Output Short Circuit					
Transfer / Re-transfer Time (2)(7)	< 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 (480 Including Side Clamp x 450 x 132), 19" Rack mountable, 3U Height					
Color	RAL 7021					
Weight (Approx)	20 kg					
Cable Entry	Rear Side					
LED Indications	Source 1 Healthy Source 2 Healthy		Source 1 Feeding load Source 2 Feeding load			Source 1 Priority Source 2 Priority
	Source 1 Fuse Fail Source 2 Fuse Fail		No Sync 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 (Optional)		Source 2 Abnormal or Back Feed (Optional)			Alarm
Other Features	• DSP Based control • Back feed protection (Optional) • 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 (3) • Short circuit protection by electronic circuit			
Communication Interface	RS 232 (Default) or Ethernet Connectivity (Optional), RS 485 MODBUS (Optional)					
Output Sockets	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 (7) Efficiency & Transfer time is specified for Linear load
(8) *Settable from "Insta Mon Software" & Overload Capacity calculated using I2T method, Also No tripping action on overload.*

Technical Specifications

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)						
Effciency [1]	> 98%				> 97%		
Overload Capacity [3]	110% for 1 hour, 150% for 1 min, 200% for 10 sec, 1000% for 100 ms						
Duty	Continuous						
Protections [3] [4]	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	1000
- Depth	600	600	600	600	600	600	600
- Height	1750	1750	1950	1950	1750	1950	1950
Weight in kg (approx)	225	225	275	350	225	250	275
Color	RAL 7021						

LCD Display parameters	Source 1 R phase voltage	Source 2 R phase voltage	Output Load R	Date & Time
	Source 1 Y phase voltage	Source 2 Y phase voltage	Output Load Y	
	Source 1 B phase voltage	Source 2 B phase voltage	Output Load B	
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	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
(3) No tripping action on overload, message is displayed.
(4) Output Short Circuit is for protection of SCRs; Customer need to provide upstream fuses or ask for semiconductor fuse box (This wall mounted box is an optional).
Specifications subject to change without prior notice.

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