

DISTRIBUTED POWER SOLUTIONS

FOR DATA CENTERS, HIGH PERFORMANCE COMPUTE & AI



POWER | PROTECT | CONNECT

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Bel Power Solutions offers a variety of power shelves, Titanium+ rated power supplies, AC and DC power distributions units, system controllers and cable harnesses to address AC and DC, 12 V, 48 V and 50 V distributed power conversion from the PDU to the CPU/ GPU.

Through strong cooperation with rack manufacturers and integration partners, Bel Power Solutions can help to provide a complete solution for your distributed power requirements.

		INPUT						
		AC (Y) 277/480 VAC	AC (Y) 240/415 VAC	AC (Δ) 208 VAC	AC (1-Phase) 3x 230 VAC	- 48 VDC	+380 VDC	
OUTPUT	+12 VDC	Triple Busbar Straight	SPSPFE3-05G	<i>SPSPFE3-15⁴</i>	SPSPFE3-09	-	<i>SPSPFF3-03⁴</i>	<i>SPSPFE3-13⁴</i>
		Single Busbar Straight	SPSPFE3-06G	<i>SPSPFE3-16⁴</i>	SPSPFE3-10	SPSTET4-02 ³	<i>SPSPFF3-02⁴</i>	<i>SPSPFE3-12⁴</i>
		Single Busbar Offset ¹	SPSPFE3-08	<i>SPSPFE3-14⁴</i>	SPSPFE3-11	-	SPSPFF3-01	SPSPFE3-07
	+48 VDC	Single Busbar Offset Short ²	SPSTET4-01	SPSTET4-11	<i>SPSTET4-03⁴</i>	-	N/A	<i>SPSTET4-04⁴</i>
		Single Busbar Offset Long ¹	SPSTET4-07	SPSTET4-12	-	-	N/A	-
		Single Busbar Straight Long	SPSTET4-09	SPSTET4-13	SPSTET4-16	-	N/A	-
		Triple Busbar Straight Long	SPSTET4-08	SPSTET4-14	SPSTET4-17	-	N/A	-
	+50.5 VDC	ORV3	SPSTET4V3-01	SPSTET4V3-01	SPSTET4V3-01	-	-	-
		ORV3 for EIA 19"	SPSTET4V3-02	SPSTET4V3-02	SPSTET4V3-02	-	-	-
	+380 VDC	Connector Type	<i>SPSTET4-05⁴</i>	-	<i>SPSTET4-06⁴</i>	-	-	N/A

¹ Mates with V2

² Mates with V2 shallow rack

³ Designed for EIA 19" racks

⁴ Available on request requiring short design cycle



SPSTET4XX SERIES

POWER SHELVES

28 kW AC-DC power shelf SPSTET4 houses up to six 4 kW Titanium efficiency AC/DC to DC front-end power supplies that convert single phase AC mains power into a main output of 54.5 VDC.

- Up to six slots for TET4000 / TET4800 PSUs (up to 28 kW)
- Scalable to support 192 kW single zone applications
- Two 3-phase Line to Line AC inputs with Neutral line (3 PSUs are powered from one AC inlet)
- Single busbar for +54.5 VDC output
- Active power sharing among multiple shelves
- Network Attached Controller (NAC1026-01) - optional
- CAN Bus communication interface
- Modifiable to 19" rack
- Blanking Panel SPSPFE3-BP01G



PART NUMBER	PN with NAC1026-01	INPUT VOLTAGE [VAC]	OUTPUT VOLTAGE [VDC]	NO. OF OUTPUT BUSBARS	REDUNDANCY
SPSTET4-01	SPSTET4-01C	200 - 277 / 346 - 480, 3-phase	54.5	Single offset short	3+3 / 5+1
SPSTET4-02	SPSTET4-02N	23 x 230 VAC	54.5	Short spade	2+2+2
SPSTET4-07	SPSTET4-07C	200 - 277 / 346 - 480, 3-phase	54.5	Single offset long	3+3 / 5+1
SPSTET4-08	SPSTET4-08C	200 - 277 / 346 - 480, 3-phase	54.5	Tripple	3+3 / 5+1
SPSTET4-09	SPSTET4-09C	200 - 277 / 346 - 480, 3-phase	54.5	Single long	3+3 / 5+1
SPSTET4-11	SPSTET4-11C	240 / 415, 3-phase	54.5	Single offset short	3+3 / 5+1
SPSTET4-12	SPSTET4-12C	240 / 415, 3-phase	54.5	Single offset long	3+3 / 5+1
SPSTET4-13	SPSTET4-13C	240 / 415, 3-phase	54.5	Single long	3+3 / 5+1
SPSTET4-14	SPSTET4-14C	240 / 415, 3-phase	54.5	Tripple	3+3 / 5+1
SPSTET4-16	SPSTET4-16C	208 Delta, 3-phase	54.5	Single Long	3+3 / 5+1
SPSTET4-17	SPSTET4-17C	208 Delta, 3-phase	54.5	Tripple	3+3 / 5+1
SPSTET4V3-01	SPSTET4V3-01C	Universal ORV3	50.5	ORV3	3+3 / 5+1
SPSTET4V3-02	SPSTET4V3-02C	Universal ORV3	54.5	ORV3	3+3 / 5+1

TET4000-48-069RAH / TET4800-48-069RA

POWER SUPPLY UNITS

The power supply units are 4000 / 4800 Watt AC-DC power factor corrected (PFC) and DC-DC power supplies that convert standard AC mains power or high voltage DC bus voltages into a main output of 54.5 VDC (42 – 58 VDC).

- Titanium efficiency
- AC input with power factor correction
- Main output 54.5 VDC with programmable voltage set-point 42 - 58 VDC
- Parallel operation with active digital current sharing
- CAN Bus communication interface



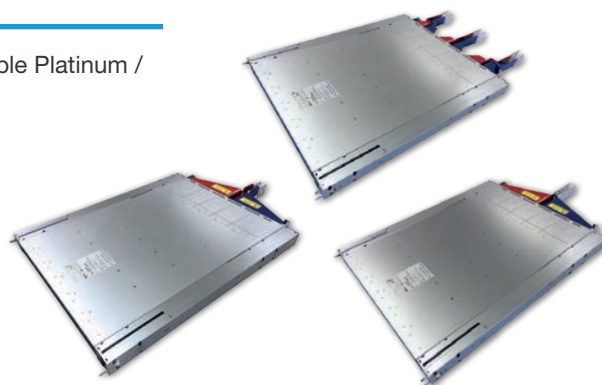
PART NUMBER	AC INPUT VOLTAGE [VAC]	DC INPUT VOLTAGE [VDC]	OUTPUT VOLTAGE [VDC]	STAND-BY OUTPUT VOLTAGE [V]	MAX. OUTPUT POWER [W]	HEIGHT [U]
TET4000-48-069RAH	90 - 305	192 - 400	54.5	12 (Optional)	4000	1
TET4800-48-069RA	90 - 305	192 - 400	54.5	12 (Optional)	4800	1

SPSPFE3 SERIES

AC INPUT & HV DC INPUT POWER SHELVES

The 18 kW AC-DC power shelf is capable of hosting up to six hot-swappable Platinum / Titanium efficiency AC/HVDC to DC power supply units.

- Up to six slots for PFE3000 / PFE3600 / TET3200 PSUs (up to 18 kW)
- Two 3-phase Line to Line AC inputs with Neutral line
- Triple or single busbar for +12 VDC output
- Active power sharing among multiple shelves
- Network Attached Controller (NACx006-01) - optional
- Communication via Ethernet and I²C / Power Management Bus
- Modifiable to 19" rack
- Blanking Panel SPSPFE3-BP01G



PART NUMBER	PN with NAC1006-01	AC INPUT VOLTAGE [VAC]	HV DC INPUT VOLTAGE [VDC]	OUTPUT VOLTAGE [VDC]	NO. OF OUTPUT BUSBARS	REDUNDANCY
SPSPFE3-05G	SPSPFE3-05CG	200 - 277 / 346 - 480, 3-phase (Y)	N/A	12.3	3 (Straight)	3+3 / 5+1
SPSPFE3-06G	SPSPFE3-06CG	200 - 277 / 346 - 480, 3-phase (Y)	N/A	12.3	1 (Straight)	3+3 / 5+1
SPSPFE3-07	SPSPFE3-07C *	N/A	240 - 380	12.3	1 (Offset)	3+3 / 5+1
SPSPFE3-08	SPSPFE3-08C	200 - 277 / 346 - 480, 3-phase (Y)	N/A	12.3	1 (Offset)	3+3 / 5+1
SPSPFE3-09	SPSPFE3-09C	208 - 240, 3-phase (Δ)	N/A	12.3	3 (Straight)	3+3 / 5+1
SPSPFE3-10	SPSPFE3-10C	208 - 240, 3-phase (Δ)	N/A	12.3	1 (Straight)	3+3 / 5+1
SPSPFE3-11	SPSPFE3-11C	208 - 240, 3-phase (Δ)	N/A	12.3	1 (Offset)	3+3 / 5+1

* NAC2006-01

PFE3000-12-069RA / PFE3600-12-069RA TET3000-12-069RA / TET3200-12-069RA

POWER SUPPLY UNITS

The power supply units are AC/DC power factor corrected (PFC) and DC to DC power supplies that convert standard AC mains power or high voltage DC bus voltages into a main output of 12 VDC.

- Platinum / Titanium efficiency
- AC input with power factor correction
- Standby output (always present)
- Hot-swappable
- Parallel operation with active analog current sharing
- Over temperature, output over voltage and output over current protection
- I²C communication interface with Power Management Bus protocol



PART NUMBER	AC INPUT VOLTAGE [VAC]	DC INPUT VOLTAGE [VDC]	OUTPUT VOLTAGE [VDC]	STAND-BY OUTPUT VOLTAGE [V]	MAX. OUTPUT POWER [W]	HEIGHT [U]
PFE3000-12-069RA	90 - 300	192 - 400	12.3	12	3000	1
PFE3600-12-069RA	90 - 300	192 - 400	12.3	12	3600	1
TET3000-12-069RA	90 - 300	180 - 410	12.3	12	3000	1
TET3200-12-069RA	90 - 300	180 - 410	12.3	12	3200	1

SPSPFF3 SERIES

AC INPUT & HV DC INPUT POWER SHELVES

The power shelf can be configured with up to six hot-swappable PFF3000-12-069RD DC-DC power supplies that convert -40 to -72 VDC input power into a main output of 12.5 VDC for powering intermediate bus architectures (IBA).

- Up to six slots for PFF3000 PSU (up to 14.4 kW)
- Two separate DC inputs (3 PSU are powered from one DC inlet)
- Triple or single busbar for 12.5 VDC output
- Network Attached Controller (NAC2006-01) - optional
- Communication via Ethernet and I²C / Power Management Bus
- Modifiable to 19" rack
- Blanking Panel SPSPFF3-BP02G



PART NUMBER	PN with NAC2006-01	INPUT VOLTAGE [VDC]	OUTPUT VOLTAGE [VDC]	NO. OF OUTPUT BUSBARS	STAND-BY OUTPUT VOLTAGE [V]	REDUNDANCY
SPSPFF3-01	SPSPFF3-01C	-40 to -72	12.5	1 (Offset)	12	3+3 / 5+1
SPSPFF3-02	SPSPFF3-02C	-40 to -72	12.5	1 (Straight)	12	3+3 / 5+1
SPSPFF3-03	SPSPFF3-03C	-40 to -72	12.5	3 (Straight)	12	3+3 / 5+1

PFF3000-12-069RD

POWER SUPPLY UNIT

The power supply is a 3 kW hot-swappable DC-DC front-end converter that provides a main output 12.5 VDC from -40 to -72 VDC bus voltages.

- Best-in-class, Platinum equivalent efficiency
- Parallel operation with active analog current sharing
- Reverse polarity, over temperature, output overvoltage, and overcurrent protections
- Small Form Factor 69 x 42 x 555 mm
- I²C communication interface with Power Management Bus protocol



PART NUMBER	INPUT VOLTAGE [VDC]	OUTPUT VOLTAGE [VDC]	OUTPUT CURRENT [A]	STAND-BY OUTPUT VOLTAGE [V]	OUTPUT POWER [W]	HEIGHT [U]
PFF3000-12-069RD	-40 to -72	12.5	244	12	3000	1

Power Distribution Units

YSD SERIES

AC & DC PDUs

AC PDU is used for distributing AC voltage in power racks.

DC PDU is used to distribute DC auxiliary power and monitoring signals in open racks. Different cable length modifications are possible.

- Single or dual AC outputs (AC PDUs)
- Different output power connector for higher flexibility (DC PDU)
- Robust mechanical design
- Full compatibility to Open Compute Project specification



PART NUMBER	INPUT VOLTAGE [VAC]	INPUT CURRENT [A]	STYLE	PLUG TYPE	SURGE PROTECTION
AC PDU					
YSD.00152 (EU)	240 / 415, 3-phase	32	1 in / 2 out	IEC 60309	Yes
YSD.00162 (US)	277 / 480, 3-phase	20	2 in / 2 out	L22-20P	Yes
YSD.00217 (US)	120 / 208, 3-phase	30	2 in / 2 out	L21-30P	No
YSD.00218 (US)	277 / 480, 3-phase	30	1 in / 2 out	L22-30P	Yes
YSD.00219 (US)	277, Single -phase	20	1 in / 1 out	L7-20P	No
YSD.00222 (US)	120 / 208, 3-phase	30	2 in / 2 out	L21-30P	No
DC PDU					
YSD.00134	54	32	0 in / 2 out	N/A	No

YSD.00273

DC PDU

This device has been designed to supply a SPSPFF3-01 shelf (-48 VDC input shelf). Two separate output circuits supply two separate inputs of the shelf. Four connectors, protected with 15 A circuit breakers provide input voltage to auxiliary equipment in the power rack.

- Two separate 48 VDC inputs
- Two high current (250 A) 48 VDC outputs
- Four overcurrent protected -48 VDC 15 A auxiliary outputs

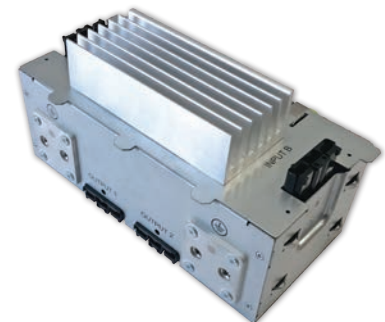


YSU.00218

HVDC PDU

This high voltage DC power distribution unit (HVDC PDU) is used for power distribution in an OCP rack. Two internally connected output circuits supply two separate inputs of the shelf.

- Input voltage range from 240 to 380 VDC
- Two separate VDC inputs, two 33 A VDC outputs
- Two PE power connections (dual-hole terminal lugs)



NAC SERIES

NETWORK ATTACHED CONTROLLER

The Network Attached Controller (NAC) is front accessible, hot-swappable shelf level controller providing monitoring and control functions through a 10/100 MB base Ethernet port and can be connected directly to the data center management network.

- 10/100 Mb Ethernet port
- HP Auto MDI/MDI-X to reliably detect and correct crossover cables
- Web interface for easy setup
- SNMPv1/2c/3 protocol with TRAP, SET and GET over Ethernet
- Supports IPv4 and IPv6
- SNTP to synchronize the on-board real time clock
- Directly supplied from shelf standby voltage; low consumption



PART NUMBER	SUITABLE FOR
NAC1006-01	12 V AC/DC (240 / 277 VAC) Power Shelves
NAC1006-02	48 V AC/DC (240 / 277 VAC) Power Shelves
NAC1026-01	48 V AC/DC (240 / 277 VAC) Power Shelves
NAC2006-01	12 V HVDC/DC (+380 VDC) & DC/DC (-48 VDC) Power Shelves
NAC3006-01	12 V Shelves LINUX based (SPSPFE-XX)
NAC3006-02	48 V Shelves and ORV3 (SPSTET4XX-XX)

CABLE HARNESSES FOR AC & DC PDUs

Bel provides various accessories for data centers and high performance computing solutions, including wire harnesses connecting power distribution units to power shelves.



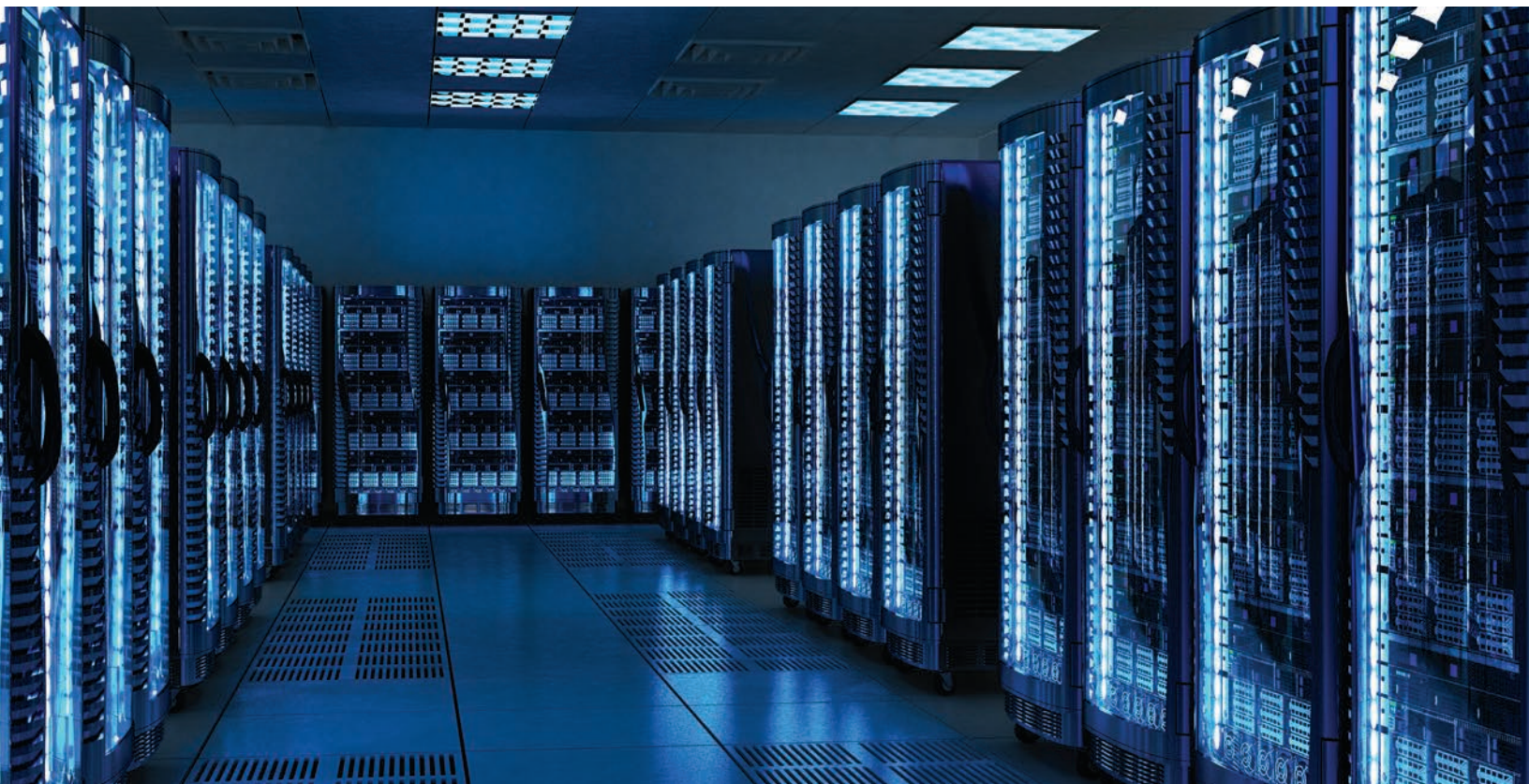
PART NUMBER	LENGTH	DESCRIPTION	CONNECTION
ZLH.01195.0	1.5 m	Three phase (3W+N+PE) 5 core wire harness for WYE application	WYE configured SPSPFE3 and SPSTET4 power shelves. SPSPFE3-05G, SPSPFE3-06G, SPSPFE3-08, SPSPFE3-14, SPSTET4-01, SPSTET4-07, SPSTET4-08
ZLH.01196.0	2.5 m		
ZLH.01164.0	4 m		
ZLH.01198.0	1.5 m	Three phase (3W+PE) 4 core wire harness for DELTA application	DELTA configured SPSPFE3 & SPSTET4 power shelves. SPSPFE3-09, SPSPFE3-11 SPSTET4-03
ZLH.01199.0	2.5 m		
ZLH.01209.0	4 m		
ZLH.01200.0	3 m	Single phase AC power cord for power shelf AC aux. outlet I/P: LS-25 (277 VAC), O/P: LS-60 (250 VAC)	SPSPFE3-05G, SPSPFE3-06G, SPSPFE3-08, SPSPFE3-14 SPSTET4-01, SPSTET4-07, SPSTET4-08
ZLH.01201.0	3 m	Single phase AC power cord for power shelf AC aux. outlet I/P: C14 (250 VAC), O/P: C13 (250 VAC)	SPSPFE3-09, SPSPFE3-11, SPSPFE3-14 SPSTET4-03
ZLH.01202.0	3 m	Single phase AC power cord for power shelf AC aux. outlet I/P: Molex 1726722003, O/P: C13 (250 VAC)	SPSPFE3-05G, SPSPFE3-06G, SPSPFE3-08, SPSPFE3-14, SPSTET4-01, SPSTET4-07, SPSTET4-08
ZLH.01203.0	3 m	Single phase AC power cord for power shelf AC aux. outlet I/P: Molex 1700010104, O/P: C13 (250 VAC)	SPSPFE3-09, SPSPFE3-11 SPSTET4-03
ZLH.01206.0	3 m	Single phase AC power cord for power shelf AC aux. outlet I/P: LS-25 (277 VAC), O/P: LS-26 (277 VAC)	SPSPFE3-05G, SPSPFE3-06G, SPSPFE3-08 SPSTET4-01, SPSTET4-07, SPSTET4-08
ZLH.U1C00.0 ZLH.U1C07.0 ZLH.U1C08.0		Set of 4 cables: two long, two short	SPSPFF3-01, SPSPFF3-02, SPSPFF3-03
ZLH.U1C04.0		Set of two long wiring harnesses	SPSPFE3-07, SPSPFE3-12, SPSPFE3-13, SPSTET4-04
ZLH.U1C03.0		Set of two short wiring harnesses	
ZLH.20068.0	1 m	SAF-D-GRID to C14 conversion cable	SPSTET4XX-XX
ZLH.20069.0	3 m	ORV3 shelf AC input from IEC 60309	SPSTET4V3-01 and SPSTET4V3-02
ZLH.20067.0	3 m	ORV3 shelf AC input from 3x IEC C20	SPSTET4V3-01 and SPSTET4V3-02
SPSTET4-CAN-KIT	1.2 m	SPSTET4xx-xx kit for active shelf sharing	SPSTET4XX-XX



About Bel Power Solutions

Bel Power Solutions & Protection offers world-class AC-DC and DC-DC power conversion products, value-add solutions, complete box-build solutions and contract manufacturing services, along with a complete portfolio of Electronic Circuit Protection devices.

Bel is a market leader in railway with Melcher™ brand products and technology leaders in the development of high efficiency and high power density front-end products. We support global customers and local markets with strategically located manufacturing and R&D facilities around the world. Applications of our power conversion devices range from board-mount power to system-level architectures for servers, storage, networking, industrial and telecommunications industries.



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