

45kW 3-Phase Input Non-isolated 385Vdc Power Supplies



Industrial



Test



LED



Semi-Fab



The TPF45000-385 non-isolated modular power supply offers output power levels up to 45kW and accepts 400/440/480Vac 3 phase delta or Wye inputs. Providing a regulated 385Vdc output, the product can be used to provide a high voltage source to power isolated DC-DC converters used in distributed power architecture systems. With an operating efficiency of 98%, waste heat is dramatically reduced, avoiding the need for water cooling. PMBus™ and USB interfaces are available for monitoring and control. Containing ten 4,500W modules, the TPF45000 can be scaled down for lower power requirements.

Features	Benefits
• 400/440/480 Vac (Nominal) 3 Phase Delta or Wye Inputs	• Global Use
• PMBus™ and USB Interfaces	• Flexible Control and Monitoring
• -20°C (Start-Up) to +50°C Operation	• Suitable for Industrial Environments
• 98% Efficient	• Less Energy Used
• Less than 30kg Weight	• Easier Handling

Model Selector						
Model	Nominal Output Voltage (V)	Adjustment Range (V)	Rated Current (A)	Maximum Current (A) (1)	Rated Power (W)	Maximum Power (W) (1)
TPF45000-385	385	Fixed	110	117	42,000	45,000

Specifications		
Model	TPF45000-385	
Input		
Input Voltage range	V	360 - 528Vac, Delta or Wye 3 phase
Input Frequency	Hz	47 - 63
Input Current (At nominal Vin)	A	75 at 400Vac, 65 at 480Vac per phase
Inrush Current (400-480Vac)	A	<150 per phase (excluding initial filter capacitor charging <2ms) at 25°C ambient, cold start
Dropped Phase Power	W	15,000
Leakage Current	mA	<40
Power Factor (400-480Vac)	-	0.94 typical at rated load, nominal Vin
Harmonics	-	Not applicable
Hold Up Time (typ at nominal input)	ms	10 (80V output drop)
Efficiency (Typical)	%	98 at 25°C ambient, nominal input and at 100% of the rated load
Conducted & Radiated EMI	-	EN55032 Class A, FCC part 15 Class-A (In end system with external filter)
Immunity	-	EN61000-4-2, -3, -4, -5, -6, -8, -11 (see immunity table)
Line Dip	-	SEMI F47-0706 at 480Vac nominal (see immunity table)
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, CE Mark and UKCA Mark

Immunity				
Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	±8 kV air discharge, ±4 kV contact discharge	A	See test report or installation / operation manual
Radiated Susceptibility	EN61000-4-3	3 V/m from 80-1000 MHz (80% AM at 1kHz)	A	
Electrical Fast Transient Burst	EN61000-4-4	Power line pulses of ± 1 kV; I/O line pulses of ± 0.5 kV	A	
Surge	EN61000-4-5	4kV common mode, 2kV differential mode	B	
Conducted Susceptibility	EN61000-4-6	3 Vrms, 150 kHz - 80 MHz 1 kHz 80% AM	A	
Magnetic fields	EN61000-4-8	30A/m (Continuous), 300A/m (Short)	A	
Voltage Dips and Input Interruptions	EN61000-4-11	Dip to 0% of nom. line for 0.5 cycles Dip to 0% of nom. line for 1 cycles Dip to 40% of nom. line for 0.2 seconds Dip to 70% of nom. line for 0.5 seconds Dip to 80% of nom. line for 5 seconds	C	
	SEMI F47-0706	-	C	

Specifications		
Model		TPF45000-385
Output		
Line Regulation	%	<2
Load Regulation	%	<3 (2)
Temperature Coefficient	ppm/°C	400
Ripple & Noise (RMS) Maximum	V	10 (Using JEITA RC-9131C probe method)
Minimum Load	A	Unit enabled: 0.5 (200W), unit inhibited: 50Ω
Overcurrent Protection	A	>116. Foldback with delayed latching shutdown. Reset by cycling the AC or using the PMBus. A short circuit when the unit is operating will damage the power supply
Overvoltage Protection	V	394 to 400
Overtemperature Protection	-	Internal thermostat. Reset by cycling the AC input or using the PMBus
Fan Fail Indication	-	Blocked fan and fan failure detection will trigger the FAULT/WARNING.
Remote Sense	-	None
Remote On/Off	-	Enable. Isolated from primary.
DC OK Signal	-	Yes
AC Fail Signal	-	None
Dropped Phase Warning Signal	-	Yes
Overtemperature Warning	-	Yes
Standby Voltage	-	13 to 15V, 0.5A. Isolated from primary (input / output)
Indicators	-	LEDs indicate dropped phase, overtemperature, overtemperature warning, enable, DC OK and I2C fault
Parallel Operation	-	Not possible
Series Operation	-	Not possible
Environmental		
Operating Temperature (-20°C start-up)	°C	-10 to +50
Storage Temperature	°C	-40 to +85
Humidity (non condensing)	%RH	10 - 95
Cooling	-	Internal variable speed fans (five)
Altitude	m	4,000
Withstand Voltage (For 1 minute)	Vac	Input to Ground 2,000
Vibration (Operating)	-	Designed to meet MIL-STD-810F, Method 514.5, Proc I, Category 1, 10
Shock	-	Designed to meet MIL-STD-810F, Method 516.5, Procedure II
Other		
Weight (Typ)	kg	<30. Install on a shelf or use support brackets or rails
Size (WxHxD) Excluding side mount flanges	mm	450 x 113 x 533
Size (WxHxD) Excluding side mount flanges	Inches	17.7 x 4.4 x 21
Mating Connectors		See pinout drawing
MTBF - Telcordia SR-332 issue 3	hrs	105,000 (25°C ambient)
Warranty	yrs	3

PMBus Functions
Output Voltage Monitoring
Input Voltage Monitoring
Output Current Monitoring
Internal Temperature Monitoring
Remote On/Off Control
Status Information
Product Information

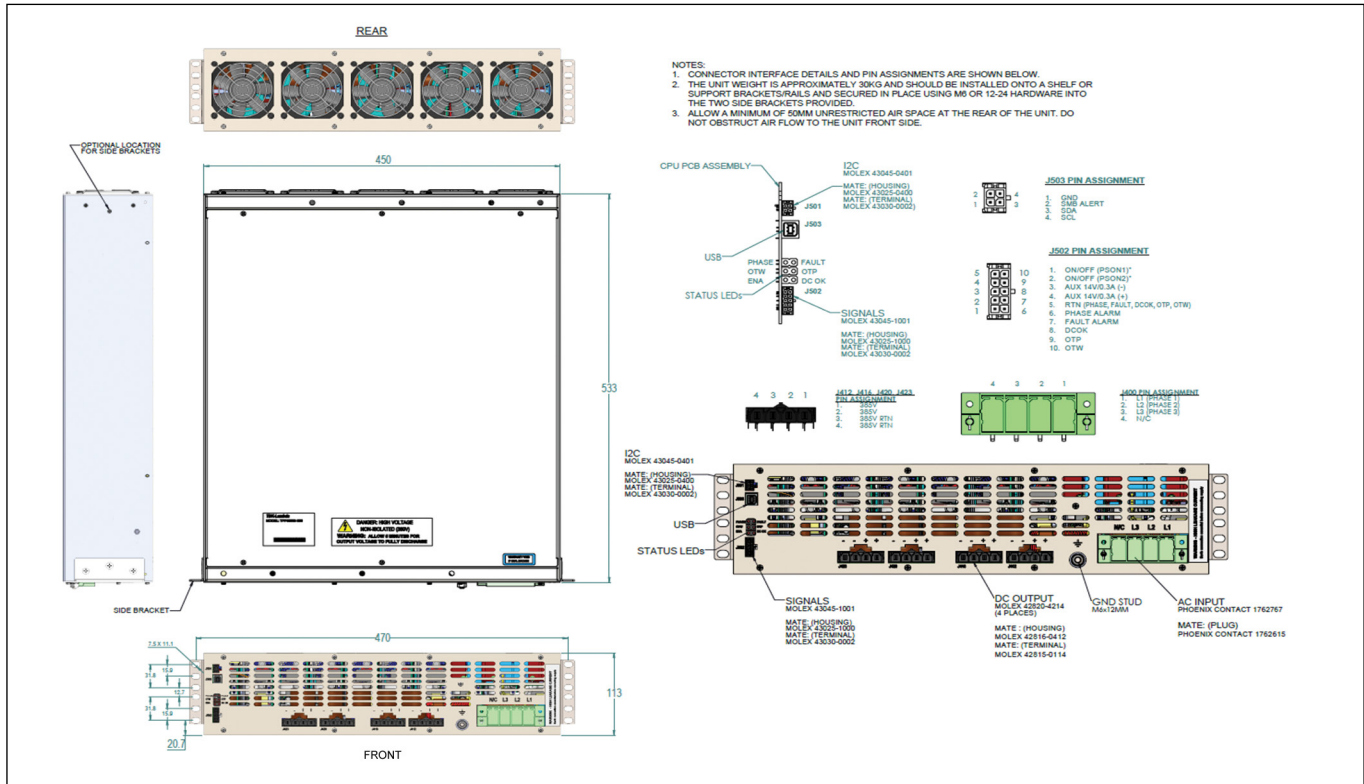
Notes

See website for detailed specifications, test methods and installation/operating manual

(1) Input voltage 380 to 504Vac

(2) The output must be in regulation before the load is applied

Block Diagram





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