https://product.tdk.com/en/power/tpf
www.emea.lambda.tdk.com/tpf

12.5kW 3-Phase Input Non-isolated 385Vdc Power Supplies

Industrial Test Semi-Fab

The TPF12500-385 non-isolated modular power supply offers output power levels up to 13,100W 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 97.5%, waste heat is dramatically reduced, avoiding the need for water cooling. An RS-485 interface is available for monitoring and control.

Features	Benefits
• 400/440/480 Vac (Nominal) 3 Phase Delta or Wye Inputs	• Global Use
• RS-485 Interface	• Flexible Control and Monitoring
• -20°C (Start-Up) to +40°C Operation	• Suitable for Industrial Environments
• 97.5% Efficient	• Less Energy Used

Model Selector

Model	Nominal Output Voltage (V)	Adjustment Range (V)	Rated Current (A)	Maximum Current (A) (2)	Rated Power (W)	Maximum Power (W) (2)
TPF12500-385	385	Fixed	32.5	34.02	12,500	13,100

Specifications

Model		TPF12500-385
Input		
AC Input Voltage Range (Operating)	Vac	360-528, Delta or Wye 3-phase
Nominal Input Voltage Range	Vac	400 - 480
Input Frequency	Hz	47 - 63
Input Current (400/480Vac)	A	40/35 (per phase)
Inrush Current (400-480Vac) (3)	A	<70 per phase (excluding initial filter capacitor charging <2ms) at 25°C ambient, cold start
Dropped Phase Power (3)	W	5400 (480VAC, 60Hz), 4100 (400VAC, 50Hz)
Leakage Current	mA	<12mA peak
Power Factor (400-480Vac, 100% rated load)	-	0.93 typical at rated load, nominal Vin
Harmonics	-	Not applicable
Hold Up Time (typ at nominal input)	ms	20 (100V drop, 80% load)
Efficiency (Typical)	%	97.5 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	Contact Lvl 2: 4kV; Air Lvl 3: 8kV Criteria A	A	See test report or installation / operation manual
Radiated Susceptibility	EN61000-4-3	Lvl 2: 3 V/m, 80-1000 MHz (80% AM at 1kHz)	A	
Electrical Fast Transient Burst	EN61000-4-4	Level 2: Power line 1kV, I/O Line 500V	A	
Surge	EN61000-4-5	4kV common mode, 2kV differential mode	B	
Conducted Susceptibility	EN61000-4-6	Common: Lvl 4: 4kV, Differential: Lvl3: 2kV	B	
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	50% of nom. line for 10 cycles 70% for 25 cycles 80% for 50 cycles

Specifications

Model		TPF12500-385
Output		
Line Regulation	%	<2
Load Regulation [3]	%	<3
Temperature Coefficient	ppm/°C	400
Ripple & Noise	Vrms	10 (Using JEITA RC-9131C probe method)
Minimum Load	A	Unit enabled: 0.5 (200W)
Capacitive Load	uF	5,000
Overcurrent Protection	A	>46
Overcurrent Protection Type	-	Foldback with delayed shutdown. Reset by cycling the AC or using remote on/off signal.
Overvoltage Protection	V	395 (+5/-1), Latch
Overtemperature Protection	-	Internal thermostat. Reset by cycling the AC input
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	-	13V 0.2A
Indicators	-	LEDs indicate dropped phase, overtemperature, overtemperature warning, enable, DC OK and I2C fault
Parallel Operation	-	Up to 2 units (Droop Sharing)
Series Operation	-	Not possible

Specifications

Model		TPF12500-385
Environmental		
Operating Temperature (-20°C start-up)	°C	-10 to +40
Storage Temperature	°C	-40 to +85
Humidity (non-condensing)	%RH	10 - 95
Cooling	-	Internal variable speed fans (two)
Altitude	m	4,000
Withstand Voltage (For 1 minute)	Vac	Input to Ground 2,000, Output to Ground 2,000
Vibration (Operating)	-	Designed to meet MIL-STD-810H, Method 514.8, Procedure I, Category 4, 10
Shock	-	Designed to meet MIL-STD-810H, Method 516.8, Procedure I, IV, VI
Other		
Weight (Typ)	kg	12.7. Install on a shelf or rail for support. Use the brackets for securing it into the rack (See installation manual for support bracket mounting)
Size (WxHxD) Excluding side mount flanges	mm	202.6 x 111.1 x 711.2 (not including connectors)
Size (WxHxD) Excluding side mount flanges	Inches	7.98 x 4.37 x 28 (not including connectors)
Mating Connectors		See pinout drawing
MTBF - Telcordia SR-332 issue 3	hrs	Telcordia SR-332 issue 3, nominal input: 105,000 (25°C ambient)
Warranty	yrs	3

RS-485 Functions

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

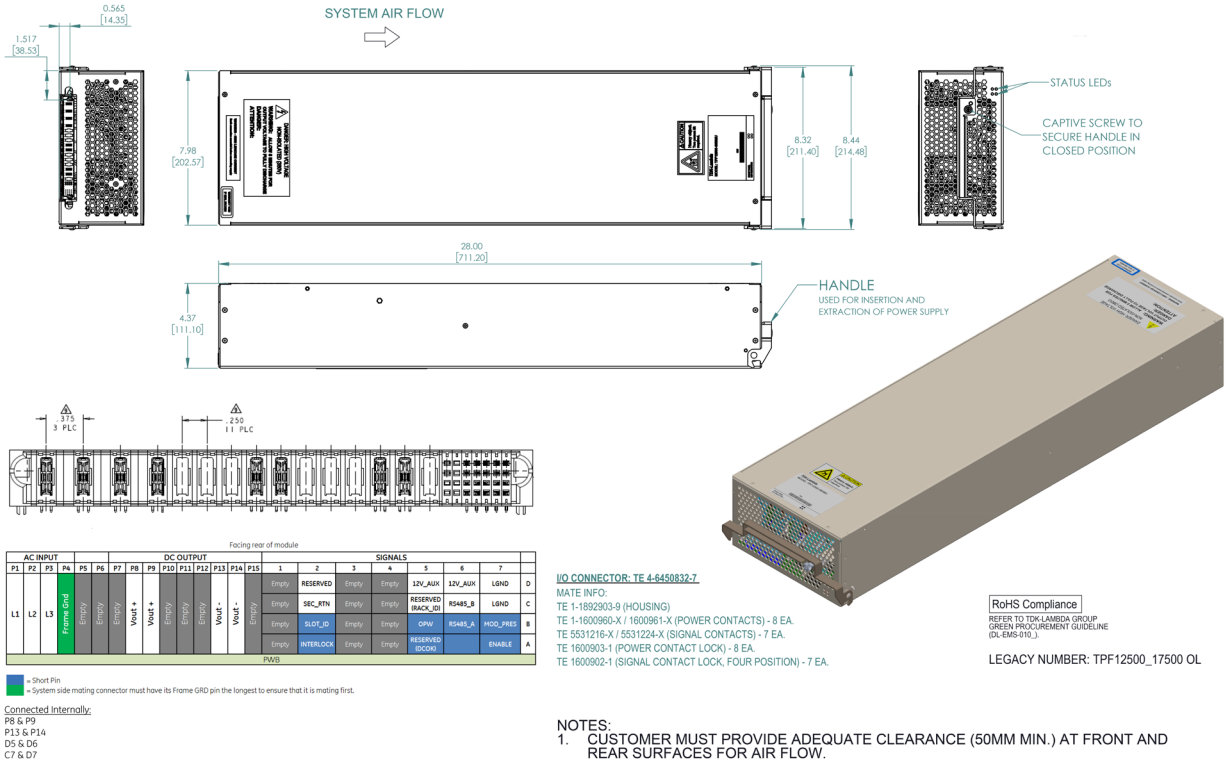
Notes

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

(2) Max power allowable between 380VAC to 504VAC

(3) Output voltage must be within regulation before output load can be applied:
If load applied before unit reaches regulation, OCP can occur

Outline Drawings & Pin Out



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