

## 1000W 1U Front End Power Supplies

<https://product.tdk.com/en/power/fps>  
[www.emea.lambda.tdk.com/fps](http://www.emea.lambda.tdk.com/fps)



The FPS1000 AC-DC industrial power supplies can be operated in a hot-swap redundant configuration, or used to provide up to 3,000W of bulk power. Up to three power supplies can be fitted in a variety of 19" 1U high racks, for configuration as a single, dual, or triple output. The FPS supplies have internal ORING diodes and current share for automatic parallel operation. Communication is possible with the power supplies using the optional isolated (I<sup>2</sup>C) interface. AC fail, DC good, remote on/off and a 12V auxiliary output are fitted as standard.

Features	Benefits
• 1U High	• Utilizes Less Rack Space
• Hotswap Capable	• Suitable for N+1 Redundancy
• High Efficiency	• Less Heat Dissipated in System
• Full Array of Signals	• Easier System Monitoring

Model Selector							
Model	Output Voltage (V)	Adjustment Range (V) <sup>(1)</sup>	Maximum Current (A)	Maximum Power (W)	Output Noise (mV)	Efficiency (%) (115/230Vac)	Over Voltage Protection (V)
Front AC Input Configurations							
FPS1000-12/P	12	10.5 - 13.2	72	864	150	80 / 83	14.3 to 15.7
FPS1000-12/PS	12	10.5 - 13.2	72	864	150	80 / 83	14.3 to 15.7
FPS1000-24/P	24	21.5 - 29	40	960	200	83 / 86	31 to 34
FPS1000-24/PS	24	21.5 - 29	40	960	200	83 / 86	31 to 34
FPS1000-32/P	32	28.8 - 38.4	31	992	250	84 / 87	41.5 to 45.5
FPS1000-32/PS	32	28.8 - 38.4	31	992	250	84 / 87	41.5 to 45.5
FPS1000-48/P	48	43 - 58	21	1008	300	85 / 88	62 to 66
FPS1000-48/PS	48	43 - 58	21	1008	300	85 / 88	62 to 66
FPS-S1U/P	Rack (3 slot), contains two blanking panels						
FPS-T1U/P	Rack with 3 individual outputs (floating)						
Rear AC input Configurations							
FPS1000-12	12	10.5 - 13.2	72	864	150	80 / 83	14.3 to 15.7
FPS1000-12/S	12	10.5 - 13.2	72	864	150	80 / 83	14.3 to 15.7
FPS1000-24	24	21.5 - 29	40	960	200	83 / 86	31 to 34
FPS1000-24/S	24	21.5 - 29	40	960	200	83 / 86	31 to 34
FPS1000-32	32	28.8 - 38.4	31	992	250	84 / 87	41.5 to 45.5
FPS1000-32/S	32	28.8 - 38.4	31	992	250	84 / 87	41.5 to 45.5
FPS1000-48	48	43 - 58	21	1008	300	85 / 88	62 to 66
FPS1000-48/S	48	43 - 58	21	1008	300	85 / 88	62 to 66
FPS-S1U	Rack (3 slot), contains two blanking panels						
FPS-T1U	Rack with 3 individual outputs (floating)						

Model Selector (Full Systems)				
Model	Description	Output Voltage (V)	Max Current (A)	Max Power (W)
FPS3000-24/P	3 x FPS1000-24/P, 1 x FPS-S1U/P	24	120	2880
FPS3000-24/PS	3 x FPS1000-24/PS, 1 x FPS-S1U/P	24	120	2880
FPS3000-48/P	3 x FPS1000-48/P, 1 x FPS-S1U/P	48	63	3000
FPS3000-48/PS	3 x FPS1000-48/PS, 1 x FPS-S1U/P	48	63	3000

<b>FPS1000-</b>	<b>12</b>	<b>/</b>	<b>S</b>
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Output voltage 12, 24, 32, 48

BLANK	No I <sup>2</sup> C
S	I <sup>2</sup> C interface
P	Front IEC320-C14 AC Inlet Connector
POE*	1500Vac Output to Ground Isolation (output noise 400mV) *FPS1000-48 only

<b>FPS3000-</b>	<b>24</b>	<b>/</b>	<b>S</b>
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Output voltage 24, 48

Blank	No I <sup>2</sup> C
S	I <sup>2</sup> C interface
P	Front IEC320-C14 AC Inlet Connector

**Specifications**

Model	FPS1000-12	FPS1000-24	FPS1000-32	FPS100048
<b>Input</b>				
Input Voltage Range (2)	Vac / Vdc 85 - 265 / 120 - 360 (Derate to 90% load below 100Vac)			
Input Frequency (2)	Hz 47 - 63			
Input Current (100/200Vac)	A 12 / 6			
Inrush Current	A <40			
Leakage Current	mA <1.1 at 230Vac input			
Power Factor Correction	- >0.98 at full load			
Harmonic Compliance	- Meets EN61000-3-2 class A (20 - 100% load),			
Hold Up Time (100 Vac input)	ms 20 typical (800W loading)			
Efficiency (typ) 100 / 200Vac	% See model selector			
Conducted & Radiated EMI	- Built to meet EN55032B, FCC part 15J-B, VCCI-B			
Immunity	- See immunity section			
Insulation Class	- Class I			
Safety Certifications and Markings	- IEC/UL/CSA/EN62368-1, 60950-1, CE Mark and UKCA Mark			

**Immunity**

Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	±8kV air discharge, ±6kV contact discharge	B	See test report on website
Radiated Susceptibility	EN61000-4-3	3V/m	B	
Electrical Fast Transient Burst	EN61000-4-4	±2kV	B	
Surge	EN61000-4-5	±4kV common mode ±2kV differential mode	B	
Conducted Susceptibility	EN61000-4-6	3Vrms, 150kHz - 80 MHz	B	

Specifications					
Model		FPS1000-12	FPS1000-24	FPS1000-32	FPS100048
<b>Output</b>					
Line Regulation	%	<0.4			
Load Regulation	%	<0.8			
Ripple & Noise	mV	See model selector			
Temperature Coefficient	%/°C	<0.02			
Minimum Load	-	No minimum load required			
Overcurrent Protection	%	104 - 125 of maximum output current			
Overvoltage Protection	V	See model selector			
Overtemperature Protection	-	Yes, automatic reset			
Remote Sense	-	Yes (must be connected for proper operation)			
Remote On/Off	-	ON = 0 - 0.6V or Short; OFF = 2 - 15 V or Open. Maximum sink current 2.6mA.			
DC OK	-	Open collector signal. On when Vout > 80 ±5% rated output. Max. sink current 10mA.			
AC Fail and Overtemperature warning	-	Open collector signal. Refer to Instruction Manual			
Standby Voltage	-	12V (11.2 - 12.5V) @ 0.25A isolated (always on)			
Indicators	-	AC OK, DC OK, DC Fail			
Parallel Operation	-	Up to eight FPS1000 units. Refer to Instruction Manual.			
<b>Environmental</b>					
Operating Temperature (non /P models)	°C	0 to +50 100% load, derate 2%/°C, 50 to 60, derate 2.5% /°C , 60 to 70			
Operating Temperature ( /P models)	°C	0 to +50 100% load, derate 2%/°C, 50 to 60			
Storage Temperature	°C	-30 to +85			
Humidity (non condensing)	%RH	Operating: 10 - 90, Storage: 10 - 95			
Cooling	-	Internal variable speed fans. Airflow enters from the front.			
Altitude	m	3,000			
Withstand Voltage (For 1 minute)	-	Input to Ground 2kVac, Input to Output 3kVac, Output to Ground 500Vac.			
Isolation Resistance	MΩ	>100 at 25°C, 70%RH. Output to Ground 500Vdc			
Vibration (Non-operating)	-	Meets ETS 300 019			
Shock	-	Meets ETS 300 019			
<b>Other</b>					
Weight (Typ)	g	Power Supply: 2000, Rack: 3700			
Size (LxWxH)	mm	Power supply: 290 x 127 x 41 Rack: 351 x 483 x 43.6			
Size (LxWxH)	in	Power supply: 11.4 x 5 x 1.61 Rack: 13.8 x 19 x 1.72			
MTBF - JEITA	Hours	79,395			
Warranty	Years	2			

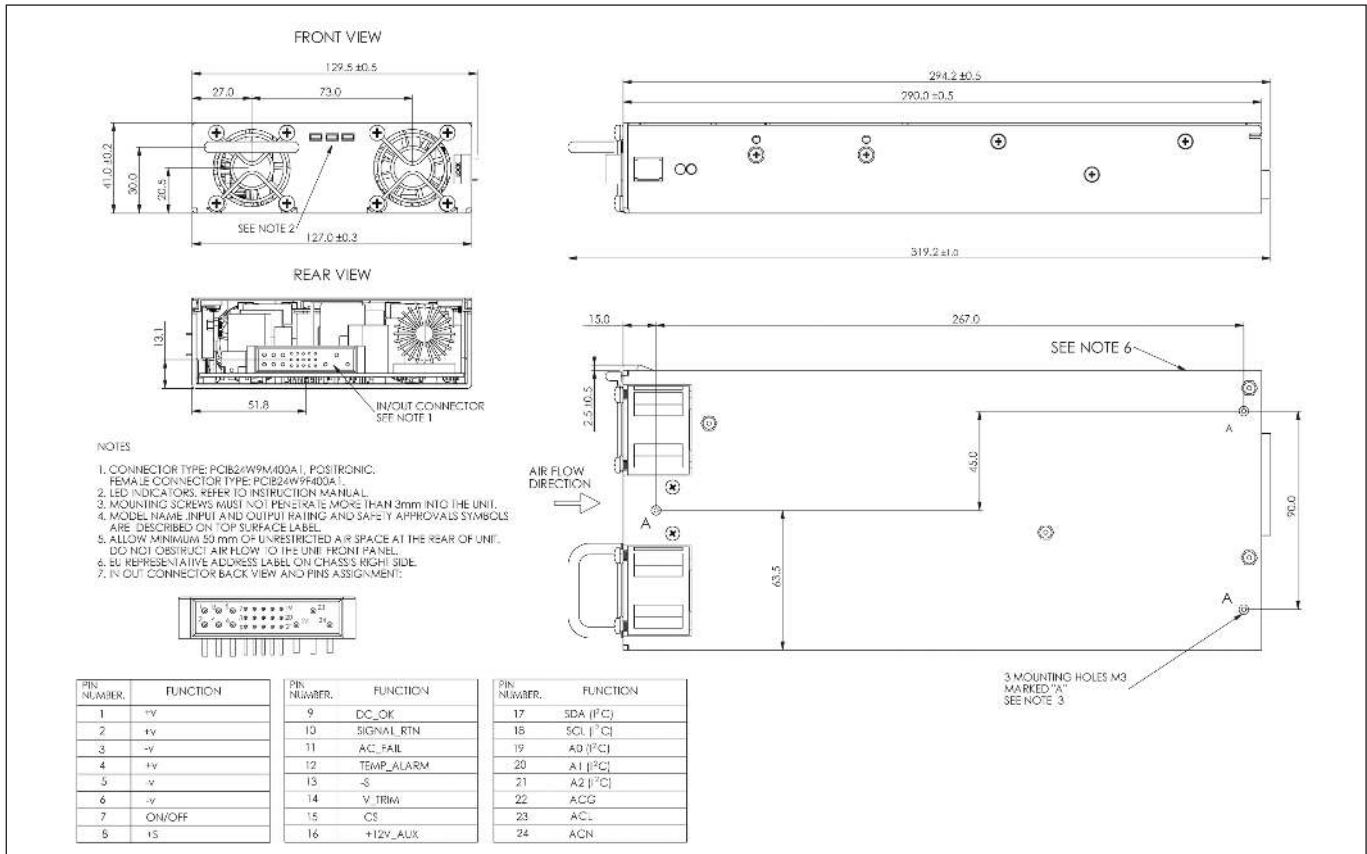
**Notes**

See website for detailed specifications, test methods and installation manual

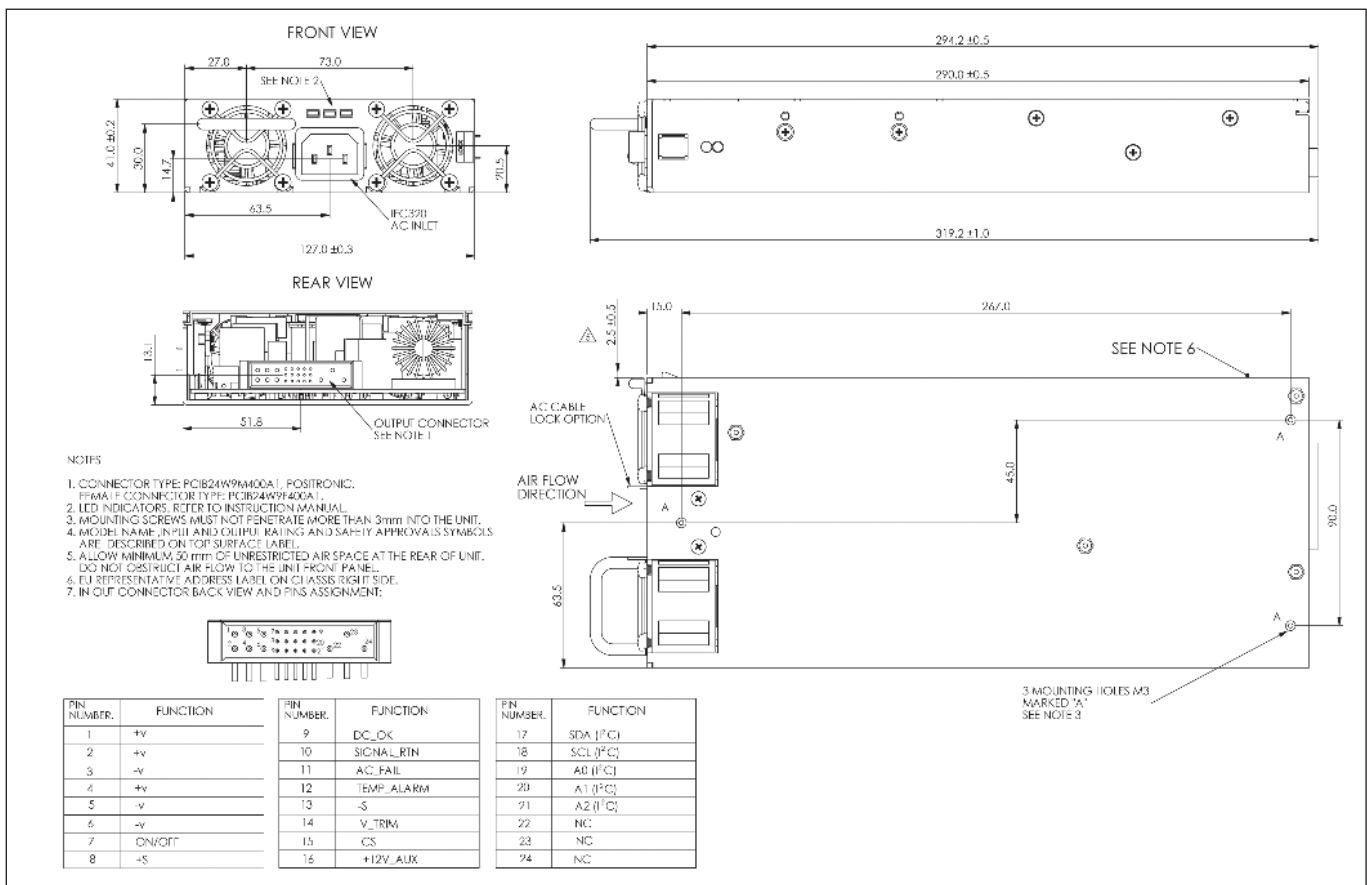
(1) Via Trim pin on output connector

(2) 47 - 440Hz with reduced PFC (100 - 265Vac). Safety certified for AC input and 47-63Hz only

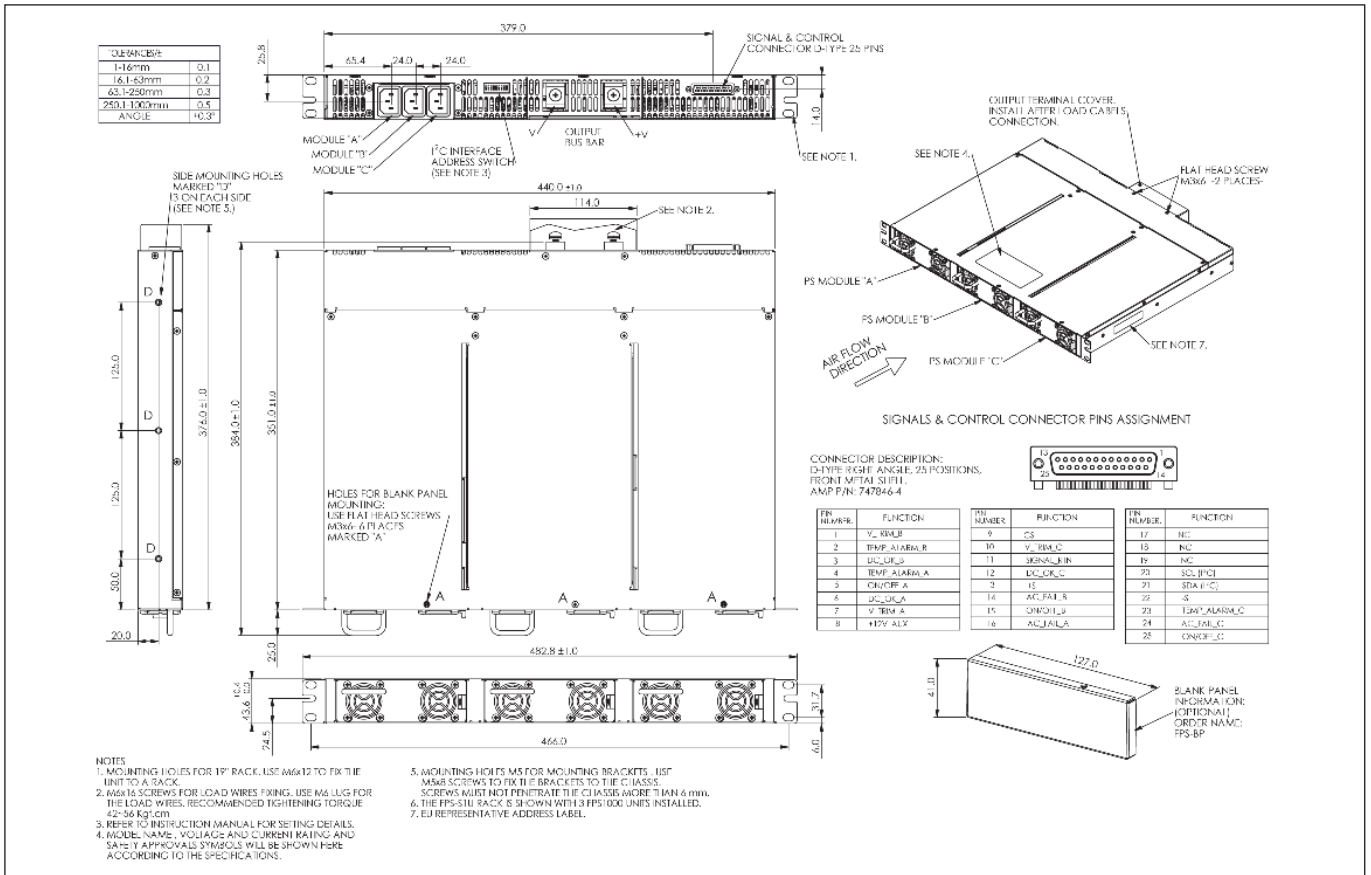
Outline Drawing FPS1000



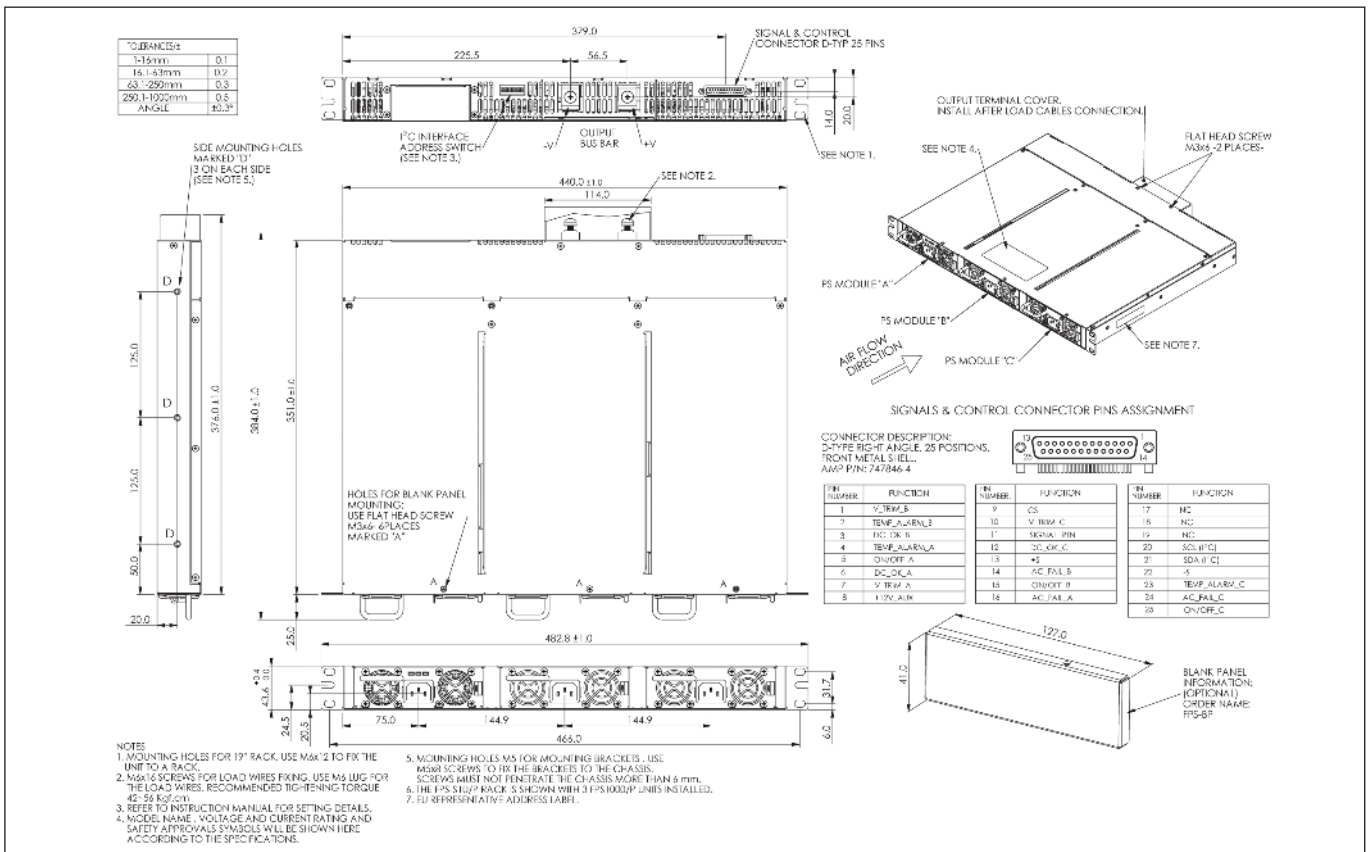
Outline Drawing FPS1000/P



## Outline Drawing FPS-S1U



## Outline Drawing FPS-S1U/P



Outline Drawing FPS-S1U/TB

**TABLE 1: DIMENSIONS**

UNIT	VALUE	TOLERANCE
mm	1-16	0.1
mm	1.61-6.35	0.2
mm	6.35-25.4	0.3
mm	25.4-100	0.5
mm	100-254	1.0

**NOTES:**

- MOUNTING HOLES FOR 19" RACK. USE M6x12 TO FIX THE UNIT TO A RACK.
- M6x12 SCREWS FOR LOAD WIRES FIXING. USE M5 LUG FOR THE LOAD WIRES. RECOMMENDED TIGHTENING TORQUE: 42-55 Kgf.cm.
- REFER TO THIS FUNCTION MANUAL FOR SETTING DETAILS.
- MODEL NAME, VOLTAGE AND CURRENT RATING AND SAFETY APPROVAL SYMBOLS WILL BE SHOWN HERE ACCORDING TO THE SPECIFICATIONS.
- MOUNTING HOLES M5 FOR MOUNTING BRACKETS. USE M5x8 SCREWS TO FIX THE BRACKETS TO THE CHASSIS. SCREWS MUST NOT PENETRATE THE CHASSIS MORE THAN 3 mm.
- THE FPS-S1U/TB RACK IS SHOWN WITH 3 FPS1000 UNITS INSTALLED.
- EU REPRESENTATIVE ADDRESS LABEL.

**CONNECTOR DESCRIPTION:**  
D-TYPE RIGHT ANGLE, 25 POSITIONS, FRONT METAL SHELL, AMP P/N: 747046-1

PIN NUMBER	FUNCTION	PIN NUMBER	FUNCTION	PIN NUMBER	FUNCTION
1	V. TRIM 1	9	CS	17	NC
2	TEMP ALARM 3	10	V. TRIM 2	18	NC
3	DC OK 1	11	SDM 1/2	19	NC
4	TEMP ALARM 4	12	DC OK 2	20	SDI OF CO
5	ENOFF_A	13	VS	21	SDI OF CO
6	DC OK 2	14	AC FAIL 1	22	S
7	V. TRIM 4	15	ENOFF_B	23	TEMP ALARM 1
8	TEMP ALARM 1	16	AC FAIL 2	24	AC FAIL 1
				25	ENOFF_C

Outline Drawing FPS-T1U

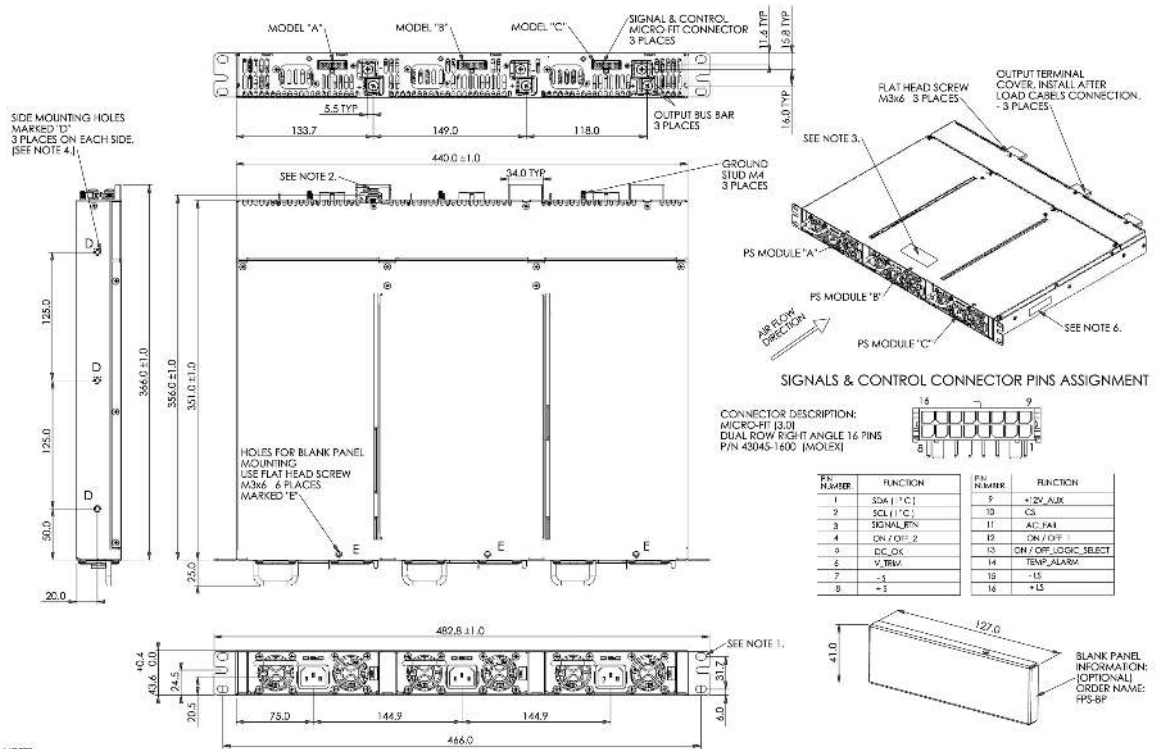
**NOTES:**

- MOUNTING HOLES FOR 19" RACK. USE M6x12 TO FIX THE UNIT TO A RACK.
- M6x12 SCREWS FOR LOAD WIRES FIXING. USE M5 LUG FOR THE LOAD WIRES. RECOMMENDED TIGHTENING TORQUE: 24-31 Kgf.cm.
- MODEL NAME, VOLTAGE AND CURRENT RATING AND SAFETY APPROVAL SYMBOLS WILL BE SHOWN HERE ACCORDING TO THE SPECIFICATIONS.
- MOUNTING HOLES M5 FOR MOUNTING BRACKETS. USE M5x8 SCREWS TO FIX THE BRACKETS TO THE CHASSIS. SCREWS MUST NOT PENETRATE THE CHASSIS MORE THAN 3 mm.
- THE FPS-T1U RACK IS SHOWN WITH 3 FPS1000 UNITS INSTALLED.
- EU REPRESENTATIVE ADDRESS LABEL.

**CONNECTOR DESCRIPTION:**  
MICRO-FIT (3.0) DUAL ROW RIGHT ANGLE 16 PINS P/N 4345-1600 (MOLEX)

PIN NUMBER	FUNCTION	PIN NUMBER	FUNCTION
1	SDA (I <sup>2</sup> C)	9	+12V AUX
2	SCL (I <sup>2</sup> C)	10	CS
3	SIGNAL_BN	11	AC FAIL
4	ON / OFF_2	12	ON / OFF_1
5	DC OK	13	ON / OFF_SELECT
6	V. TRIM	14	TEMP ALARM
7	-S	15	-LE
8	+S	16	+LS

## Outline Drawing FPS-T1U/P



**NOTES**  
 1. MOUNTING HOLES FOR 19" RACK. USE M&M12 TO FIX THE UNIT TO A RACK.  
 2. M&M 2 SCREWS FOR LOAD WIRE SPRING. USE M&M LUG FOR THE LOAD WIRE. RECOMMENDED TIGHTENING TORQUE 24-31 Kgf.cm.  
 3. WOOD NAME, VOLTAGE AND CURRENT RATING AND SAFETY APPROVALS SYMBOLS WILL BE SHOWN HERE ACCORDING TO THE SPECIFICATIONS.

4. MOUNTING HOLES M5 FOR MOUNTING BRACKETS. USE M&M8 SCREWS TO FIX THE BRACKET TO THE CHASSIS. SCREWS MUST NOT PENETRATE THE CHASSIS MORE THAN 6 mm.  
 5. THE FPS-T1U RACK IS SHOWN WITH 3 FPS1020 UNITS INSTALLED.  
 6. EU REPRESENTATIVE ADDRESS LABEL.





**TDK-Lambda France SAS**

Tel: +33 1 60 12 71 65  
france@fr.tdk-lambda.com  
www.emea.lambda.tdk.com/fr



**Italy Sales Office**

Tel: +39 02 61 29 38 63  
info.italia@it.tdk-lambda.com  
www.emea.lambda.tdk.com/it



**Netherlands**

info@nl.tdk-lambda.com  
www.emea.lambda.tdk.com/nl



**TDK-Lambda Germany GmbH**

Tel: +49 7841 666 0  
info@de.tdk-lambda.com  
www.emea.lambda.tdk.com/de



**Austria Sales Office**

Tel: +43 2256 655 84  
info@at.tdk-lambda.com  
www.emea.lambda.tdk.com/at



**Switzerland Sales Office**

Tel: +41 44 850 53 53  
info@ch.tdk-lambda.com  
www.emea.lambda.tdk.com/ch



**Nordic Sales Office**

Tel: +45 8853 8086  
info@dk.tdk-lambda.com  
www.emea.lambda.tdk.com/dk



**TDK-Lambda UK Ltd.**

Tel: +44 (0) 12 71 85 66 66  
info@uk.tdk-lambda.com  
www.emea.lambda.tdk.com/uk



**TDK-Lambda Ltd.**

Tel: +9 723 902 4333  
info@tdk-lambda.co.il  
www.emea.lambda.tdk.com/il



**C.I.S.**

**Commercial Support:**

Tel: +7 (495) 665 2627

**Technical Support:**

Tel: +7 (812) 658 0463  
info@tdk-lambda.ru  
www.emea.lambda.tdk.com/ru



**TDK-Lambda Americas**

Tel: +1 800-LAMBDA-4 or 1-800-526-2324  
powersolutions@us.tdk-lambda.com  
www.us.lambda.tdk.com



**TDK Electronics do Brasil Ltda**

Tel: +55 11 3289-9599  
sales.br@tdk-electronics.tdk.com  
www.tdk-electronics.tdk.com/en



**TDK-Lambda Corporation**

Tel: +81-3-6778-1113  
www.jp.lambda.tdk.com



**TDK-Lambda (China) Electronics Co. Ltd.**

Tel: +86 21 6485-0777  
powersolutions@cn.tdk-lambda.com  
www.lambda.tdk.com.cn



**TDK-Lambda Singapore Pte Ltd.**

Tel: +65 6251 7211  
tis.mkt@sg.tdk-lambda.com  
www.sg.lambda.tdk.com



**TDK India Private Limited, Power Supply Division**

Tel: +91 80 4039-0660  
mathew.philip@in.tdk-lambda.com  
www.sg.lambda.tdk.com

For Additional Information, please visit  
<https://product.tdk.com/en/power/>

