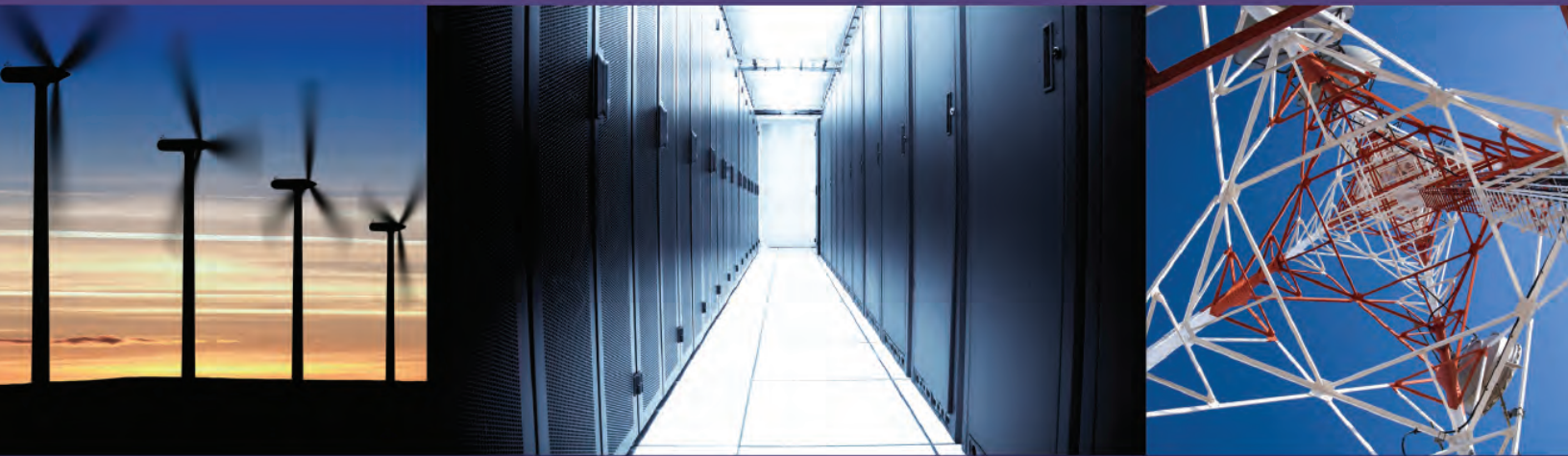


AC/DC & DC/DC POWER MODULES MERCURY SERIES



DEMANDING APPLICATIONS DEMAND TDI POWER

Mercury Series Power Modules

Hot swap redundant power solutions

AC/DC rectifiers/front ends and DC/DC modules are available in three mechanical package sizes with output power rated versions of 800W, 1200W, 2700W, 3800W & 4300W. Using the modules and shelves, systems may be configured to suit a wide range of applications in the IT & Industrial Markets.

Although commercial grade, these modules possess features deserving of military grade products, with selected modules tested to Mil Standard requirements. With an extended input voltage range, high power density and efficiency, the Mercury family is an ideal choice for distributed power architectures and standby battery systems.

FEATURES

- Extended/Wide Range Input from 90V to 275V/300V or more
- High Efficiency (up to 93%)
- Standard depth modules offered in 1U or 2U formats
- Short depth modules suit 300mm (12") rack ETSI
- Output voltage options from 12V to 390V
- Active FET OR'ing for high efficiency redundant solutions
- -40C to +65C temperature operational range (full performance between -20C and +55C)
- Droop current sharing allows very large solutions to be easily configured

BENEFITS

- >1M hours field proven reliability
- Very high power capability per rack (circa 300kW)
- Tailored Versions Available

OPTIONS

- Temperature controlled fan speed
- CanBus control & monitoring
- Environmentally hardened fan cooled versions to suit "Dirty" atmospheres
- Some models are available as true convection cooled Environmentally Sealed Power Modules (ESPM) offering IP67 protection
- Liquid cooled power shelf
- Tailored versions with custom Alarm & Controls, and output options available.

General Module Specifications...



AC INPUT

Input Voltage: see Table 1
Frequency: 47-63Hz
Power Factor: 0.99 typical
Harmonics: Compliant to EN61000-3-2
Input Overcurrent: (Internal) Fuse

DC OUTPUT

Accuracy: $\pm 50\text{mV}$
Ripple & Noise: 1% V P-P Measured with 20Mhz Bandwidth
Line Regulation: Less than $\pm 0.25\%$
Load Regulation: $\pm 1.0\%$ from no load to full load (droop load share)
Parallel Use: May be paralleled with other like units for increased system output, redundant diode included
Current Sharing: Slope program current share, (droop)
Temperature Coefficient: $< \pm 0.02\%$ per $^{\circ}\text{C}$

ELECTRONIC ALARMS (Basic Set, others available)

AC OK: low when AC input is in range
Output OK: low if the output voltage is within 10% of the actual voltage set point
(low= $<.6\text{V}@1\text{mA}$)
(high=open collector ($I<50\mu\text{A}$))

VISUAL FAULT INDICATORS

Output OK: A front panel Green "Output OK" LED will be lit if the unit's output is within the acceptable range.

ELECTRONIC CONTROL INPUTS

Remote Inhibit: Application of a TTL input signal will cause the supply to shut down and an output OK fault alarm will be issued. (TTL High = Inhibit)
Remote Program: Provides +9%, -27% of set point voltage with 0 to 5V control signal

ELECTRONIC ALARMS (Basic Set, others available)

AC OK: low when AC input is in range
Output OK: low if the output voltage is within 10% of the actual voltage set point (low= $<.6\text{V}@1\text{mA}$) (high=open collector ($I<50\text{A}$))
CAN Bus: available option on some models

TEMPERATURE

Normal Operation: -20 to +55 $^{\circ}\text{C}$
High Temperature Operation: derate 10% per $^{\circ}\text{C}$, 55 to 65 $^{\circ}\text{C}$
Low Temperature Turn On: -40 $^{\circ}\text{C}$ Minimum
Storage / Transportation: -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$
Humidity Operating: 5% to 95% RH non-condensing
Storage: 0% to 99% RH non-condensing

ISOLATION

Input to Output: 3000 VAC RMS
Input to Ground: 1500 VAC RMS
Output to Ground: 1000 VDC
Temperature: Heating
Normal Operation: -20 to +55 $^{\circ}\text{C}$
High Temperature Operation: derate 10% per $^{\circ}\text{C}$, 55 to 65 $^{\circ}\text{C}$

AGENCY COMPLIANCE

CE Marked: Low Voltage Directive only standards
Electrical safety: IEC 60950-1, UL 60950-1
EMI (conducted): FCC Part 15, Sub-part J, class A and EN55022, class A
EMI (radiated): Stand alone module tested to EN55022 Class B.
Harmonics: EN 61000-3-2
EN 61000-6-1 (Immunity, light industry)
EN 61000-6-2 (Immunity, industry)
EN 61000-6-3 (Emissions, light industry)
EN 61000-6-4 (Emissions, industry)
RoHS compliant

* Consult individual data sheets for more details of specific modules and for details of DC/DC Modules



TDI Power can offer Mercury solutions for harsh environments. The forced-air cooled units can be manufactured with environmental protective hardening . This silicone conformal coating of the PCB provides substantial enhanced protection for challenging environments. Modules are also available with an IP67 rating, operating in a true convection cooled configuration.

Models Available...



AC/DC Modules

	Standard Depth 1U High	Standard Depth 2U High	Short Depth 2U High
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AC/DC Modules	Power	Output Voltages		
		Standard Depth 1U High	Standard Depth 2U High	Short Depth 2U High
Universal Input (90V to 275/300V)*	800W			+27V
				-54V
	1200W	+12V	+12V	
		+24/+27V	+24/+27V	
		-54V/48V	-54V/48V	
1900W	+130V	+130V		
		+27V		
		-54V		
High Line Only (185V to 275/300V)*	1200W			+27V
				-54V
	2700W	+27V	+27V	
		-54V/+48V	-54V/+48V	
		+130V	+130V	
			+270V to 390V (constant power)	
3800W		-54V/+48V		
4300W		-54V		

TABLE 1

DC/DC Modules

	Standard Depth 1U High	Standard Depth 2U High	Short Depth 2U High
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DC/DC Modules	Power	Standard Depth 1U High	Standard Depth 2U High	Short Depth 2U High
-40 to -60V input	1200W		+27V	
-30 to -52V input	1200W		-54V	

TABLE 2

* Maximum input voltage dependant upon specific model type

Integrated Mercury Systems...

With their power range, efficiency and thermal capabilities, Mercury rectifiers are the ideal basis for a wide range of applications.

LARGE INDOOR POWER RACK

For high power indoor applications up to around 300kW of regulated DC power can be provided by just one power cabinet with 20 x 2U shelves.

OUTDOOR SYSTEM

For lower power outdoor applications a single shelf along with integrated alarms and battery interface integrated into an outdoor cabinet offers a compact solution.

2U Liquid-Cooled Mercury Shelf

Use of the semi sealed water cooled shelf assembly using standard air cooled power modules provides scope to address many applications. The 2U shelf accommodates 3 standard power modules. The rectifiers' fans force the waste heat through the integral air-liquid heat exchanger such that the circulating coolant carries away the heat to an external chiller. This solution is ideal for challenging environments. It is beneficial to eliminate air circulation in both very dusty and "clean air" applications



COMPACT POWER SYSTEMS

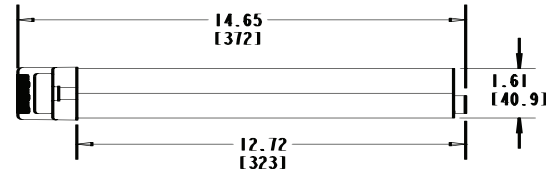
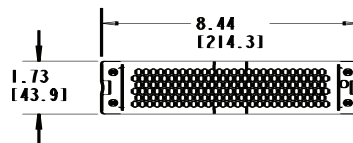
Rail mounted systems with batteries, controller, distribution and rectifiers can be configured to provide a wide range of power.



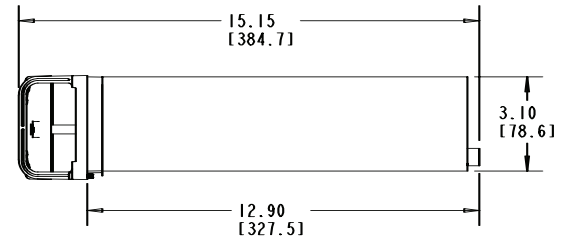
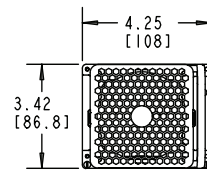
1U & 2U Modules & Outlines

Mechanical outline details for the three package sizes are shown below. Front panel types and cosmetic details can vary dependant upon specific product.

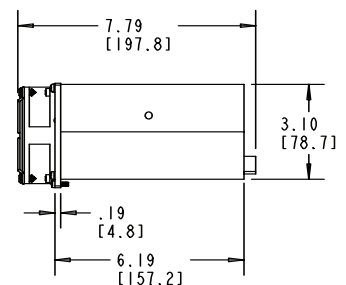
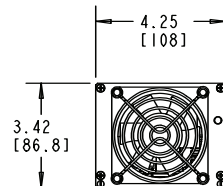
1U MODULE



2U MODULE



2U SHORT DEPTH MODULE



*Dimensions shown are in inches (mm)

1U & 2U Shelf Details & Outlines

1U & 2U SHELF MECHANICAL SPECIFICATIONS

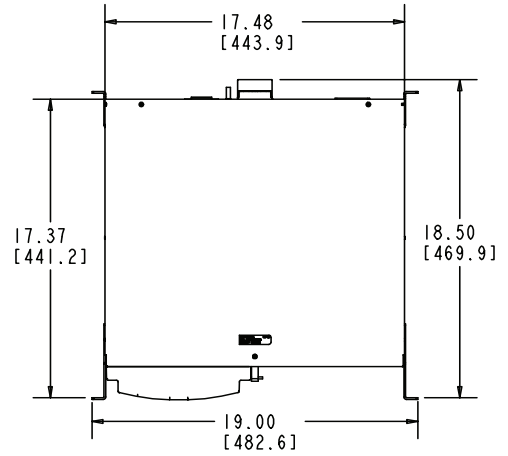
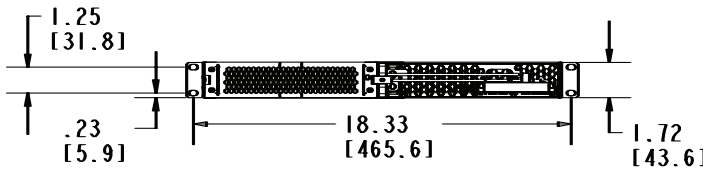
WEIGHT

1U Standard depth Shelf: 11lbs. (4.5kg)
 2U Standard depth Shelf: 14lbs. (6.4kg)
 2U Short depth Shelf: 7lbs. (3.2kg)

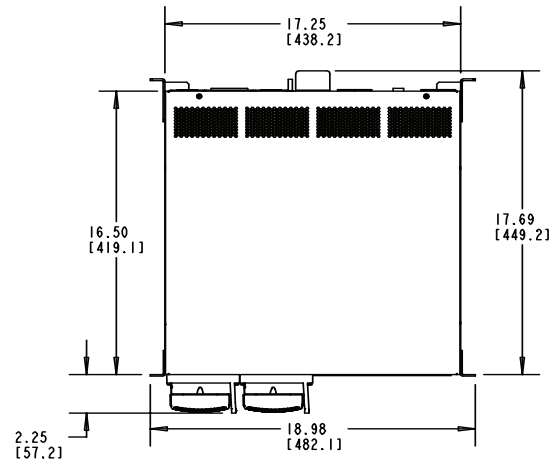
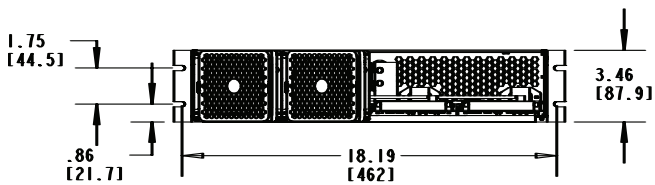
MECHANICAL

Mounting: 19" cabinet
 19" telco rail
 23" telco rail
 ETSI Cabinet
 Earth Ground Connection: 1/4" - 20 stud

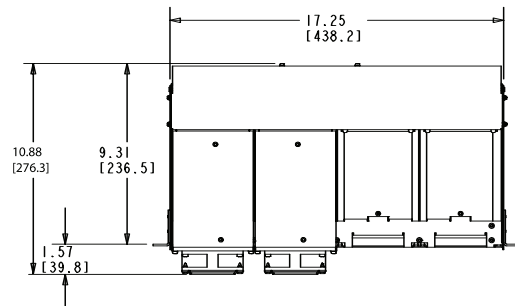
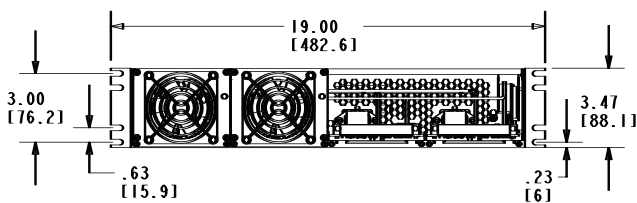
1U SHELF



2U SHELF



2U SHORT DEPTH SHELF





TDI Power

36 Newburgh Rd.

Hackettstown, NJ 07840

Phone: 908.850.5088

Fax: 908.850.0540

tdipower.com

info@tdipower.com