1000W AC/DC Switching Power Supply
Model: TG17-1000-01



FEATURES

- 1010W Industrial Level Power Supply.
- High efficiency (more than 92 %).
- Power ok signal.
- Built-in remote power on/off control.
- 5V/0.5A auxiliary output.
- Dual ball-bearing fan & fan fault protection.
- High power density, compact size: 11.61”x5.0”x1.61”.
- Operating altitude up to 5000m.
- Safety according to IEC62368-1 3rd.

Models & Ratings

Model No.	Output Power (W)	Output Voltage (V)	Output Current (A)	Standby Output (W)	Efficiency (%) Typ. (1)	External Cap. Load (μF) (2)
TG17-1000-01	1010	48	21	5V / 0.5A	92%	470

Notes:
1. Typical values are measured at maximum load and 230Vac/50Hz input voltage at 25°C.
2. During transient response testing, an external 470μF capacitor shall be added at the +48 V output.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Maximum.	Unit
Input Voltage Range	Low line		90	100-120	132	VAC
	High line		180	200-240	264	VAC
Input Frequency	-		47	50-60	63	Hz
Input Current	100VAC & Maximum load		-	-	13	Arms
	200VAC & Maximum load		-	-	6.5	
Inrush Current	100VAC	At 25°C, Cold start	-	30	-	A peak
	200VAC		-	60	-	
Power Factor	100VAC & Maximum load		0.95	-	-	-
Leakage Current	264VAC/63Hz		-	-	3.5	mA

Notes:
1. The +48V return is isolated from the chassis ground by a bypass capacitor.

Output Specifications

Item	Operating Conditions		Min.	Typ.	Maximum.	Unit
Output Voltage	At any load and line condition		45.6	48	50.4	VDC
Output Load	-		0	-	20.84	A
Line Regulation	90 - 264VAC, maximum load		-	±0.5	-	%
Load Regulation	Output from minimum load – maximum load		-	±1	-	%
Ripple & Noise (2)	Oscilloscope Bandwidth : 20MHz	-20°C < Ta < 60°C	-	-	1	%
Regulation Transient Response (3)	Step load : 1.0 – 10.5A		-	±5	-	%
	Step load : 10.5 – 21A		-	±5	-	%
Overshoot	At power on, maximum load / no load		-	-	5	%
Time Sequence And Signal (4)	#1: The +5Vsb power on delay time ≦ 1s.		-	-	1000	mS
	#2: The +48V outputs voltages rise time from 10% to 90% (Loads are C.R mode) during 1ms to 50ms.		1	-	50	mS
	#3: PW OK signal turn on delay time of 100~500ms compared with +48V output.		100	-	500	mS
	#4: AC loss to PW OK signal hold up time ≧ 1ms compared with +48V output.		-	-	1	mS
	#5: AC loss to +48V output hold up time ≧ 16ms.		16	-	-	mS
	#6: AC loss to PW OK signal hold up time ≧ 1ms.		1	-	-	mS
	#7: AC loss to the +5Vsb output hold up time ≧ 25ms.		25			mS
Remote on/off control(5)	VIL, Input Low Voltage		0	-	0.8	VDC
	IIL, Input Low Current (Vin = 0.4 V)		2	-	-1.6	mA
	VIH, Input High Voltage (Iin = -200μA)		2	-	5.25	VDC
	VIH open circuit, Iin = 0A		4.75	-	5.25	VDC
PW OK signal(6)	Logic level low		0	-	0.8	VDC
	Logic level high		4.5	-	5.5	

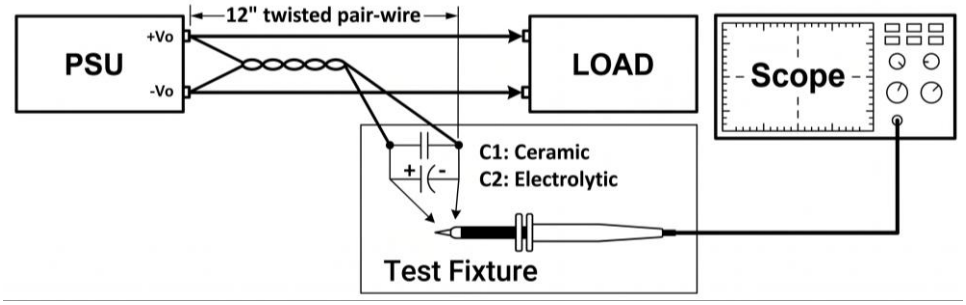
	High state output impedance			10K	Ω
	DC-OK delay time	100		500	mS
	AC loss to PG hold up time			1	mS
Over Current Protection	The overload currents should be ramped at a minimum rate of 10A/s starting from maximum. load.	-	-	28	A
Over Voltage Protection	Output shut down and latch off manual reset (Re-power on or PSON reset)	-	-	63	V
Short Circuit Protection	Output shut down and latch off manual reset (Re-power on or PSON reset)	-	-	-	-
Over Temperature Protection (7)	Output shut down and latch off manual reset (Re-power on or PSON reset)	-	-	-	-
Fan fault protection(8)	Output shut down and latch off manual reset (Re-power on or PSON reset)				

5VDC Standby Output Specifications

Item	Operating Conditions		Min.	Typ.	Maximum.	Unit
Output Voltage	-		4.75	5	5.25	VDC
Output Load	-		0	-	0.2	A
Line Regulation	90 - 264VAC, Maximum load		-	±0.5	-	%
Load Regulation	Output from 0 - 100% load		-	±1	-	%
Ripple & Noise	Oscilloscope Bandwidth : 20MHz	0°C < Ta < 50°C	-	-	1	%
Start-up Delay	115/230VAC maximum load from input AC turn on		-	-	2.0	S
Overshoot	Maximum load		-	-	5	%
Short Circuit Protection	Output shut down and auto recovery		-	-	-	-

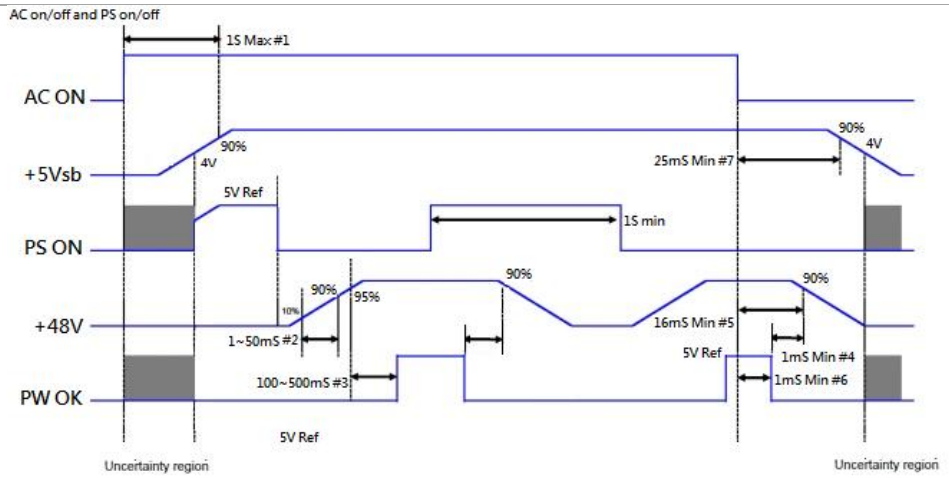
Notes:

2. Noise is measured with a resistor load (not an electronic load). The +48V output is decoupled with a 47μF low ESR aluminum electrolytic capacitor (C2) and a 0.1μF ceramic capacitor (C1).
Measurement is made with a high impedance probe connected across the decoupling capacitance. Measurements shall be made with an oscilloscope with 20MHz bandwidth.



3. Step load change is 1A/us, at 50 Hz and 5KHz.
The voltage setting should serve as the reference point for determining whether the output voltage is within ±5%.

4. Time Sequence And Signal



AC input 115Vac/60Hz and 230Vac/50Hz

#1: The +5Vsb power on delay time ≦ 1s.

#2: The +48V outputs voltages rise time from 10% to 90% (Loads are C.R mode) during 1ms to 50ms.

#3: PW OK signal turn on delay time of 100~500ms compared with +48V output.

#4: AC loss to PW OK signal hold up time ≧ 1ms compared with +48V output.

#5: AC loss to +48V output hold up time ≧ 16ms.

#6: AC loss to PW OK signal hold up time ≧ 1ms.

#7: AC loss to the +5Vsb output hold up time ≧ 25ms.

Hold up time

When AC is removed, the +48V output below 43.2V for at least 16ms with 70% of maximum load at 115Vac/60Hz & 230Vac/50Hz and 25℃

5. Remote on/off control

PS ON is an active-low, TTL-compatible signal that allows a motherboard to remotely control the power supply in conjunction with features such as soft on/off.

The power supply shall provide an internal pull-up to TTL high. The power supply shall also provide de-bounce circuitry on PS ON to prevent it from oscillating on/off at startup when activated by a mechanical switch. The DC output enable circuitry must be SELV- compliant.

6. PW OK signal

PW OK is a “power good” signal. It should be asserted high by the power supply to indicate that the +48V output is above the under-voltage thresholds (95% of output voltage rating level) listed in Section 2.0, Conversely, PG should be de-asserted to a low state when +48V output voltage falls below its under-voltage threshold, or when mains power has been removed for a time sufficiently long such that power supply operation cannot be guaranteed beyond the power-down warning time.

7. Over temperature protection

The power supply shall have thermal protection against over temperature condition caused by loss of airflow or excessive ambient temperature. The shutdown should be latching type.

8. Fan fault protection

The fan fault condition is one of the fans locked and stopped to work. The power supply +48V shall latch shutdown after fan fault is happened every time. The power supply return to normal operation after the fan fault has been removed and PS_ON signal or AC power must reset for OFF/ON cycle.

General Specifications

Item	Operating Conditions		Min.	Typ.	Maximum.	Unit
Operating Temperature (9)	Refer to power de-rating curve		-20	-	+70	°C
Power De-rating	Operating Temperature at +50°C to +70°C		2.5			%/°C
Storage Temperature	Non-operation		-40	-	+80	
Operating Humidity	Non-condensing		10	-	90	%
Storage Humidity			5	-	95	
Altitude (10)	Operating altitude		-75	-	5,000	meter
Dielectric Strength	Input - Output	1 minute, Leakage current < 10mA	3,000	-	-	VAC
	Input - FG	1 minute, Leakage current < 10mA	1,500	-	-	VAC
	Output - FG	1 minute, Leakage current < 10mA	500	-	-	VDC
Insulation Resistance	Input - Output	500VDC, 25°C, 70% RH, non-condensing	100	-	-	MΩ
	Input - FG	500VDC, 25°C, 70% RH, non-condensing	100			MΩ
Mean Time Between Failure	At 230VAC/50HZ maximum load 25°C, Telcordia SR332, issue4.		300,000	-	-	Hrs.
Vibration	Operating 2.94 m/s2, 10-500Hz, 10 minutes per cycle, 30 minutes for each X, Y and Z axis.					
	Non-operating 5.88 m/s2, 10-500Hz, 10 minutes per cycle, 30 minutes for each X, Y and Z axis.					
Shock	Non-operating (package)：20G, half sin-wave, each per axis.					

Notes:
9. Operating Temperature
Some specifications may not be met below 0°C.

10. Altitude
The ambient operating temperature decreases by 1°C for every 305m increase in altitude.

Safety Approvals

Safety Standard	Standard	UL/cUL 62368-1, 3rd Edition CB IEC 62368-1, 3rd Edition
Safety Class	-	Class I only

Electromagnetic Compatibility (EMC)

Emissions (11)	CE	EN55032(CISPR32) Class A	
	RE	EN55032(CISPR32) Class A	
	Harmonic Current	EN61000-3-2 Class A	
	Flicker	EN61000-3-3	
Immunity	ESD	EN61000-4-2, level 4, Contact +/- 8KV; Air discharge +/- 15KV	Criteria A
	RS	EN61000-4-3, level 3, 10V/m	Criteria A
	EFT	EN61000-4-4, level 3, +/- 2KV	Criteria A
	Surge	EN61000-4-5, level 3, Line to Line +/-1KV; Line to Earth +/-	Criteria A

		2KV	
	CS	EN61000-4-6	Criteria A
	PFMF	EN61000-4-8	Criteria A
	DIP	EN61000-4-11	Criteria B

11.The power supply should be considered a part of the system component. All EMC tests conducted with the unit installed in a metal enclosure dummy system. The power supply needs to be confirmed for electromagnetic compatibility in conjunction with the terminal equipment.

Dimensions and Recommended Layout

Item	Value	Unit
Weight (Typ.)	460 (Ref.)	g
Size (L x W x H)	295 x 127 x 41	mm

Outline Drawing: (Unit: mm, Tolerance: ±0.5 mm)

