960W AC/DC Switching Power Supply
Model: TG21-0960-01



FEATURES

- Universal 90 - 264VAC input voltage.
- Operating ambient temperature range: 0°C to +50°C.
- Built-in active PFC function.
- Output short circuit, over-current, over-voltage protection, Over-temperature protection.
- High efficiency up to 91%.
- Remote control option.
- High power density, compact size: 11.61"x5.0"x1.61".
- Operating altitude up to 5,000m.
- Safety according to IEC62368-1.

Models & Ratings

Model No.	Output Power (W)	Output Voltage (V)	Output Current (A)	Standby Output (W)	Efficiency (%) Typ. (1)	External Cap. Load (μF) (2)
TG21-0960-01	960	24	40	5V / 0.2A	91	470

Notes:
1. Typical values are measured at 50% of maximum load and 230Vac/50Hz input voltage at 25°C.
2. During transient response testing, an external 470 μF capacitor shall be added at the +24 V output.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		90	100-240	264	VAC
Input Frequency	-		47	50-60	63	Hz
Input Current	115VAC & maximum load		-	-	13	Arms
	230VAC & maximum load		-	-	6.5	
Inrush Current	115VAC	At 25°C, Cold start	-	30	-	A peak
	230VAC		-	60	-	
Power Factor	115VAC & maximum load		0.95	-	-	-
	230VAC & maximum load		0.95	-	-	-
Standby power consumption	230VAC, no load		-	-	0.5	W
Earth Leakage Current	264VAC/63Hz		-	-	3.5	mA

Main Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage	-		22.8	24	25.2	VDC
Output Load	-		0	-	40	A
Line Regulation	90 - 264VAC, maximum load		-	±0.5	-	%
Load Regulation	Output from minimum load – maximum load		-	±1	-	%
Ripple & Noise (3)	Oscilloscope Bandwidth : 20MHz		-	-	0.5	%
Transient Response	Step load : 20 – 40A			±5		%
Turn on Delay Time	115/230VAC maximum load from input AC turn on		-	-	2	S
Rise Time	Maximum load, 10% to 90% of output voltage		1	-	100	mS
Hold-up Time	At 25°C, 115/230V VAC & maximum load, 90% of output voltage		16	-	-	mS
Short Circuit Protection	Output shut down and latch off, manual reset (Re-power on or Re-remote on)		-	-	-	-
Over Current Protection	Output shut down and latch off, manual reset (Re-power on or Re-remote on)		-	-	140	%
Over Voltage Protection	Output shut down and latch off, manual reset (Re-power on or Re-remote on)		110	-	150	%
Over Temperature Protection (4)	Output shut down and latch off, manual reset (Re-power on or Re-remote on)		-	-	-	-
Remote Control	Main output on	PS-ON = High	2	-	5.25	VDC
	Main output off	PS-ON = Low	0	-	0.8	
PG Signal	Power OK = high	PG signal turn on delay time	100	-	500	mS
	Power not OK = low	PG signal inactive to DC loss delay	2	-	-	mS
	Logic level high level	sourcing 400 µA max	2	-	5.25	VDC
	Logic level low level	sinking 3mA max	0	-	0.8	VDC

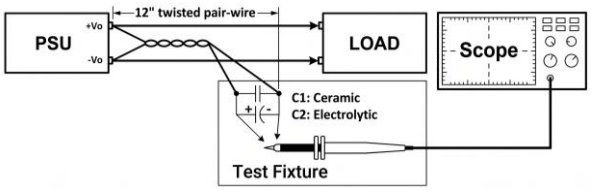
5VDC Standby Output Specifications (Option)

Item	Operating Conditions	Min.	Typ.	Max.	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 (3)	Oscilloscope Bandwidth : 20MHz	-	-	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:

3. The +24V output is decoupled with 47µF low ESR aluminum electrolytic (C2) and 0.1µF ceramic capacitor (C1). The +5Vsb output is decoupled with 10µF low ESR aluminum electrolytic (C2) and 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.



4. 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 off type.

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Operating Temperature (5)	-		-20	-	+70	°C
Power De-rating	Operating Temperature at +50°C to +70°C		2.5			%/°C
Storage Temperature	Non-operation		-40	-	+80	°C
Operating Humidity	Non-condensing		10	-	90	%
Storage Humidity			5	-	95	
Altitude (6)	Operating altitude		-	-	5,000	meter
Electrical Strength Test (7)	Input - Output	Electrical strength test for 1 minute, leakage current is less than 10mA.	3,000	-	-	VAC
	Input - FG		1,800	-	-	
	Output - FG		500	-	-	VDC
Insulation Resistance	Input - Output	25±5°C, 70% RH, non-condensing testing voltage 500VDC.	20	-	-	MΩ
	Input - FG		20	-	-	
	Output - FG		20	-	-	
Mean Time Between Failure	At 230VAC/50HZ full load 25°C, Telcordia SR332, issue 4.		300,000	-	-	Hrs.
Vibration	Operating：0.3G, 5-150Hz, 10 min/cycle, 30 min each axis (X, Y, Z)					
Shock	Non-operating (package)：20G, half-sine, 11 ms, 1 shock per direction per axis (X, Y, Z)					

Notes:
5. Some specifications may not be met below 0°C.
6. For every 305 meters of altitude increase, the operating ambient temperature needs to be decreased by 1°C.
7. The electric strength test of LY production line was conducted for 3 seconds, and the leakage current was less than 10mA.

Safety Approvals

Safety Standard	-	UL/cUL UL62368-1, 2nd Edition; CB IEC62368-1, 2nd Edition; EN62368-1 2nd Edition.
Safety Class	-	Class I only

Electromagnetic Compatibility (EMC)

Emissions (8)	CE	EN55032(CISPR32) Class A, FCC part 15 Class A	
	RE	EN55032(CISPR32) Class A, FCC part 15 Class A	
	Harmonic Current	EN61000-3-2 Class A	
	Flicker	EN61000-3-3	
Immunity	ESD	EN 61000-4-2, level 4, Contact +/- 8KV; Air discharge +/- 15KV	Criteria A

	RS	EN 61000-4-3, level 3, 10V/m	Criteria A
	EFT	EN 61000-4-4, level 3, +/- 2KV	Criteria A
	Surge	EN 61000-4-5, level 3, Line to Line +/-1KV; Line to Earth +/-2KV	Criteria A
	CS	EN 61000-4-6, level 2	Criteria A
	PFMF	EN 61000-4-8, level 3	Criteria A
	DIP	EN 61000-4-11	Criteria B

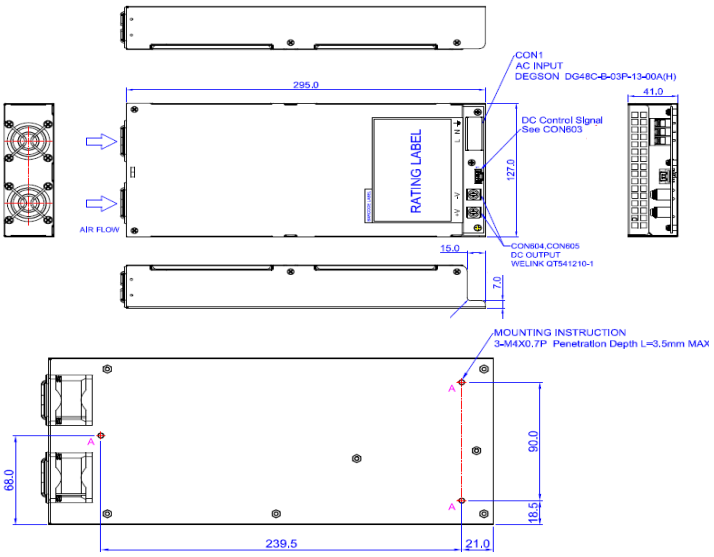
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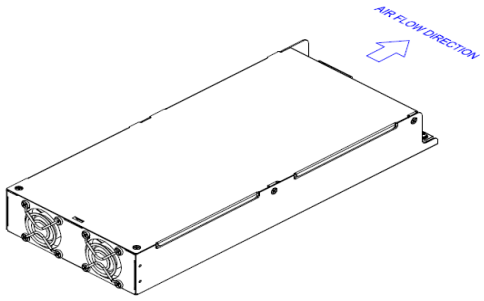
8.The power supply should be considered a part of the system component. All EMC tests conducted with the unit installed in a metal enclosure dummy system. The power supply needs to be confirmed for electromagnetic compatibility in conjunction with the terminal equipment.

Dimensions and Recommended Layout

Item	Value	Unit
Weight (Typ.)	1,700 (Ref.)	g
Size (L x W x H)	295 x 127 x 41	mm

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





CON603 CONNECTOR TYPE
MOLEX 557550619



Control Signal

Pin	Define
1	N/C
2	PW OK
3	PS ON
4	+5Vsb_RTN
5	+5Vsb_RTN
6	+5Vsb

* Note : Pin 3 PS_ON is an active-low