

iStarUSA™

SPECIFICATION

MODEL NO. TC-1020PD1

1020 WATTS SWITCHING POWER SUPPLY

1.0 INPUT:

- 1.1 VOLTAGE
- 1.2 FREQUENCY
- 1.3 CURRENT
- 1.4 INRUSH CURRENT
- 1.5 POWER EFFICIENCY
- 1.6 LEAKAGE CURRENT
- 1.7 POWER FACTOR

2.0 OUTPUT:

- 2.1 REMOTE ON/OFF
- 2.2 HOLD-UP TIME
- 2.3 POWER GOOD DELAY
- 2.4 POWER FAIL DELAY
- 2.5 TURN-ON DELAY TIME
- 2.6 TRANSIENT OVERSHOOT
- 2.7 RISE TIME

3.0 PROTECTION:

- 3.1 OVER CURRENT PROTECTION
- 3.2 NO-LOAD OPERATION
- 3.3 OVER VOLTAGE PROTECTION
- 3.4 SHORT PROTECTION

4.0 ENVIRONMENT:

- 4.1 OPERATING TEMP
- 4.2 STORAGE TEMP
- 4.3 OPERATING HUMIDITY
- 4.4 STORAGE HUMIDITY
- 4.5 OPERATING ALTITUDE
- 4.6 STORAGE ALTITUDE

5.0 HI-POT:

- 5.1 PRIMARY TO SECONDARY
- 5.2 PRIMARY TO EARTH GND

5.3 INSULATION RESISTANCE

6.0 CE REQUIREMENTS:

6.1 CONDUCTED EMI

6.2 SAFETY STANDARDS

7.0 MTBF at 25⁰C (demonstrated)

1.0 INPUT:

1.1 VOLTAGE

MINIMUM	NOMINAL	MAXIMUM	UNITS
90	100-240	264	Vrms

1.2 FREQUENCY

47Hz - 63Hz

1.3 CURRENT

115Vac / 15.0A max. 230Vac / 7.5A max.

1.4 INRUSH CURRENT

55A max. when AC input 115Vac at 25°C cold start.

110A max. when AC input 230Vac at 25°C cold start.

1.5 POWER EFFICIENCY

80% minimum under the load conditions defined in below table and 115Vac Input.

Loading Table for Efficiency Measurements

1020W(loading shown in Amps)								
Loading	+12V1	+12V2	+12V3	+12V4	+5V	+3.3V	-12V	+5Vsb
Full	12.80	12.80	21.56	21.56	20.70	20.70	0.76	2.86
Typical	6.40	6.40	10.78	10.78	10.35	10.35	0.38	1.43
Light	2.56	2.56	4.31	4.31	4.14	4.14	0.15	0.57

1.6 LEAKAGE CURRENT

3.5mA max.

1.7 POWER FACTOR

PF > 0.9 (FULL LOAD)

2.0 OUTPUT:

Voltage	+5V	+3.3V	+12V1	+12V2	+12V3	+12V4	-12V	+5Vsb
* Max load	30.0A	30.0A	19.0	19.0	32.0A	32.0A	0.8A	3.0A
Min load	2.0A	0.5A	1.0A	1.0A	1.0A	1.0A	0.0A	0.0A
Peak load	--	--	--	--	--	--	--	3.5A
** * Regulation	+5,-4 %	+5,-3 %	+5,-4 %	+5,-4 %	+5,-4 %	+5,-4 %	+9,-5%	+5,-3%
** Ripple & Noise	50mV	50mV	240mV	240mV	240mV	240mV	120mV	50mV

- * The continuous total output power is 1020W max.
 - The combined power of +5V and +3.3V is 180W max.
 - Peak currents may last up to 12 seconds with not more than one occurrence per minute.
 - Total combined +12V output load not exceed 72A
- **Add 0.1uF and 10uF capacitors across output terminal during ripple & noise test.

	+5V	+3.3V	+12V ₁	+12V ₂	+12V ₃	+12V ₄	-12V	+5Vsb
LOAD1	2.0A	0.5A	1.0A	1.0A	1.0A	1.0A	0.0A	0.0A
LOAD2	6.0A	4.0A	1.0A	1.0A	2.0A	2.0A	0.0A	0.5A
LOAD3	16.0A	30.0A	3.0A	3.0A	4.0A	4.0A	0.3A	1.0A
LOAD4	30.0A	9.0A	19.0A	6.0A	6.0A	6.0A	0.3A	1.0A
LOAD5	10.0A	9.0A	10.0A	19.0A	10.0A	10.0A	0.5A	1.5A
LOAD6	30.0A	0.5A	9.0A	10.0A	10.0A	32.0A	0.5A	2.0A
LOAD7	8.0A	6.0A	11.0A	11.0A	32.0A	10.0A	0.8A	2.5A
LOAD8	2.0A	20.0A	12.0A	12.0A	22.0A	22.0A	0.8A	3.0A

***LOAD REGULATION TEST TABLE:

2.1 REMOTE ON/OFF

TTL High/PS-OFF; TTL Low/PS-ON

$V_{IL}=0.8V_{max}$, $I_{IL}=-1.6mA_{max}$ @ $V_{in}=0.4V$

$V_{IH}=2.0V_{min}$ @ $I_{in}=-200\mu A$, $V_{IH}=5.25V_{max}$ @ open ckt.

2.2 HOLD-UP TIME

14msec (minimum) at 70% of full load at 230Vac input.

2.3 POWER GOOD DELAY

100-500 msec.

2.4 POWER FAIL DELAY

>1 msec.

2.5 TURN-ON DELAY TIME

2000 msec max. at Nominal Line Full Load.

2.6 TRANSIENT OVERSHOOT

DC output transient step sizes as below table:

Output voltage	+5V	+3.3V	+12V1	+12V2	+12V3	+12V4
Max. step size	30%	30%	60%	60%	40%	40%

Load-changing repetition rate of 10m seconds.

+5V	+3.3V	+12V1	+12V2	+12V3	+12V4	-12V	+5Vsb
10000uF	10000uF	10000uF	10000uF	10000uF	10000uF	330uF	4700uF

Load slew rated 1.0A/uS and capacitive load as below :

2.7 RISE TIME

20ms max at full load.

3.0 PROTECTION:

When OCP, OVP or short protection is triggered, the main outputs will be latched off. The main outputs can be reset by cycling the DC remote on/off or AC power.

+5Vsb output is auto recovery when fault condition removed.

3.1 OVER CURRENT PROTECTION

+5V output: 55A max.

+3.3V output: 55A max.

+12V1, +12V2 output: 35A max.

+12V3, +12V4 output: 42A max.

3.2 No-load operating

No damage or hazardous condition should occur with all the DC output connectors disconnected from the load. The power supply may latch into the shutdown state.

3.3 OVER VOLTAGE PROTECTION

+3.3V output 4.5 Vmax.

+5.0V output 7.0 Vmax.

+12.0V output 15.6 Vmax.

3.4 SHORT PROTECTION

All output to GND.

4.0 ENVIRONMENT:

4.1 OPERATING TEMP.	10 °C to +50 °C for 80% load 10 °C to +40 °C from 80% to 100% load
4.2 STORAGE TEMP.	-20 °C to +70 °C
4.3 OPERATING HUMIDITY	20% to 90%, non-condensing
4.4 STORAGE HUMIDITY	5% to 95%, non-condensing
4.5 OPERATING ALTITUDE	0 to 10,000 feet
4.6 STORAGE ALTITUDE	0 to 50,000 feet

5.0 HI-POT :(Input/Output isolation)

5.1 PRIMARY TO SECONDARY

3535Vdc for 3 seconds

5.2 INSULATION RESISTANCE

Primary to earth ground 500Vdc, 50M ohms Min.

6.0 CE REQUIREMENTS

6.1 CONDUCTED EMI

1. MEET FCC : Class B
2. MEET CISPR 22 : Class B
3. MEET BSMI : Class B

6.2 SAFETY STANDARDS

1. MEET CUL (UL 60950)
2. MEET TUV EN60950
3. MEET CB (IEC 950)
4. MEET CE
5. MEET CCC

6.3 HARMONIC

MEET IEC1000-3-2, Class D

7.0 MTBF at 25°C (demonstrated)

100K hrs minimum