

DESCRIPTION

The TMC200 series of AC-DC switching power supplies in a package of 3 x 5 x 1.5 inches are capable of delivering 200 watts of continuous power at 5.3 CFM forced air cooling or 150 watts at convection cooling. The units are constructed on a printed circuit board with a U-bracket for mechanical support and heat sinking. A cover-and-fan assembly can be added during manufacturing for 200 watt output. They are specially designed for medical applications, but not for life-supporting equipment. The units are certified also to IEC /EN /UL /CSA 60950-1 and suitable for data networking, computer and telecommunication applications.

FEATURES

- 3 x 5 inch footprint with 1.5 inch low profile
- 100-240 VAC input with active PFC
- Less than 220 uA leakage current
- Meet EN55011 /55022 and FCC Class B
- Power Factor 0.98 typical
- Short-circuit protection
- Power Fail Detect (PFD) signal
- Inhibit - TTL high to disable output
- Compliant with RoHS requirements
- Efficiency greater than 87%

INPUT SPECIFICATIONS

Input voltage:	90-264 VAC
Input frequency:	47-63 Hz
Input current:	2.5 A (rms) for 115 VAC 1.25 A (rms) for 230 VAC
Earth leakage current:	220 µA max. @ 264 VAC, 63 Hz
Touch current:	100 µA max. @ 264 VAC, 63 Hz

OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart.
Total output power:	See rating chart.
Ripple and noise:	1% peak to peak maximum
Overvoltage protection:	set at 112-140% of its nominal output voltage
Overcurrent protection:	Output protected to short circuit conditions
Temperature coefficient:	All outputs $\pm 0.04\%/^{\circ}\text{C}$ maximum
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 us after a 25% step load change
Fan power:	12 V at 250 mA maximum

ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0°C to +70°C
Storage temperature:	-40°C to +85°C
Relative humidity:	5% to 95% non-condensing
Derating:	Derate from 100% at +50°C linearly to 50% at +70°C, applicable to convection and forced-air cooling conditions

TMC200 SERIES



CE (LVD)
RoHS

SAFETY STANDARD APPROVALS



UL 60601-1, CSA C22.2 No. 601.1
File No. E178020



TÜV EN 60601-1



UL 60950-1, CSA C22.2 No. 60950-1



TÜV EN 60950-1

GENERAL SPECIFICATIONS

Switching frequency:	100 KHz (typical)
Efficiency:	87% minimum on all models
Hold-up time:	10 ms minimum at 110 VAC
Line regulation:	$\pm 0.5\%$ maximum at full load
Inrush current:	20 A @ 115 VAC or 40 A @ 230 VAC, at 25°C cold start
Withstand voltage:	4000 VAC from input to output, 1500 VAC from input to ground, 500 VAC from output to ground
MTBF:	350,000 hours at full load at 25°C ambient, calculated per MIL-HDBK-217F
EMC Performance	
EN55011/EN55022:	Class B conducted, class B radiated
FCC:	Class B conducted, class B radiated
VCCI:	Class B conducted, class B radiated
EN61000-3-2:	Harmonic distortion, class A and D
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, ± 8 KV air and ± 6 KV contact
EN61000-4-3:	Radiated immunity, 3 V/m
EN61000-4-4:	Fast transient/burst, ± 2 KV
EN61000-4-5:	Surge, ± 1 KV diff., ± 2 KV com
EN61000-4-6:	Conducted immunity, 3 Vrms
EN61000-4-8:	Magnetic field immunity, 3 A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms, 60% reduction for 100 ms, >95% reduction for 10 ms

UNIVERSAL INPUT

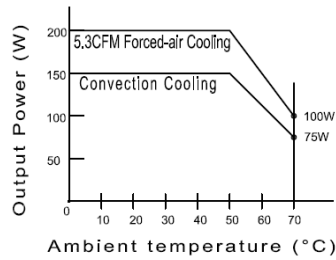
TMC200 MEDICAL & ITE SERIES

INTERFACE SIGNALS

PFD: TTL high for normal operation, low upon loss of input power, turn-on delay time 100-1000 ms, turn-off delay time 1 ms minimum

Inhibit: TTL high to turn off output

OUTPUT POWER DERATING CURVE



OUTPUT VOLTAGE/CURRENT RATING CHART

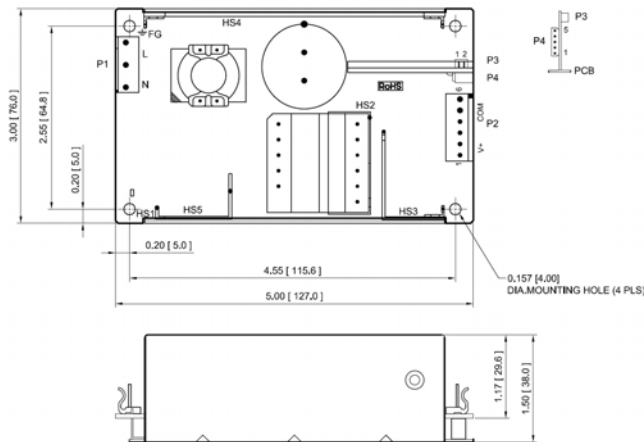
Model ⁽¹⁾	Output							Efficiency (typical)	
	Vnom.	Min. Current	Max. Current at convection	Max. Current at 5.3 CFM	Tol.	Ripple & Noise ⁽³⁾	Max. Power ⁽²⁾	@ 150 W 115/230 Vac	@ 200 W 115/230 Vac
TMC200-S12	12 V	0 A	12.50 A	16.67 A	±2%	120 mV	150 W/200 W	88/91%	88/90%
TMC200-S15	15 V	0 A	10.00 A	13.34 A	±2%	150 mV	150 W/200 W	88/91%	88/91%
TMC200-S18	18 V	0 A	8.34 A	11.12 A	±2%	180 mV	150 W/200 W	88/91%	88/91%
TMC200-S24	24 V	0 A	6.25 A	8.34 A	±2%	240 mV	150 W/200 W	88/91%	88/91%
TMC200-S28	28 V	0 A	5.36 A	7.15 A	±2%	280 mV	150 W/200 W	88/91%	88/91%
TMC200-S36	36 V	0 A	4.17 A	5.56 A	±2%	360 mV	150 W/200 W	88/91%	88/91%
TMC200-S48	48 V	0 A	3.13 A	4.17 A	±2%	480 mV	150 W/200 W	89/92%	89/92%

NOTES:

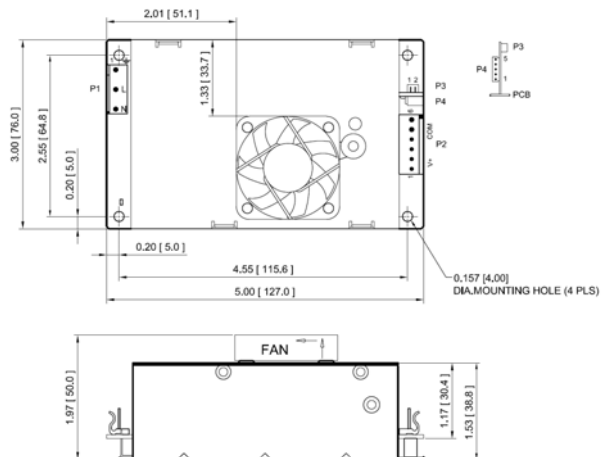
- U-bracket format is standard. Add suffix "C" for enclosed form with cover-and-fan assembly, e.g. TMC200-S24C
- 150 W without moving air or 200 W with 5.3 CFM forced air provided by user for U-bracket format, 200 W for "C" version with cover-and-fan assembly
- Ripple and noise is maximum peak-to-peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 uF tantalum capacitor in parallel with a 0.1 uF ceramic capacitor across the output.

MECHANICAL SPECIFICATIONS

U-bracket Form



Enclosed Form



NOTES:

- Dimensions shown in inches [mm]
- Tolerance 0.02 [0.5] maximum
- Input connector P1: Molex header 09-65-2058 or equivalent, mating with Molex housing 09-50-1051 or equivalent.
- Output connector P2: Molex header 09-65-2068 or equivalent, mating with Molex housing 09-50-1061 or equivalent.
- Connector P3: Molex header 22-05-7055 or equivalent, mating with Molex housing 50-37-5053 or equivalent.
- Fan connectors P4: Molex header 53048-0210 or equivalent, mating with Molex housing 51021-0200 or equivalent.
- Weight: 390 grams (0.86 lbs.) approx. for U-bracket form, 440 grams (0.97 lbs.) for enclosed form
- Fixing of units to end equipment is through standoffs and the four mounting holes in PCB.

Tumbler Technologies + TRUMPower

3350 Scott Blvd., Bldg. 13, Santa Clara, California 95054, USA

Phone: 408-988-6616 • Fax: 408-988-6622 • email: sales@trumpower.com • Website: www.TRUMPower.com

UNIVERSAL INPUT

TMC200 MEDICAL & ITE SERIES

PIN CHART

CONN PIN		P1					P2					
		1	2	3	4	5	1	2	3	4	5	6
TMC200-S12	TMC200-S28	GROUND	VOID	LIVE	VOID	NEUTRAL	OUTPUT +V			RETURN		
TMC200-S15	TMC200-S36											
TMC200-S18	TMC200-S48											
TMC200-S24												

CONN PIN		P3		P4				
		1	2	1	2	3	4	5
TMC200-S12	TMC200-S28	FAN +12V	RETURN	-SENSE	+SENSE	PFD	INHIBIT	RETURN
TMC200-S15	TMC200-S36							
TMC200-S18	TMC200-S48							
TMC200-S24								