# 65W Reliable Green Medical Power Supply



















#### **■** Features

- · 3"x2" compact size
- Medical safety approved (2 x MOPP) accroding to ANSI/AAMI ES60601-1 and IEC/EN60601-1
- Suitable for BF application with appropriate system consideration
- · Cooling by free air convection
- EMI class B for class Ⅱ configuration
- No load power consumption<0.1W</li>
- · Extremely low leakage current
- · Protections: Short circuit / Overload / Over voltage
- 3 years warranty

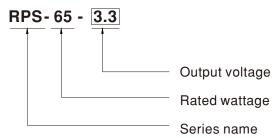
# Applications

- · Oral irrigator
- · Hemodialysis machine
- Medical computer monitors
- · Sleep apnea devices

## Description

RPS-65 is a 65W highly reliable green PCB type medical power supply with a high power density on the 3" by 2" footprint. It accepts  $80\sim264$ VAC input and offers various output voltages between 3.3V and 48V. The working efficiency is up to 91% and the extremely low no load power consumption is down below 0.1W. RPS-65 is able to be used for Class II (no FG) system design. The extremely low leakage current is less than  $100\,\mu$ A. In addition, it conforms to international medical regulations (2\*MOPP) and EMC EN55011, perfectly fitting all kinds of BF rated "patient contact" medical system equipment.

# **■** Model Encoding





File Name:RPS-65-SPEC 2017-10-23



# 65W Reliable Green Medical Power Supply

# RPS-65 series

#### **SPECIFICATION**

		RPS-65-3.3	RPS-65-5	RPS-65-7.5	RPS-65-12	RPS-65-15	RPS-65-24	RPS-65-48	
ОИТРИТ	DC VOLTAGE	3.3V	5V	7.5V	12V	15V	24V	48V	
	RATED CURRENT	10A	10A	8A	5.42A	4.34A	2.71A	1.36A	
	CURRENT RANGE	0 ~ 11A	0 ~ 11A	0 ~ 8.8A	0 ~ 5.96A	0 ~ 4.77A	0 ~ 2.98A	0 ~ 1.49A	
	RATED POWER	33W	50W	60W	65W	65.1W	65W	65.3W	
	PEAK LOAD(10sec.)	36.3W	55W	66W	71.5W	71.6W	71.5W	71.5W	
	RIPPLE & NOISE (max.) Note.2	80mVp-p	80mVp-p	80mVp-p	120mVp-p	120mVp-p	120mVp-p	150mVp-p	
	VOLTAGE ADJ.RANGE	2.9~3.6V	4.7~5.5V	7.12~8.3V	11.4~13.2V	13.5~16.5V	22.8~27.6V	45.6~52.8	
	VOLTAGE TOLERANCE Note.	±2.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	LOAD REGULATION	±2.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	
	SETUP, RISE TIME	500ms, 30ms / 230VAC 500ms, 30ms / 115VAC at full load							
	HOLD UP TIME (Typ.)	30ms / 230VAC 12ms / 115VAC at full load							
		80 ~ 264VAC	121107 11077	o actumious					
	FREQUENCY RANGE	80 ~ 204 VAC 47 ~ 63Hz							
IPUT	EFFICIENCY (Typ.)	80%	84%	85%	88%	89%	90%	91%	
01				0370	0070	0370	3070	3170	
	AC CURRENT (Typ.)	1.5A / 115VAC 1A / 230VAC COLD STAR 30A/115VAC 50A/230VAC							
	INRUSH CURRENT (Typ.)			30VAC					
	LEAKAGE CURRENT(max.) Note.								
	OVERLOAD	115 ~ 150% rate							
				overs automatically	I				
ROTECTION	OVER VOLTAGE	3.8~4.5V	5.7~6.8V	8.6~11.3V	13.8~16.2V	17.2~20.3V	27.6~32.4V	55.2~64.8\	
		Protection type: Shut down o/p voltage, re-power on to recover							
	WORKING TEMP.	$-30 \sim +70 ^{\circ}$ C (Refer to "Derating Curve")							
	WORKING HUMIDITY	20% ~ 90% RH non-condensing							
NVIRONMENT	STORAGE TEMP., HUMIDITY		95% RH non-con	densing					
NVIRONMENT	STORAGE TEMP., HUMIDITY TEMP. COEFFICIENT		- 95% RH non-con	densing					
NVIRONMENT		-40 ~ +85°C, 10 · ±0.03% / °C (0	~ 95% RH non-con ~ 50°C)	densing od for 60min. each a	long X, Y, Z axes				
NVIRONMENT	TEMP. COEFFICIENT	-40 ~ +85°C, 10 · ±0.03% / °C (0 10 ~ 500Hz, 2G	~ 95% RH non-con ~ 50°C)	•	long X, Y, Z axes				
NVIRONMENT	TEMP. COEFFICIENT VIBRATION	-40 ~ +85°C, 10 · ±0.03% / °C (0 10 ~ 500Hz, 2G · 4000 meters	~ 95% RH non-con ~ 50°C) 0min./1cycle, perio V EN60601-1, UL	od for 60min. each a		,CAN/CSA-C22.	2 No. 60601-1:14 - E	Edition 3 appro	
NVIRONMENT	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note.6	-40 ~ +85°C, 10 · ±0.03% / °C (0 10 ~ 500Hz, 2G ° 4000 meters IEC60601-1, TU'	~ 95% RH non-con ~ 50°C) Omin./1cycle, perio V EN60601-1, UL :N60335-1	od for 60min. each a		,CAN/CSA-C22.	2 No. 60601-1:14 - E	Edition 3 appro	
NVIRONMENT	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note.6 SAFETY STANDARDS	-40 ~ +85°C, 10 · ±0.03% / °C (0 10 ~ 500Hz, 2G · 4000 meters IEC60601-1, TU Design refer to E	~ 95% RH non-con ~ 50°C) Omin./1cycle, perio V EN60601-1, UL :N60335-1	od for 60min. each a		,CAN/CSA-C22.	2 No. 60601-1:14 - E	Edition 3 appro	
VIRONMENT	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note.6 SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE	-40 ~ +85°C, 10 ±0.03% / °C (0 10 ~ 500Hz, 2G of 4000 meters IEC60601-1, TU Design refer to E Primary-Secondar I/P-O/P: 4KVAC	~ 95% RH non-con ~ 50°C) Omin./1cycle, perio V EN60601-1, UL :N60335-1	od for 60min. each a		,CAN/CSA-C22.	2 No. 60601-1:14 - E	idition 3 appro	
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NVIRONMENT	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note.6 SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE	-40 ~ +85°C, 10 · ±0.03% / °C (0 10 ~ 500Hz, 2G · 4000 meters IEC60601-1, TU Design refer to E Primary-Seconda I/P-O/P: 4KVAC I/P-O/P:100M Or	~ 95% RH non-con ~ 50°C) Omin./1cycle, perion V EN60601-1, UL :N60335-1 ary: 2xMOPP	od for 60min. each a	601-1 (3.1 version)	Te		dition 3 appro	
NVIRONMENT	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note.6 SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE	-40 ~ +85°C, 10 · ±0.03% / °C (0 10 ~ 500Hz, 2G ′ 4000 meters IEC60601-1, TU Design refer to E Primary-Seconda I/P-O/P: 4KVAC I/P-O/P:100M Of Parameter	~ 95% RH non-con ~ 50°C) 0min./1cycle, perion V EN60601-1, UL :N60335-1 ary: 2xMOPP	ANSI / AAMI ES606 C / 70% RH Standard	601-1 (3.1 version)	Te CI:	st Level / Note	idition 3 appro	
	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note.6 SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE ISOLATION RESISTANCE	-40 ~ +85°C, 10 · ±0.03% / °C (0 10 ~ 500Hz, 2G o 4000 meters IEC60601-1, TU Design refer to E Primary-Seconda I/P-O/P: 4KVAC I/P-O/P:100M Or Parameter Conducted emiss	~ 95% RH non-con ~ 50°C) Omin./1cycle, perion V EN60601-1, UL :N60335-1 ary: 2xMOPP	ANSI/AAMI ES606 C/70% RH Standard EN55011 (0	CISPR11)	Te Cl:	st Level / Note	Edition 3 appro	
AFETY &	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note.6 SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE ISOLATION RESISTANCE	-40 ~ +85°C, 10 · ± 0.03% / °C (0 · 10 ~ 500Hz, 2G ° 4000 meters  IEC60601-1, TU Design refer to E Primary-Seconda I/P-O/P: 4KVAC I/P-O/P:100M Or Parameter  Conducted emissic Harmonic current Voltage flicker	~ 95% RH non-con ~ 50°C) Omin./1cycle, perion V EN60601-1, UL :N60335-1 ary: 2xMOPP	od for 60min. each a  ANSI/AAMI ES606  C/70% RH  Standard  EN55011 (C	CISPR11) CISPR11) CISPR11)	Te Cl:	st Level / Note ass B ass B	Edition 3 appro	
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AFETY &	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note.6 SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE ISOLATION RESISTANCE	-40 ~ +85°C, 10 · ± 0.03% / °C (0 · 10 ~ 500Hz, 2G ° 4000 meters  IEC60601-1, TU' Design refer to E Primary-Seconda I/P-O/P: 4KVAC I/P-O/P:100M Or Parameter  Conducted emissic Harmonic currer Voltage flicker EN60601-1-2  Parameter ESD  RF field suscept	~ 95% RH non-con ~ 50°C) Omin./1cycle, period V EN60601-1, UL EN60335-1 ary: 2xMOPP Ims / 500VDC / 25° Sion Int	C/70% RH  Standard  EN61000-3  Standard  EN61000-4	CISPR11) CISPR11) CISPR11) CISPR13	Te Cl: Cl: Te Le Le Tat	st Level / Note ass B ass B ass A st Level / Note vel 4, 15KV air ; Leve vel 3, 10V/m( 80MHz ble 9, 9~28V/m( 385N	el 4, 8KV contac ~2.7GHz)	
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SAFETY &	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note. SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE ISOLATION RESISTANCE EMC EMISSION	-40 ~ +85°C, 10 · ± 0.03% / °C (0 · 10 ~ 500Hz, 2G · 4000 meters  IEC60601-1, TU Design refer to EPrimary-Seconda I/P-O/P: 4KVAC I/P-O/P:100M OPParameter  Conducted emissic Harmonic current Voltage flicker EN60601-1-2 Parameter ESD  RF field suscept EFT bursts Surge susceptib	~ 95% RH non-con ~ 50°C) Omin./1cycle, perion V EN60601-1, UL EN60335-1 ary: 2xMOPP ms / 500VDC / 25° sion on on this ibility	C/70% RH  Standard EN61000-3  Standard EN61000-4 EN61000-4 EN61000-4 EN61000-4	CISPR11) CISPR11) I-2 I-3 I-4 I-5	Te Cl: Cl: Te Le Le Le Le Le Le Le Le	st Level / Note ass B ass B ass A st Level / Note vel 4, 15KV air; Leve vel 3, 10V/m( 80MHz ble 9, 9~28V/m( 385M vel 3, 2KV vel 4, 2KV/Line-Line	el 4, 8KV contac ~2.7GHz )	
SAFETY & EMC Note. 7)	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note. SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE ISOLATION RESISTANCE EMC EMISSION	-40 ~ +85°C, 10 · ± 0.03% / °C (0 · 10 ~ 500Hz, 2G · 4000 meters  IEC60601-1, TU Design refer to EPrimary-Seconda I/P-O/P: 4KVAC I/P-O/P:100M OPRIME Radiated emissic Harmonic currer Voltage flicker EN60601-1-2  Parameter  ESD  RF field suscept EFT bursts	~ 95% RH non-con ~ 50°C) Omin./1cycle, perion V EN60601-1, UL N60335-1 Pary: 2xMOPP Ims / 500VDC / 25° Sion Int Int Intity Intity Intity Intity	C/70% RH  Standard EN61000-4 EN61000-4 EN61000-4 EN61000-4	CISPR11) CISPR11)23456	Te Cl: Cl: Te Le Le Le Le Le Le Le Le Le	st Level / Note ass B ass B ass A st Level / Note vel 4, 15KV air ; Leve vel 3, 10V/m( 80MHz ble 9, 9~28V/m( 385M vel 3, 2KV	el 4, 8KV contac ~2.7GHz)	
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AFETY &	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note. SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE ISOLATION RESISTANCE EMC EMISSION	-40 ~ +85°C, 10 · ± 0.03% / °C (0 10 ~ 500Hz, 2G 6 4000 meters  IEC60601-1, TU Design refer to E Primary-Seconda I/P-O/P: 4KVAC I/P-O/P:100M Or Parameter  Conducted emissic Harmonic current Voltage flicker  EN60601-1-2  Parameter  ESD  RF field suscept EFT bursts  Surge susceptib Conducted susce Magnetic field in Voltage dip, interess	~ 95% RH non-con ~ 50°C)  Omin./1cycle, period V EN60601-1, UL EN60335-1 ary: 2xMOPP  ms / 500VDC / 25° sion on th  ibility  ibility  eptibility  rruption	C/70% RH  Standard EN55011 (C EN55011 (C EN61000-3  Standard EN61000-4 EN61000-4 EN61000-4 EN61000-4 EN61000-4 EN61000-4 EN61000-4	CISPR11) CISPR11) -2 -3 -4 -5 -6 -8	Te Cl: Te Le	st Level / Note ass B ass B ass A st Level / Note vel 4, 15KV air; Leve vel 3, 10V/m( 80MHz ble 9, 9~28V/m( 385M vel 3, 2KV vel 4, 2KV/Line-Line vel 3, 10V	el 4, 8KV contac ~2.7GHz ) MHz~5.78GHz )	
AFETY &	TEMP. COEFFICIENT VIBRATION OPERATING ALTITUDE Note.6 SAFETY STANDARDS ISOLATION LEVEL WITHSTAND VOLTAGE ISOLATION RESISTANCE EMC EMISSION EMC IMMUNITY	-40 ~ +85°C, 10 · ± 0.03% / °C (0 10 ~ 500Hz, 2G 3 4000 meters  IEC60601-1, TU Design refer to E Primary-Seconda I/P-O/P: 4KVAC I/P-O/P:100M Or Parameter  Conducted emissic Harmonic currer Voltage flicker EN60601-1-2 Parameter ESD  RF field suscept EFT bursts Surge susceptib Conducted	~ 95% RH non-con ~ 50°C) Omin./1cycle, period V EN60601-1, UL N60335-1 ary: 2xMOPP ms / 500VDC / 25° sion on at ibility iiiity eptibility munity	C/70% RH  Standard EN55011 (C EN61000-3 EN61000-4 EN61000-4 EN61000-4 EN61000-4 EN61000-4	CISPR11) CISPR11) -2 -3 -4 -5 -6 -8	Te Cl: Te Le	st Level / Note ass B ass B ass A st Level / Note vel 4, 15KV air ; Leve vel 3, 10V/m( 80MHz ble 9, 9~28V/m( 385M vel 3, 2KV vel 4, 2KV/Line-Line vel 3, 10V vel 4, 30A/m % dip 1 periods, 30% dip % dip 1 periods, 30% dip	el 4, 8KV conta ~2.7GHz ) MHz~5.78GHz	

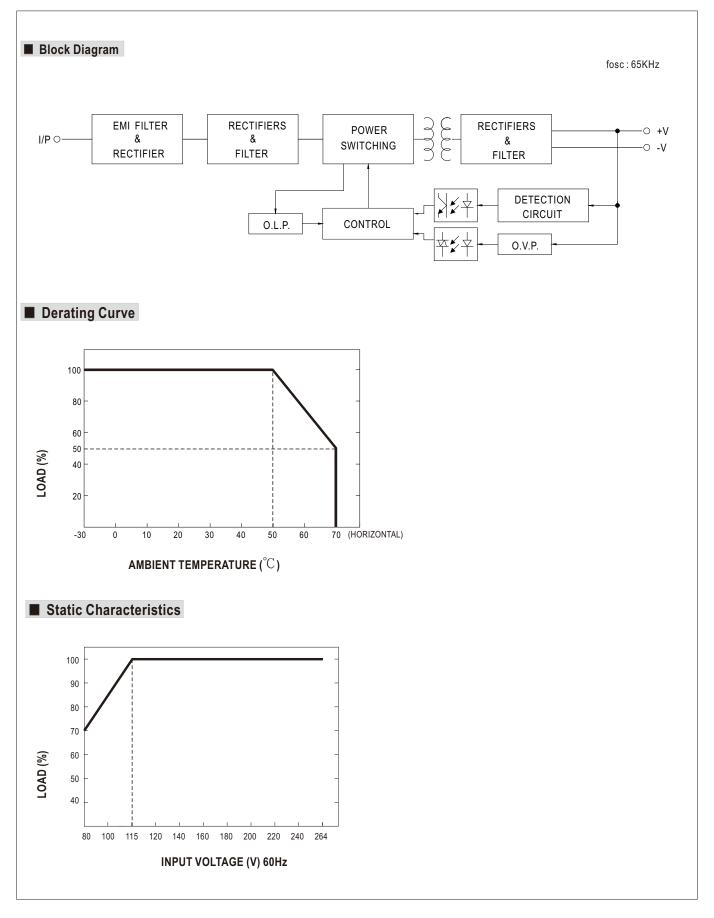
- 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.
- 2. Ripple & noise are measured at 2019/11/2 of Daniuwium by using a 12 cm/s 3. Tolerance : includes set up tolerance, line regulation and load regulation.
- 4. Derating may be needed under low input voltages. Please check the derating curve for more details.

NOTE

- 5. Touch current was measured from primary input to DC output.
  6. The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m (6500ft).
- 7. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)









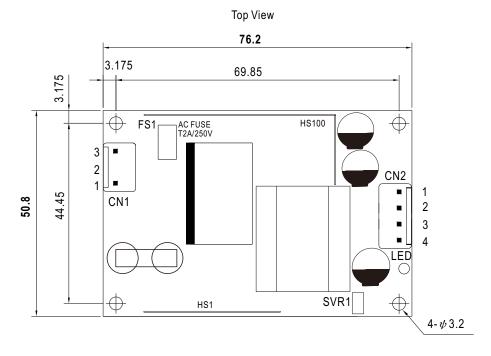


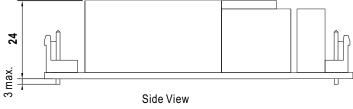
# 65W Reliable Green Medical Power Supply



## ■ Mechanical Specification

Case No. Unit:mm





# AC Input Connector (CN1): JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	IOTAUD	10T 0\/LL 04T D4 4
2	No Pin	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
3	AC/L	or oquivalent	

## DC Output Connector (CN2): JST B4P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	+V		
2	+V	JST VHR	JST SVH-21T-P1.1
3	-V	or equivalent	or equivalent
4	-V		

## ■ Installation Manual

Please refer to : http://www.meanwell.com/manual.html

