MEGMEET®

MEDICAL

Megmeet medical power supplies are designed to meet the most demanding medical applications. Conservatively engineered with high-quality components and assembled in an ISO13485 manufacturing center, the Mango family of external adapters and the MP series of open frame AC-DC converters feature high efficiency topologies for high power density, small size and a long reliable life in the field. Megmeet's battery pack and chargers provide a complete power solution for portable medical devices.

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MEDICAL POWER SUPPLY

FEATURES

Medical 60601-1 Safety Approvals
High Efficiency
CEC 2008 / ErP2 / EISA 2007 Compliant
EN55011 / FCC Part 15J Class B Emissions
3 Year Warranty
Medical (BF) Safety Approvals

Medical Power Supply

MANGO018 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 3.27 x 1.69 x 1.27" Size
- Class II Construction
- US, UK, AUS or EU Wall Mount Packages
- High Efficiency - Level V
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	0.5A$_{RMS}$ at 115VAC
Inrush Current	<70A @ 240 VAC, Cold Start
Power Factor	EN61000-3-2, Class A
Leakage Current	<100μA @ 264VAC
No Load Input Power	<0.3W No Load Input Power @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-20 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s² (30G), 11ms on 3 axes, total 18 times
Vibration	10-55 Hz, 19.6 m/s²(2G), 20mins 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	73~82% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	180g
Means of Protection	2xMOPP(Input to Output)

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MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO018-5xy	5V	3.0A	50mV	±5%
MANGO018-7.5xy	7.5V	2.4A	75mV	±5%
MANGO018-9xy	9V	2.0A	90mV	±5%
MANGO018-12xy	12V	1.5A	120mV	±5%
MANGO018-19xy	19V	1.0A	190mV	±5%
MANGO018-24xy	24V	0.75A	240mV	±5%
MANGO018-28xy	28V	0.65A	280mV	±5%

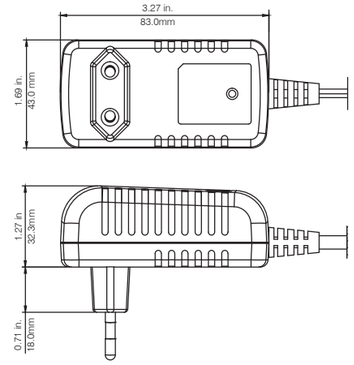
- Designate Wall Mount Package by replacing "x" with one of the following:

  US = US Wall Mount AU = AUS Wall Mount UK = UK Wall Mount EU= EU Wall Mount

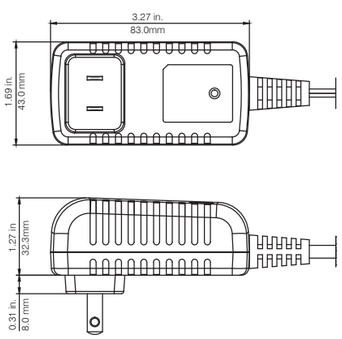
- Designate DC Connector by replacing "y" with "U" for Mini USB or "B" for Barrel Jack Connector. (5.5 x 2.1 x 11mm)
- Other Connectors available upon request, consult factory.
- Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING

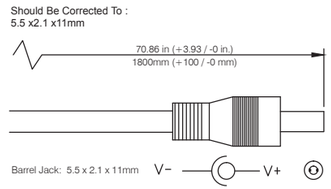
EU WALLMOUNT PACKAGE:



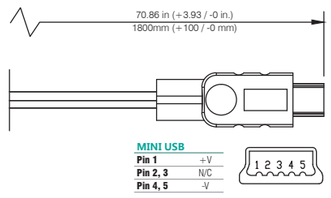
US WALLMOUNT PACKAGE:



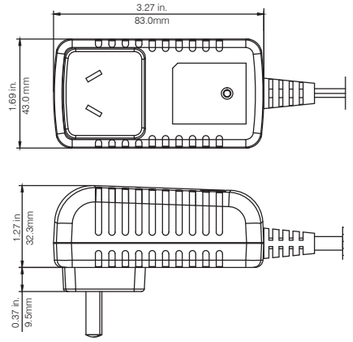
DC CONNECTOR OPTIONS:



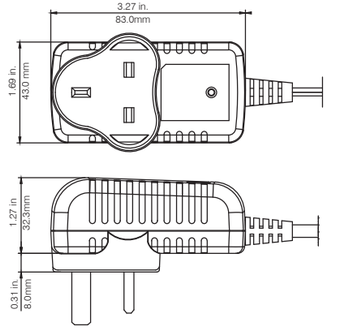
TYPE "U" CONNECTOR:
Mini USB Connector



AU WALLMOUNT PACKAGE:



UK WALLMOUNT PACKAGE:



Medical Power Supply

MANGO12SC

12 Watt Medical Wall Mount Power Supply

FEATURES

- Medical 60601-1 Safety Approvals
- Class II Construction
- US, UK, AUS or EU Wall Mount Packages
- High Efficiency - Level VI
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	85-264 VAC (Universal)
Input Frequency	47-63Hz
Input Current	0.3A $_{RMS}$ at 115VAC
Inrush Current	<80A @ 230 VAC, Cold Start
Power Factor	EN61000-3-2, Class A
Leakage Current	<100μA @ 264VAC
No Load Input Power	<50mW @ 230VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0°C ~ +40°C
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-20°C ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	49m/s² (5G), 11ms on 3 axes
Vibration	10-50Hz, 19.6 m/s²(2G), 20mins 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±1%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	See Table
Turn-On Delay	2 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110-140% , Hiccup, Auto-Recovery
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup,Auto Recovery
Over-Temperature	Hysteretic

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 , Installation Class3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS}(6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, Class B/C
Safety Approvals	IEC60601-1

STATUS & CONTROL

Efficiency	83-88% typical at 115/230 VAC, full load
Isolation	4000 VAC Input to Output2 MOPP
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	100g

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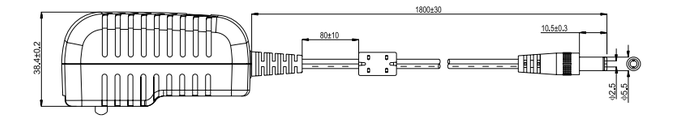
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO12SC-05yyz	5V	2.4A	60mV	±5%
MANGO12SC-075yyz	7.5V	1.6A	100mV	±5%
MANGO12SC-09yyz	9V	1.33A	120mV	±5%
MANGO12SC-12yyz	12V	1.0A	120mV	±5%
MANGO12SC-15yyz	15V	0.8A	150mV	±5%
MANGO12SC-18yyz	18V	0.66A	180mV	±5%
MANGO12SC-24yyz	24V	0.5A	200mV	±5%

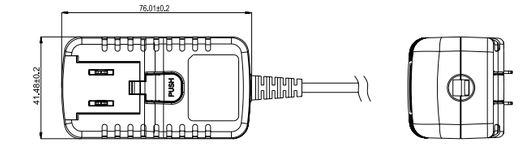
- Designate Wall Mount Package by replacing “x” with one of the following:

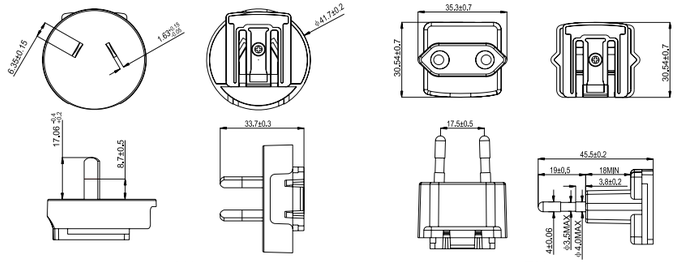
  US = US Wall Mount AU = AUS Wall Mount UK = UK Wall Mount EU= EU Wall Mount

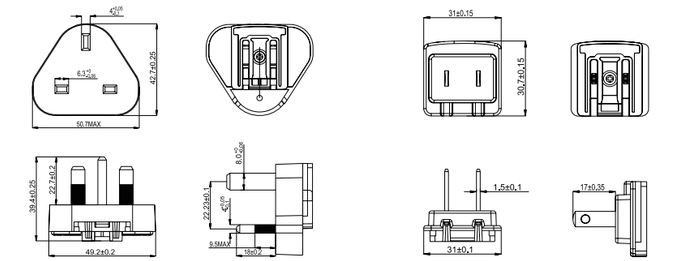
- Designate DC Connector by replacing “y” with “U” for Mini USB or “B” for Barrel Jack Connector. (5.5 x 2.1 x 11mm)
- Other Connectors available upon request, consult factory.
- Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING









Medical Power Supply

MANGO18SC

18 Watt Medical Wall Mount Power Supply

FEATURES

- Medical 60601-1 Safety Approvals
- Class II Construction
- US, UK, AUS or EU Wall Mount Packages
- High Efficiency - Level VI
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	85-264 VAC (Universal)
Input Frequency	47-63Hz
Input Current	0.5A $_{RMS}$ at 115VAC
Inrush Current	<80A @ 230 VAC, Cold Start
Power Factor	EN61000-3-2, Class A
Leakage Current	<100μA @ 264VAC
No Load Input Power	<50mW @ 230VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0°C ~ +40°C
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-20°C ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	49m/s² (5G), 11ms on 3 axes
Vibration	10-50Hz, 19.6 m/s²(2G), 20mins 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±1%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	See Table
Turn-On Delay	2 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110-140%, Hiccup, Auto-Recovery
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup,Auto Recovery
Over-Temperature	Hysteretic

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 , Installation Class3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS}(6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, Class B/C
Safety Approvals	IEC60601-1

STATUS & CONTROL

Efficiency	83-88% typical at 115/230 VAC, full load
Isolation	4000 VAC Input to Output2 MOPP
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	100g

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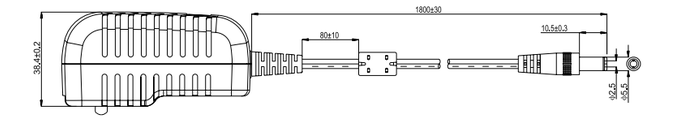
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO18SC-05yyz	5V	3.0A	60mV	±5%
MANGO18SC-075yyz	7.5V	2.4A	100mV	±5%
MANGO18SC-09yyz	9V	2.0A	120mV	±5%
MANGO18SC-12yyz	12V	1.5A	120mV	±5%
MANGO18SC-15yyz	15V	1.2A	150mV	±5%
MANGO18SC-18yyz	18V	1.0A	180mV	±5%
MANGO18SC-24yyz	24V	0.75A	200mV	±5%

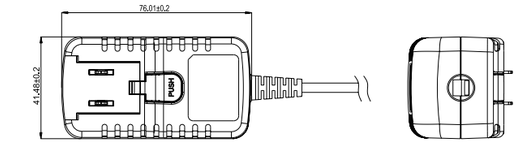
- Designate Wall Mount Package by replacing “x” with one of the following:

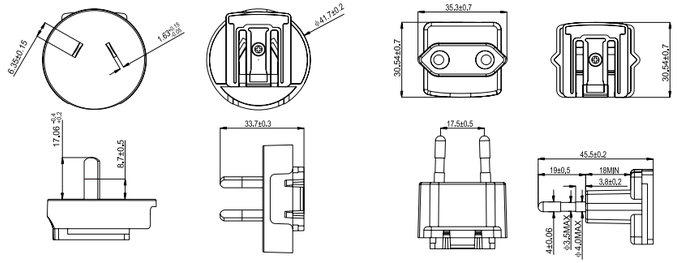
  US = US Wall Mount AU = AUS Wall Mount UK = UK Wall Mount EU= EU Wall Mount

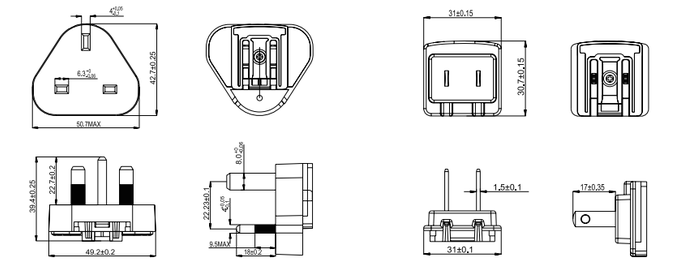
- Designate DC Connector by replacing “y” with “U” for Mini USB or “B” for Barrel Jack Connector. (5.5 x 2.1 x 11mm)
- Other Connectors available upon request, consult factory.
- Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING









MANGO24SC

24 Watt Medical Wall Mount Power Supply

FEATURES

- Medical 60601-1 Safety Approvals
- Class II Construction
- US, UK, AUS or EU Wall Mount Packages
- High Efficiency - Level VI
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90-264 VAC (Universal)
Input Frequency	47-63Hz
Input Current	0.7A $_{RMS}$ at 115VAC
Inrush Current	<80A @ 230 VAC, Cold Start
Power Factor	EN61000-3-2, Class A
Leakage Current	<100μA @ 264VAC
No Load Input Power	<50mW @ 230VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0°C ~ +40°C
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-20°C ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	49m/s² (30G) , 10mS on 3 axes
Vibration	10-50Hz, 19.6 m/s²(2G), 20mins 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±1%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	See Table
Turn-On Delay	2 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110-140%, Hiccup, Auto-Recovery
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup,Auto Recovery
Over-Temperature	Hysteretic

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 , Installation Class3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS}(6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, Class B/C
Safety Approvals	IEC60601-1

STATUS & CONTROL

Efficiency	82-88% typical at 115/230 VAC, full load
Isolation	4000 VAC Input to Output2 MOPP
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	100g

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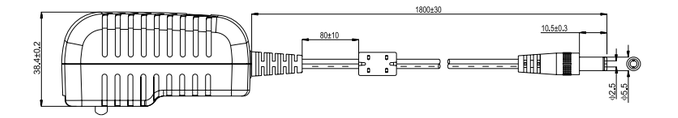
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO24SC-05yyz	5V	4.0A	60mV	±5%
MANGO24SC-075yyz	7.5V	3.2A	100mV	±5%
MANGO24SC-09yyz	9V	2.66A	120mV	±5%
MANGO24SC-12yyz	12V	2.0A	120mV	±5%
MANGO24SC-15yyz	15V	1.6A	150mV	±5%
MANGO24SC-18yyz	18V	1.33A	180mV	±5%
MANGO24SC-24yyz	24V	1.0A	200mV	±5%

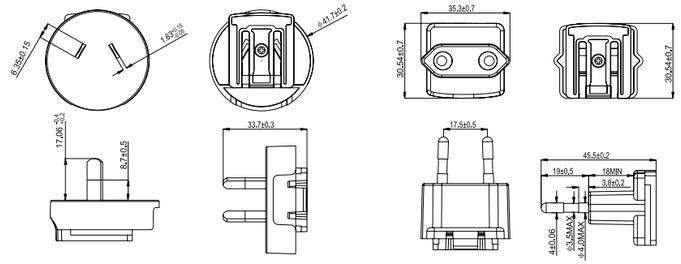
- Designate Wall Mount Package by replacing “x” with one of the following:

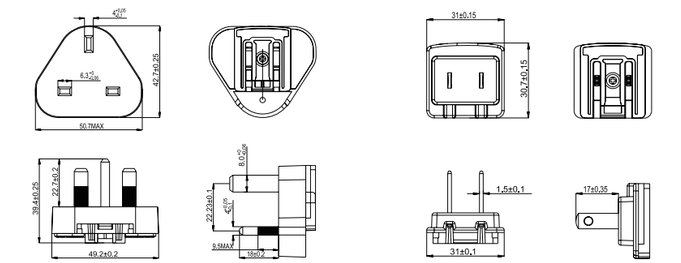
  US = US Wall Mount AU = AUS Wall Mount UK = UK Wall Mount EU= EU Wall Mount

- Designate DC Connector by replacing “y” with “U” for Mini USB or “B” for Barrel Jack Connector. (5.5 x 2.1 x 11mm)
- Other Connectors available upon request, consult factory.
- Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING







Medical Power Supply

MANGO25S Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 3.27 x 1.69 x 1.27" Size
- Class II Construction
- US, UK, AUS or EU Wall Mount Packages
- High Efficiency - Level VI
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	0.8A$_{RMS}$ at 115VAC
Inrush Current	<80A @ 230 VAC, Cold Start
Power Factor	EN61000-3-2, Class A
Leakage Current	<100μA @ 264VAC/60Hz
No Load Input Power	<0.1W @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-20 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294 m/s²(30G), 11mS on 3 axes
Vibration	10-55 Hz, 19.6 m/s²(2G), 20mins 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±1%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	80~84% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	200g
Means of Protection	2xMOPP(Input to Output)

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MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO25S-9xy	9V	2.7A	90mV	±5%
MANGO25S-12xy	12V	2.1A	120mV	±5%
MANGO25S-15xy	15V	1.67A	150mV	±5%
MANGO25S-19xy	19V	1.32A	190mV	±5%
MANGO25S-24xy	24V	1.05A	240mV	±5%
MANGO25S-28xy	28V	0.9A	280mV	±5%

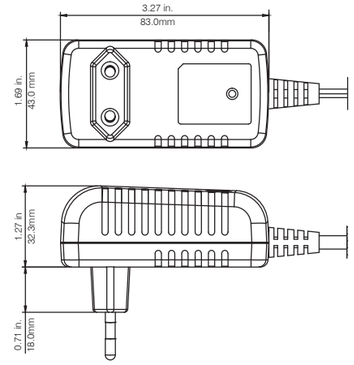
- Designate Wall Mount Package by replacing "x" with one of the following:

  US = US Wall Mount AU = AUS Wall Mount UK = UK Wall Mount EU= EU Wall Mount

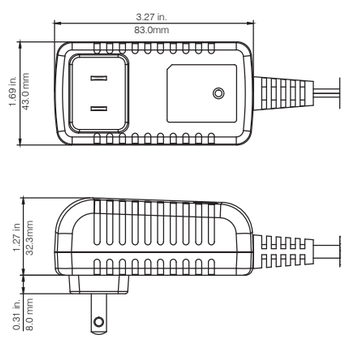
- Designate DC Connector by replacing "y" with "U" for Mini USB or "B" for Barrel Jack Connector. (5.5 x 2.1 x 11mm)
- Other Connectors available upon request, consult factory.
- Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING

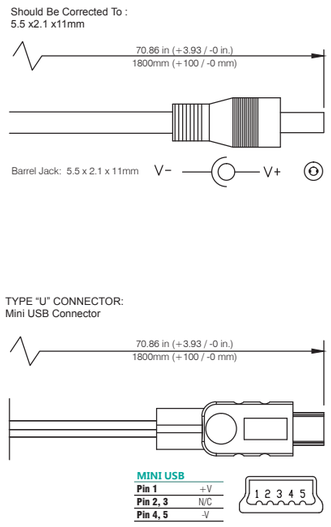
EU WALLMOUNT PACKAGE:



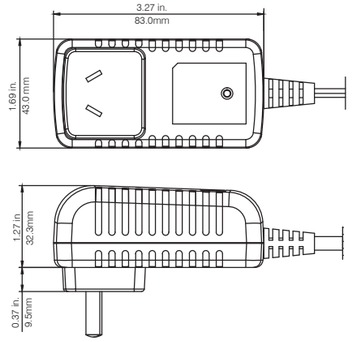
US WALLMOUNT PACKAGE:



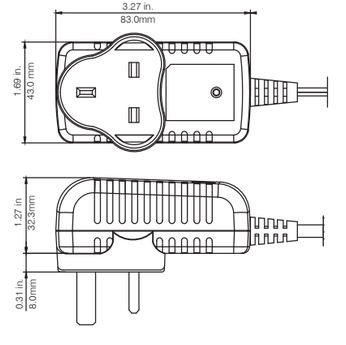
DC CONNECTOR OPTIONS:



AU WALLMOUNT PACKAGE:



UK WALLMOUNT PACKAGE:



Medical Power Supply

MANGO40 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 1.95 x 3.78 x 1.18" Footprint
- Class I or Class II Construction
- High Efficiency - Level V
- High Power Density - 4.58W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal) 300 VAC (maximum Non-Operating)
Input Frequency	47~63Hz
Input Current	1.0A $_{RMS}$ at 115VAC
Inrush Current	<80A @ 240 VAC, Cold Start
Power Factor	EN61000-3-2,Class A
Leakage Current	<100uA @ 264VAC
No Load Input Power	<0.3W @ 240VAC

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110-140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

GENERAL SPECIFICATIONS

Efficiency	79% for 5V output 87% for other Models
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	200g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-20 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s²(30G), 11mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V $_{RMS}$ (6V $_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

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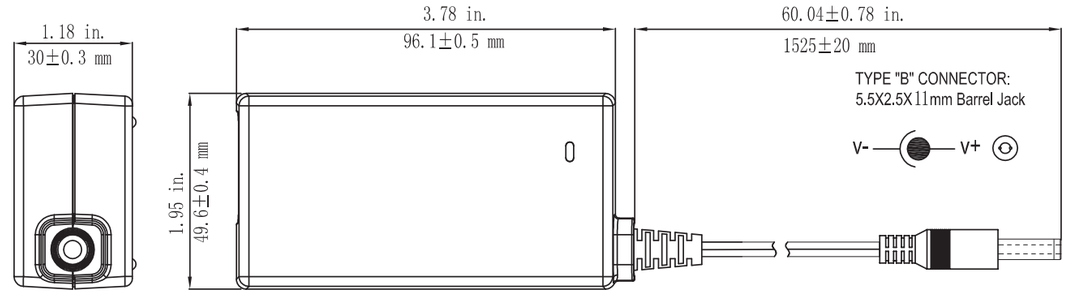
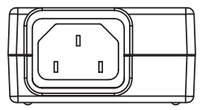
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO40-5xy	5V	4.00A	5.0A	50mV	±5%
MANGO40-12xy	12V	3.33A	4.0A	120mV	±5%
MANGO40-19xy	19V	2.10A	2.5A	190mV	±5%
MANGO40-24xy	24V	1.67A	2.0A	240mV	±5%
MANGO40-28xy	28V	1.43A	1.7A	280mV	±5%
MANGO40-48xy	48V	0.84A	1.0A	480mV	±5%

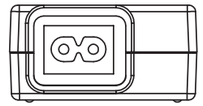
* Designate Input Type and Safety Class by replacing "x" with the following:
  "A" for IEC320-C14 Inlet(Class I Safety Approvals) "B" for IEC320-C8 Inlet(Class II Safety Approvals)
* Designate DC Output Connector by replacing "y" with the following:
  "K" for Kycon KPPX-4P Non Locking Connector "B" for Barrel Jack Connector (5.5 x 2.5 x11mm)
* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING

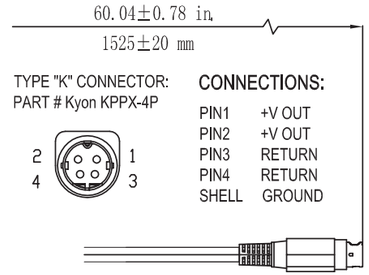




MANGO40- ## Ay MODELS:
Class I Safety Approvals
IEC-320 C14 Inlet



MANGO40- ## By MODELS:
Class II Safety Approvals
IEC-320 C8 Inlet



Medical Power Supply

MANGO40S Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 1.95 x 3.78 x 1.18" Footprint
- Class I or Class II Construction
- High Efficiency - Level VI
- High Power Density - 4.58W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal) 300 VAC (maximum Non-Operating)
Input Frequency	47~63Hz
Input Current	1.0A $_{RMS}$ at 115VAC
Inrush Current	<80A @ 240 VAC, Cold Start
Power Factor	EN61000-3-2,Class A
Leakage Current	<100uA @ 264VAC
No Load Input Power	≤0.1W No Load Input Power @ 240VAC

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110-140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

GENERAL SPECIFICATIONS

Efficiency	79% for 5V output 87% for other Models
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	200g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-20 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s²(30G), 11mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS} (6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

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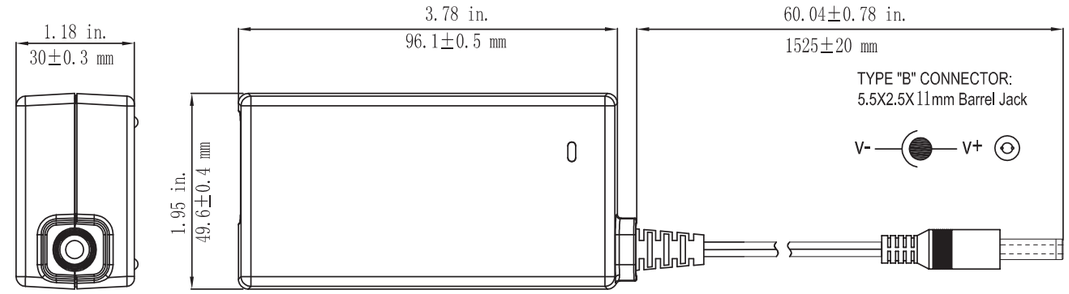
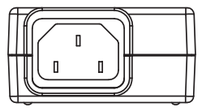
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO40S-5xy	5V	4.00A	5.0A	50mV	±5%
MANGO40S-12xy	12V	3.33A	4.0A	120mV	±5%
MANGO40S-19xy	19V	2.10A	2.5A	190mV	±5%
MANGO40S-24xy	24V	1.67A	2.0A	240mV	±5%
MANGO40S-28xy	28V	1.43A	1.7A	280mV	±5%
MANGO40S-48xy	48V	0.84A	1.0A	480mV	±5%

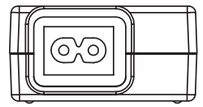
* Designate Input Type and Safety Class by replacing "x" with the following:
  "A" for IEC320-C14 Inlet(Class I Safety Approvals) "B" for IEC320-C8 Inlet(Class II Safety Approvals)
* Designate DC Output Connector by replacing "y" with the following:
  "K" for Kycon KPPX-4P Non Locking Connector "B" for Barrel Jack Connector (5.5 x 2.5 x11mm)
* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING

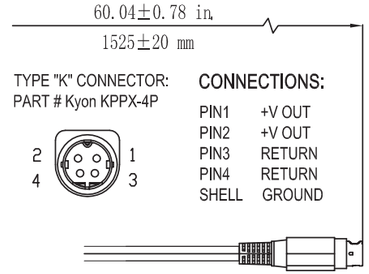




MANGO40- ## Ay MODELS:
Class I Safety Approvals
IEC-320 C14 Inlet



MANGO40- ## By MODELS:
Class II Safety Approvals
IEC-320 C8 Inlet



Medical Power Supply

MANGO60 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 4.17 x 2.24 x 1.14" Footprint
- Class I or Class II Construction
- IPX1 Rated Enclosure
- High Efficiency - Level V
- High Power Density - 5.63W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal) 300 VAC (maximum Non-Operating)
Input Frequency	47~63Hz
Input Current	1.5A $_{RMS}$ at 115VAC
Inrush Current	<80A @ 240 VAC, Cold Start
Power Factor	EN61000-3-2, Class A
Leakage Current	<100 µA @ 264VAC
No Load Input Power	<0.3W @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-20 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s²(30G), 11mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/µS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS} (6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	89% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	300g

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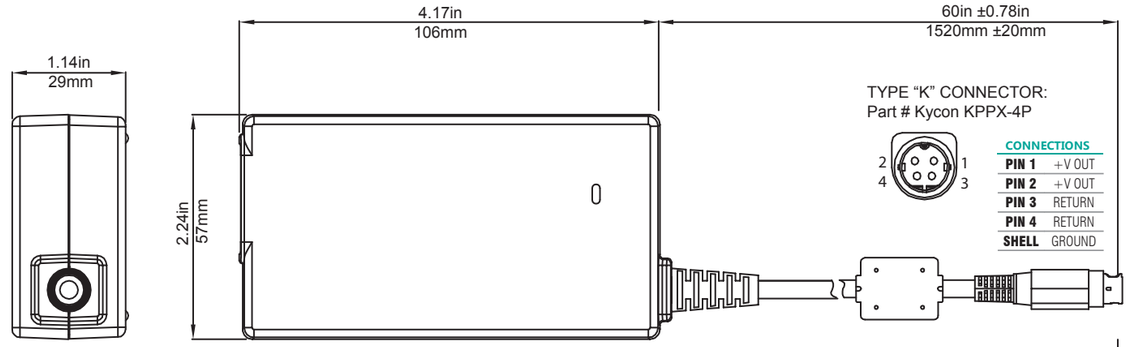
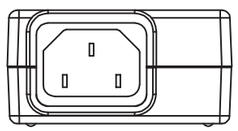
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO60-12xy	12V	5.0A	6.0A	120mV	±5%
MANGO60-19xy	19V	3.15A	3.8A	190mV	±5%
MANGO60-24xy	24V	2.5A	3.0A	240mV	±5%
MANGO60-28xy	28V	2.14A	2.6A	280mV	±5%
MANGO60-48xy	48V	1.25A	1.5A	480mV	±5%

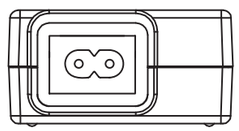
* Designate Input Type and Safety Class by replacing "x" with the following:
  "A" for IEC320-C14 Inlet (Class I Safety Approvals) "B" for IEC-320 C8 Inlet (Class II Safety Approvals)
* Designate DC Output Connector by replacing "y" with the following:
  "K" for Kycon KPPX-4P Non Locking Connector "B" for Barrel Jack Connector (5.5 x 2.5 x 11mm)
* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING





MANGO60-##Ay MODELS:
Class I Safety Approvals
IEC-320 C14 Inlet



MANGO60-##By MODELS:
Class II Safety Approvals
IEC-320 C8 Inlet

MANGO60S Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 4.17 x 2.24 x 1.14" Footprint
- Class I or Class II Construction
- IPX1 Rated Enclosure
- High Efficiency - Level VI
- High Power Density - 5.63W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal) 300 VAC (maximum Non-Operating)
Input Frequency	47~63Hz
Input Current	1.5A $_{RMS}$ at 115VAC
Inrush Current	<80A @ 240 VAC, Cold Start
Power Factor	EN61000-3-2, Class A
Leakage Current	<100 µA @ 264VAC
No Load Input Power	≤0.1W No Load Input Power @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-20 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s²(30G), 11mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/µS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS} (6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	89% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	300g

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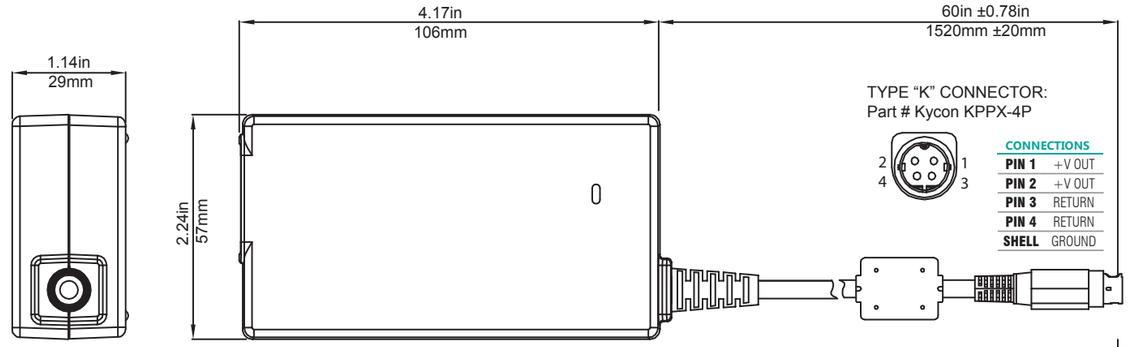
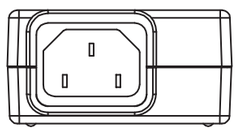
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO60S-12xy	12V	5.0A	6.0A	120mV	±5%
MANGO60S-19xy	19V	3.15A	3.8A	190mV	±5%
MANGO60S-24xy	24V	2.5A	3.0A	240mV	±5%
MANGO60S-28xy	28V	2.14A	2.6A	280mV	±5%
MANGO60S-48xy	48V	1.25A	1.5A	480mV	±5%

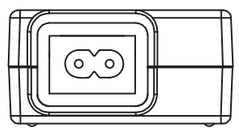
* Designate Input Type and Safety Class by replacing "x" with the following:
"A" for IEC320-C14 Inlet (Class I Safety Approvals) "B" for IEC-320 C8 Inlet (Class II Safety Approvals)
* Designate DC Output Connector by replacing "y" with the following:
"K" for Kycon KPPX-4P Non Locking Connector "B" for Barrel Jack Connector (5.5 x 2.5 x 11mm)
* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING





MANGO60-##Ay MODELS:
Class I Safety Approvals
IEC-320 C14 Inlet



MANGO60-##By MODELS:
Class II Safety Approvals
IEC-320 C8 Inlet

Medical Power Supply

MANGO60S-USB-PDY

FEATURES

- Medical 60601-1 Safety Approvals
- Small 4.17 x 2.24 x 1.14" Footprint
- Class I or Class II Construction
- IPX1 Rated Enclosure
- High Efficiency - Level V
- High Power Density - 5.63W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT CE

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	1.5A $_{RMS}$@ 115VAC $_{RMS}$
Inrush Current	<80A @ 240 VAC, 25℃ ,Cold Start
Power Factor	N/A
Leakage Current	<100μA @ 264VAC
No Load Input Power	<0.1W @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M
Shock	294m/s²(30G),11mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	5V/9V/10.4V/15V/20V(PD protocol selection)
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/Ms
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conduc ted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS} (6V_{RMS} for ISM and Amateur Band) Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Tadle 9 in IEC60601-1-2 4thED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	EN60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

STATUS & CONTROL

Efficiency	85% typical@ 115/230 VAC, 20VDC 80% typical@ 115/230 VAC, 5VDC
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	300g

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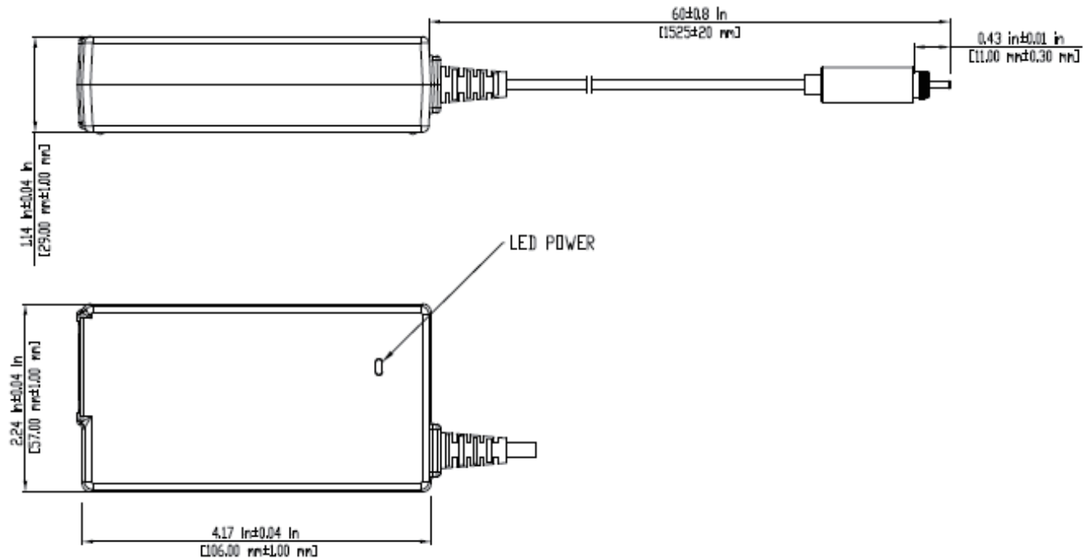
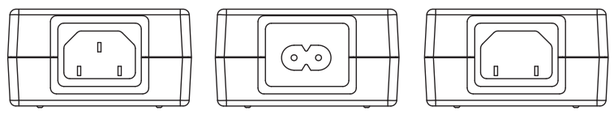
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO60S-USB-PDY	or 5V	0.1-3.0A	3.1A	100mV	±5%
	or 9V	0.1-3.0A	3.1A	100mV	±5%
	or 10.4V	0.1-3.0A	3.1A	100mV	±5%
	or 15V	0.1-3.0A	3.1A	150mV	±5%
	or 20V	0.1-3.0A	3.1A	200mV	±5%

OUTLINE DRAWING





"A" Package
C14 Inlet / Class I Safety Approvals

"B" Package
C8 Inlet / Class II Safety Approvals

"C" Package
C18 Inlet / Class II Safety Approvals

Medical Power Supply

MANGO100 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 6.02 x 2.43 x 1.28" Footprint
- Universal AC Input With Active PFC
- IPX1 Rated Enclosure
- Class I or Class II Construction
- High Efficiency - Level V
- High Power Density - 5.4W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	2.0A $_{RMS}$ at 115VAC
Inrush Current	<120A @ 240 VAC, Cold Start
Power Factor	>0.95
Leakage Current	<100μA @ 264VAC
No Load Input Power	<0.5W @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	1.5 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V $_{RMS}$ (6V $_{RMS,ISM\ band}$), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition PSE (19V, 24V & 28V Models only) CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	88% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	500g

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MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO100-12xy	12V	7.5A	10.0A	120mV	±5%
MANGO100-19xy	19V	5.3A	6.7A	190mV	±5%
MANGO100-24xy	24V	4.2A	5.0A	240mV	±5%
MANGO100-28xy	28V	3.6A	4.2A	280mV	±5%
MANGO100-48xy	48V	2.1A	3.0A	480mV	±5%

* Designate Input Type and Safety Class by replacing "x" with the following:

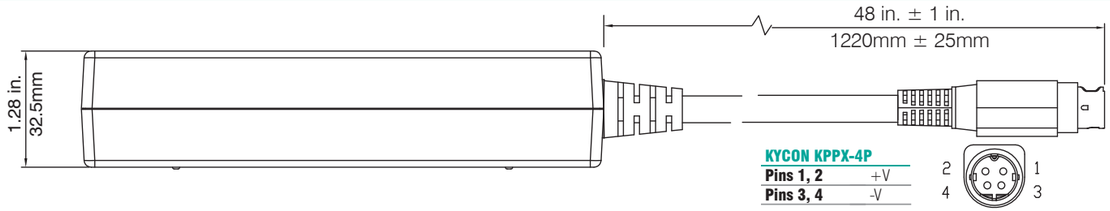
"A" for IEC320-C14 Inlet (Class I Safety Approvals)
"B" for IEC-320 C8 Inlet (Class II Safety Approvals)
"C" for IEC-320 C18 Inlet (Class II Safety Approvals)

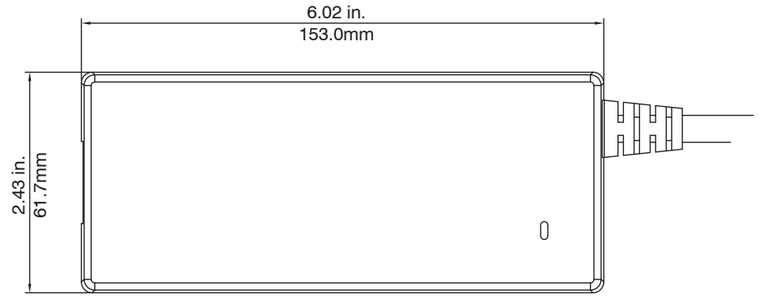
* Designate DC Output Connector by replacing "y" with the following:

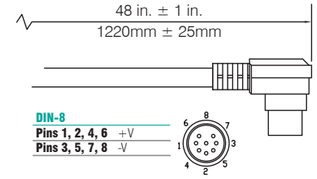
"D" for for 8 Pin DIN Connector
"K" for Kycon KPPX-4P Non Locking Connector
"M" for Molex 6CKT Model # 39-01-2060 or equivalent
"B" for Barrel Jack Connector (5.5 x 2.5 x 11 mm)

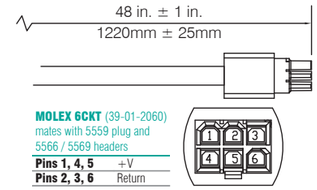
* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

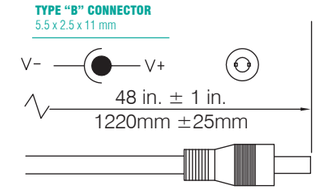
OUTLINE DRAWING

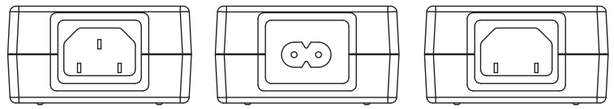












"A" Package
C14 Inlet / Class I Safety Approvals

"B" Package
C8 Inlet / Class II Safety Approvals

"C" Package
C18 Inlet / Class II Safety Approvals

Medical Power Supply

MANGO100S Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 6.02 x 2.43 x 1.28" Footprint
- Universal AC Input With Active PFC
- IPX1 Rated Enclosure
- Class II Construction
- High Efficiency - Level VI
- High Power Density - 5.4W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	2.0A $_{RMS}$ at 115VAC
Inrush Current	<120A @ 240 VAC, Cold Start
Power Factor	>0.95
Leakage Current	<100μA @ 264VAC
No Load Input Power	≤0.15W @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	1.5 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	88% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	500g

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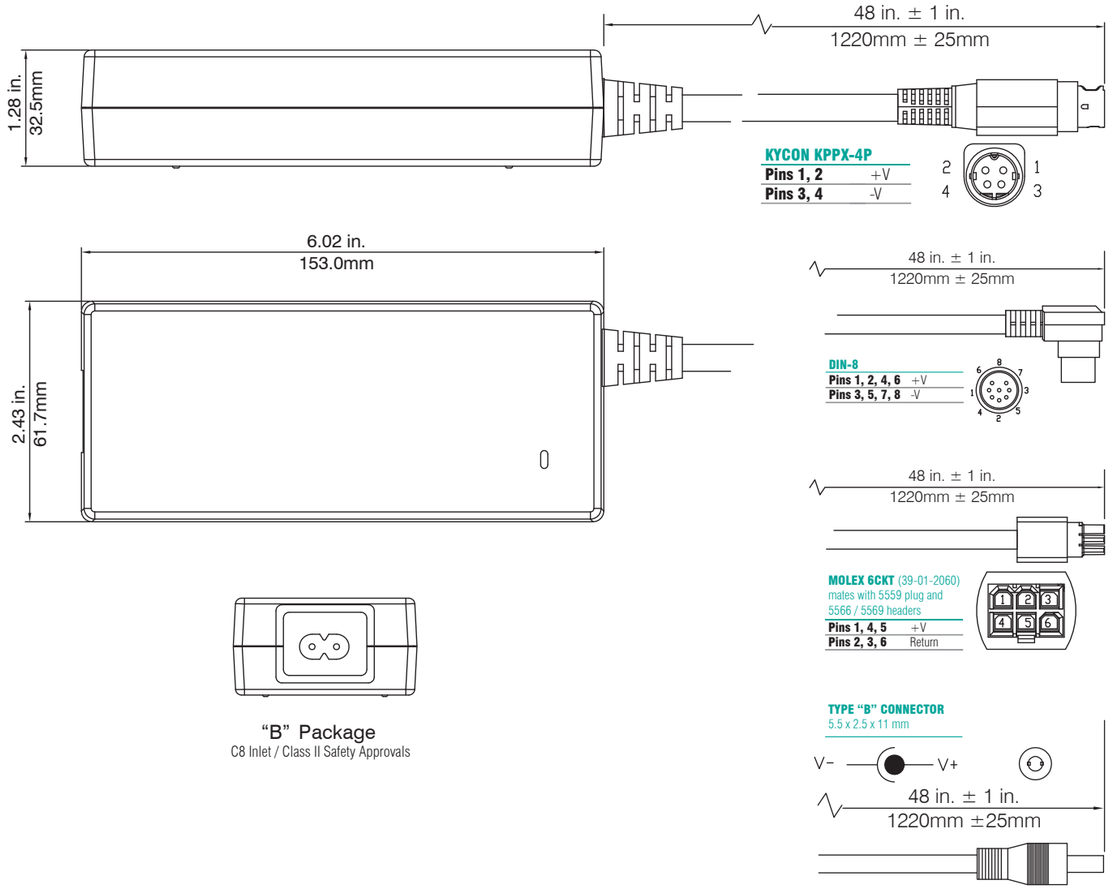
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO100S-12xy	12V	7.5A	10.0A	120mV	±5%
MANGO100S-19xy	19V	5.3A	6.7A	190mV	±5%
MANGO100S-24xy	24V	4.2A	5.0A	240mV	±5%
MANGO100S-28xy	28V	3.6A	4.2A	280mV	±5%
MANGO100S-48xy	48V	2.1A	3.0A	480mV	±5%

* Designate Input Type and Safety Class by replacing "x" with the following:
  "B" for IEC-320 C8 Inlet (Class II Safety Approvals)
* Designate DC Output Connector by replacing "y" with the following:
  "D" for for 8 Pin DIN Connector
  "K" for Kycon KPPX-4P Non Locking Connector
  "M" for Molex 6CKT Model # 39-01-2060 or equivalent
  "B" for Barrel Jack Connector (5.5 x 2.5 x 11 mm)
* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING



"B" Package
C8 Inlet / Class II Safety Approvals

Medical Power Supply

MANGO100S-USB-PD Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 6.02 x 2.43 x 1.28" Footprint
- Universal AC Input With Active PFC
- IP22 Rated Enclosure
- Class II Construction
- High Efficiency - DoE EPS - Level VI
- High Power Density - 5.4W/in3
- EN55011 / FCC Part 15J Class B Emissions
- 3-Year Warranty

INPUT SPECIFICATIONS

Input Votage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Curren	2.0A$_{RMS}$@ 115VAC
Inrush Curren	<120A @ 240 VAC, 25℃ Cold start
Power Factor	>0.91
Leakage Current	<100μA @ 264VAC
No Load Input Powe	<0.15W @ 240VAC

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	See Table
Turn-On Delay	1.5 seconds max @ 115VAC
Hold-Up Time	>20ms @ 115VAC, Full Load
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

GENERAL SPECIFICATIONS

Efficiency	86% typicalt@ 115/230 VAC, full load
Isolation	4000 VAC – Input to Output
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	500g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M
Shock	294m/s²(30G), 11ms, 6 times on each of 3 axes
Vibration	10-500 Hz,19.6 m/s²(2G), 20 mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conduc ted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$ for ISM and Amateur Band) Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Tadle 9 in IEC60601-1-2 4thED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5 cycles at 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°; 0%, 1cycle and 70% 25/30 cycles at 0°; 0%, 300 cycles , Criterion A/B/C
Safety Approvals	EN60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

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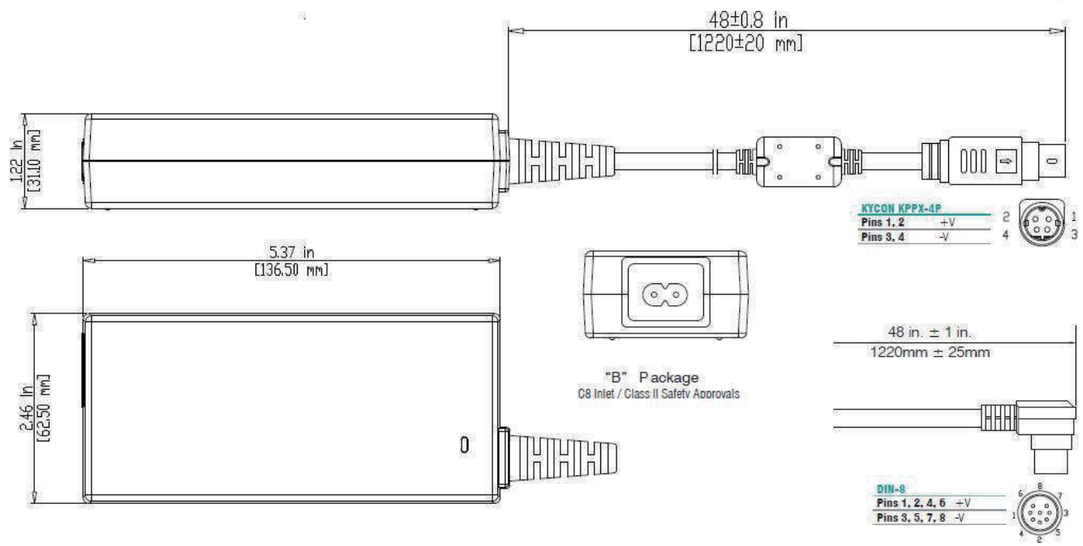
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO100S-USB-YYY	or 5V	0.1-5.0A	5.0A	100MV	±5%
	or 9V	0.1-5.0A	5.0A	100MV	±5%
	or 10.4V	0.1-5.0A	5.0A	150MV	±5%
	or 12V	0.1-5.0A	5.0A	150MV	±5%
	or 15V	0.1-5.0A	5.0A	200MV	±5%
	or 20V	0.1-5.0A	5.0A	200MV	±5%

* yyy in the table above is used to identify different customers,which can be repleced by A-Z、0-9 or blanket.

* For other reqests such as different connectors, unique Voltage setpoints or other modifications, please consult Megmeet for more details.

OUTLINE DRAWING



Medical Power Supply

MANGO120 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 6.02 x 2.43 x 1.28" Footprint
- Universal AC Input with Active PFC
- IPX1 Rated Enclosure
- Class I or Class II Construction
- High Efficiency - Level V
- High Power Density - 6.4W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	2.0A$_{RMS}$ at 115VAC
Inrush Current	<120A @ 240 VAC, Cold Start
Power Factor	>0.95
Leakage Current	<100μA @ 264VAC
No Load Input Power	<0.5W @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	1.5 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition PSE (12.5V & 19V Models only) CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	88% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 1500 VAC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	500g

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MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO120-12xy	12V	10A	12A	120mV	±5%
MANGO120-19xy	19V	6.3A	7.5A	190mV	±5%
MANGO120-24xy	24V	5.0A	6.0A	240mV	±5%
MANGO120-28xy	28V	4.3A	5.0A	280mV	±5%
MANGO120-48xy	48V	2.5A	3.0A	480mV	±5%

* Designate Input Type and Safety Class by replacing "x" with the following:

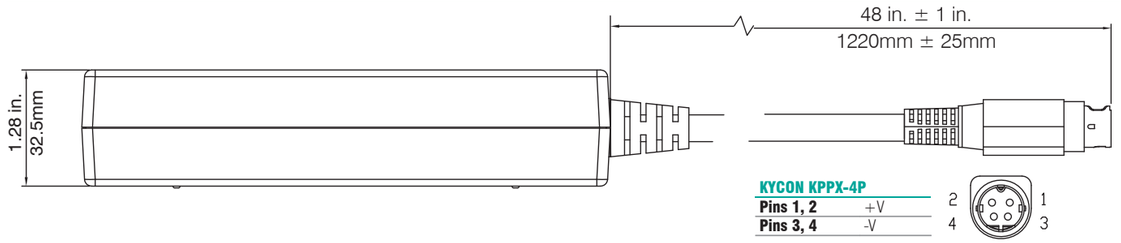
"A" for IEC320-C14 Inlet (Class I Safety Approvals)
"B" for IEC-320 C8 Inlet (Class II Safety Approvals)
"C" for IEC-320 C18 Inlet (Class II Safety Approvals)
"D" for IEC-320 C6 Inlet (Class I Safety Approvals)

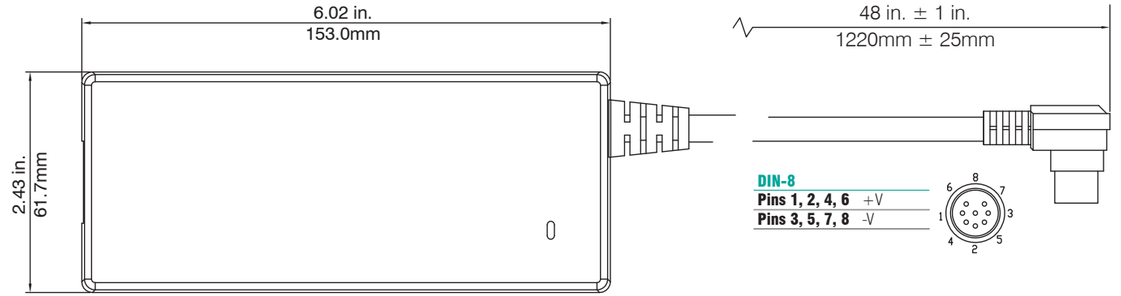
* Designate DC Output Connector by replacing "y" with the following:

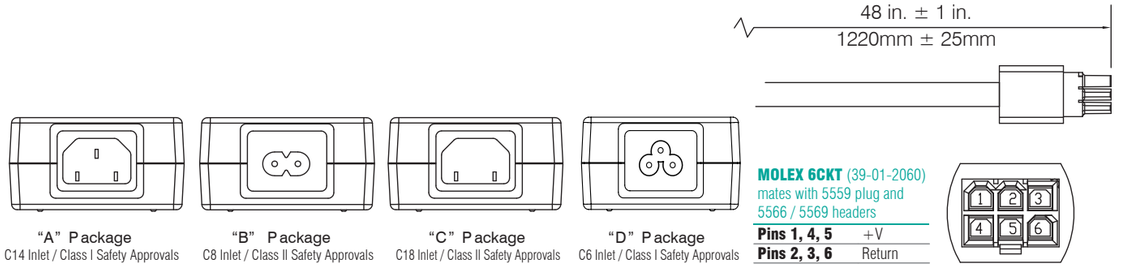
"D" for for 8 Pin DIN Connector
"K" for Kycon KPPX-4P Non Locking Connector
"M" for Molex 6CKT Model # 39-01-2060 or equivalent

* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING







"A" Package
C14 Inlet / Class I Safety Approvals

"B" Package
C8 Inlet / Class II Safety Approvals

"C" Package
C18 Inlet / Class II Safety Approvals

"D" Package
C6 Inlet / Class I Safety Approvals

Medical Power Supply

MANGO120S Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 6.02 x 2.43 x 1.28" Footprint
- Universal AC Input with Active PFC
- IP22 Rated Enclosure
- Class I or Class II Construction
- High Efficiency - Level VI
- High Power Density - 6.4W/in3
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

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INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	2.0A_{RMS} at 115VAC
Inrush Current	<120A @ 240 VAC, Cold Start
Power Factor	>0.95
Earth leakage Current	<150μA @264VAC 60Hz
Patient leakag Current	<100μA @ 264VAC 60Hz
No Load Input Power	<0.21W @ 240VAC

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	1.5 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

GENERAL SPECIFICATIONS

Efficiency	88%-93% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 1500 VAC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	500g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS} (6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

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MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO120S-12xy	12V	10A	12A	120mV	±5%
MANGO120S-15xy	15V	8.0A	9.6A	150mV	±5%
MANGO120S-19xy	19V	6.3A	7.5A	190mV	±5%
MANGO120S-24xy	24V	5.0A	6.0A	240mV	±5%
MANGO120S-26xy	26V	4.6A	5.5A	260mV	±5%
MANGO120S-28xy	28V	4.3A	5.0A	280mV	±5%

* Designate Input Type and Safety Class by replacing "x" with the following:

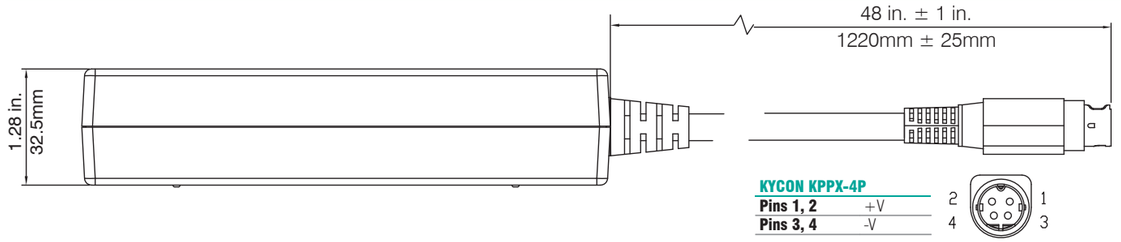
"A" for IEC320-C14 Inlet (Class I Safety Approvals) "C" for IEC-320 C18 Inlet (Class II Safety Approvals)
"B" for IEC-320 C8 Inlet (Class II Safety Approvals) "D" for IEC-320 C6 Inlet (Class I Safety Approvals)

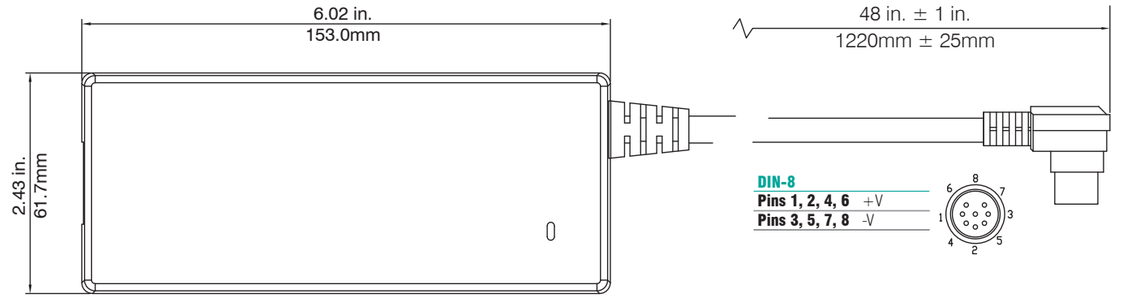
* Designate DC Output Connector by replacing "y" with the following:

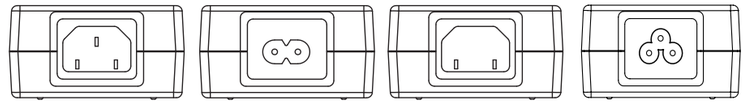
"D" for for 8 Pin DIN Connector "M" for Molex 6CKT Model # 39-01-2060 or equivalent
"K" for Kycon KPPX-4P Non Locking Connector

* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING







"A" Package
C14 Inlet / Class I Safety Approvals

"B" Package
C8 Inlet / Class II Safety Approvals

"C" Package
C18 Inlet / Class II Safety Approvals

"D" Package
C6 Inlet / Class I Safety Approvals

Medical Power Supply

MANGO150 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 7.00 x 2.66 x 1.26" Footprint
- Universal AC Input with Active PFC
- IPX1 Rated Enclosure
- Class II Construction
- High Efficiency - Level V
- High Power Density - 6.4W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	2.5A$_{RMS}$ at 115VAC
Inrush Current	<150A @ 240 VAC, Cold Start
Power Factor	>0.97
Leakage Current	<100μA @ 264VAC
No Load Input Power	<0.5W @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-18 ~ +40°C
Derating	2.5%/°C > 40°C, up to 60°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	30m/s², 10mS on 3 axes
Vibration	10-55 Hz, 19.6 m/s²(2G), 20mins on 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>25ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition PSE (19V, 24V & 28V Models only) CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	90% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	610g

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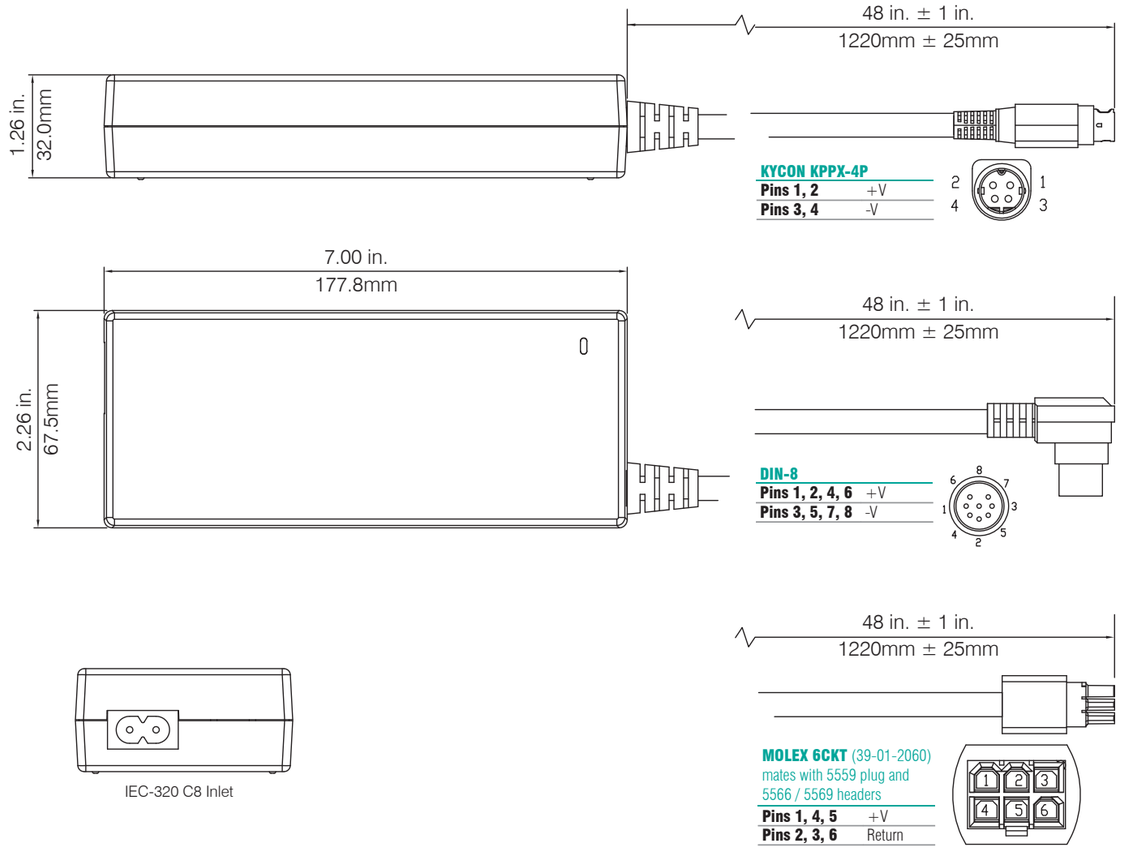
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO150-12By	12V	12.5A	15.0A	120mV	±5%
MANGO150-19By	19V	7.9A	9.5A	190mV	±5%
MANGO150-24By	24V	6.25A	7.5A	240mV	±5%
MANGO150-28By	28V	5.36A	6.4A	280mV	±5%
MANGO150-48By	48V	3.12A	3.7A	480mV	±5%

* Designate DC Output Connector by replacing "y" with the following:

"D" for for 8 Pin DIN Connector
"K" for Kycon KPPX-4P Non Locking Connector
"M" for Molex Connector Part Number 39-01-2060 or equivalent

* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING



Medical Power Supply

MANGO150S Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 6.02 x 2.43 x 1.28" Footprint
- Universal AC Input with Active PFC
- IP22 Rated Enclosure
- Class I or Class II Construction
- High Efficiency - Level VI
- High Power Density - 8W/in3
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	2.5A$_{RMS}$ at 115VAC
Inrush Current	<150A @ 240 VAC, Cold Start
Power Factor	>0.97
Earth leakage Current	<150μA @264VAC 60Hz
Patient leakag Current	<100μA @ 264VAC 60Hz
No Load Input Power	<0.21W @ 240VAC

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>25ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

GENERAL SPECIFICATIONS

Efficiency	90%-94% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 1500 VAC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	610g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-18 ~ +40°C
Derating	2.5%/°C > 40°C, up to 60°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-55 Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

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MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO150S-12xy	12V	12.5A	15.0A	120mV	±5%
MANGO150S-15xy	15V	10A	12A	150mV	±5%
MANGO150S-19xy	19V	7.9A	9.5A	190mV	±5%
MANGO150S-24xy	24V	6.25A	7.5A	240mV	±5%
MANGO150S-26xy	26V	5.78A	6.92A	260mV	±5%
MANGO150S-28xy	28V	5.36A	6.4A	280mV	±5%

* Designate Input Type and Safety Class by replacing "x" with the following:

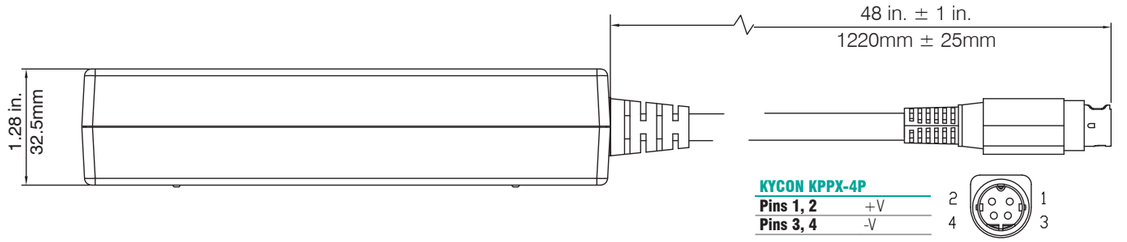
"A" for IEC320-C14 Inlet (Class I Safety Approvals) "C" for IEC-320 C18 Inlet (Class II Safety Approvals)
"B" for IEC-320 C8 Inlet (Class II Safety Approvals) "D" for IEC-320 C6 Inlet (Class I Safety Approvals)

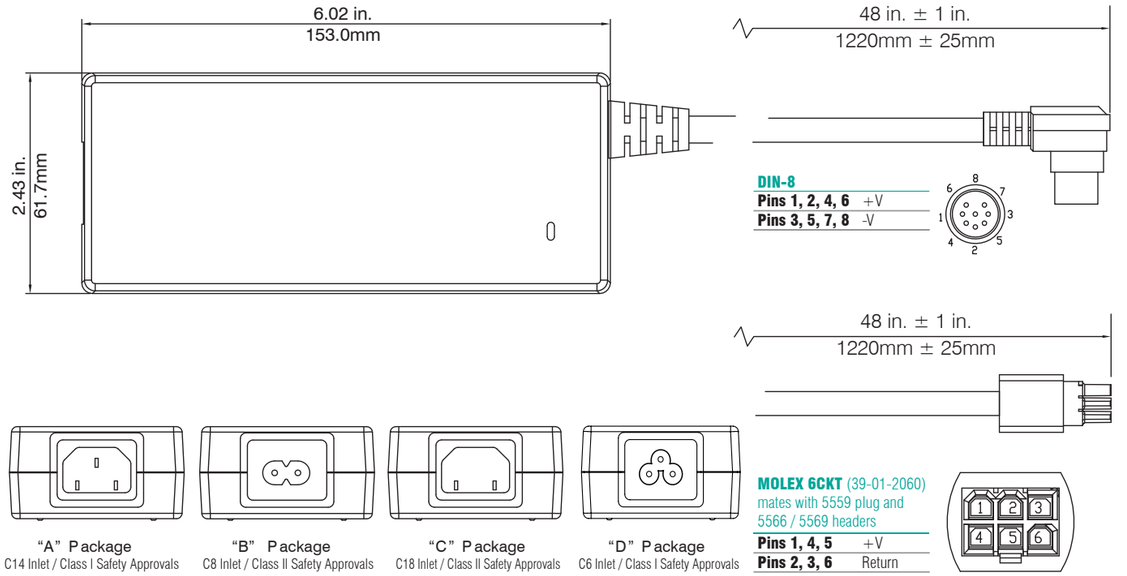
* Designate DC Output Connector by replacing "y" with the following:

"D" for for 8 Pin DIN Connector "M" for Molex 6CKT Model # 39-01-2060 or equivalent
"K" for Kycon KPPX-4P Non Locking Connector

* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING





"A" Package
C14 Inlet / Class I Safety Approvals

"B" Package
C8 Inlet / Class II Safety Approvals

"C" Package
C18 Inlet / Class II Safety Approvals

"D" Package
C6 Inlet / Class I Safety Approvals

Medical Power Supply

MANGO150L Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 7.72 x 2.66 x 1.26" Footprint
- Universal AC Input with Active PFC
- IPX1 Rated Enclosure
- Class I or Class II Construction
- High Efficiency - Level V
- High Power Density - 5.8W/in3
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	2.5A$_{RMS}$ at 115VAC
Inrush Current	<150A @ 240 VAC, Cold Start
Power Factor	>0.97
Leakage Current	<100μA @ 264VAC
No Load Input Power	<0.5W @ 240VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-18 ~ +40°C
Derating	2.5%/°C > 40°C, up to 60°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>25ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition PSE (15V,19V&22V Models only) CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	90% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	620g

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MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO150L-12xy	12V	12.5A	15.0A	120mV	±5%
MANGO150L-15xy	15V	10A	12A	150mV	±5%
MANGO150L-19xy	19V	7.9A	9.5A	190mV	±5%
MANGO150L-24xy	24V	6.25A	7.5A	240mV	±5%
MANGO150L-28xy	28V	5.36A	6.4A	280mV	±5%
MANGO150L-48xy	48V	3.12A	3.7A	480mV	±5%

* Designate Input Type and Safety Class by replacing "x" with the following:

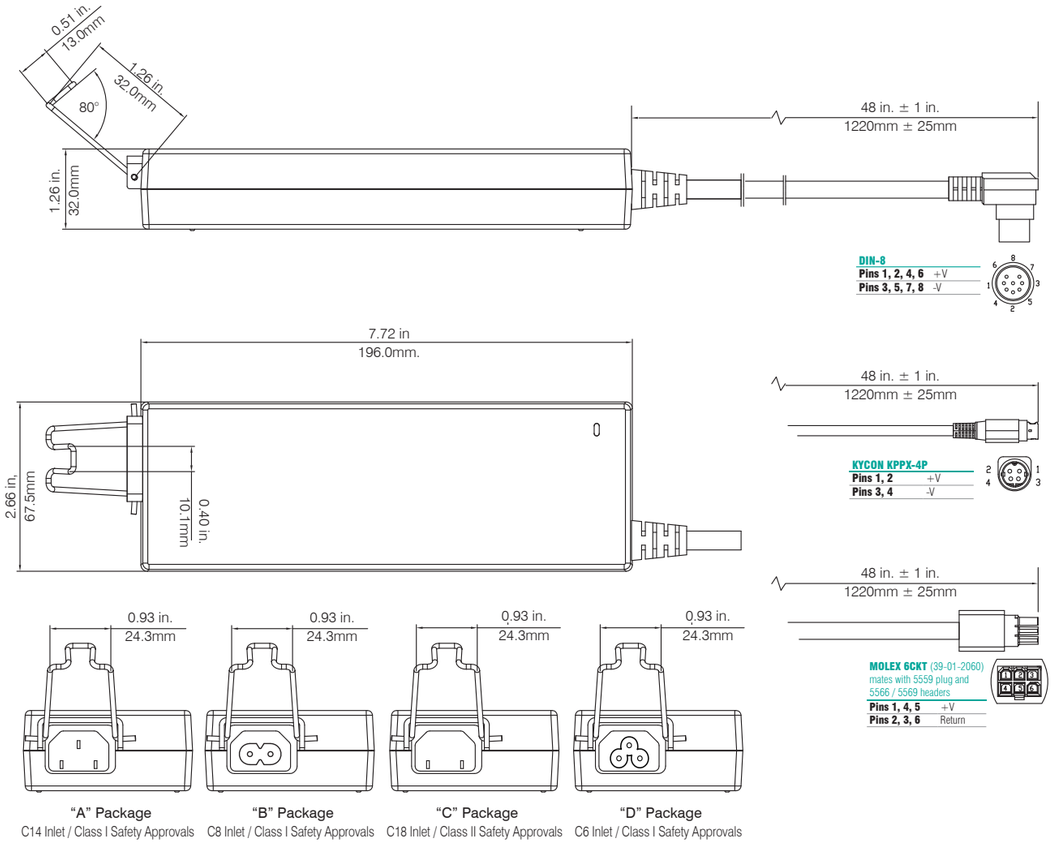
"A" for IEC320-C14 Inlet (Class I Safety Approvals)
"B" for IEC-320 C8 Inlet (Class II Safety Approvals)
"C" for IEC-320 C18 Inlet (Class II Safety Approvals)
"D" for IEC-320 C6 Inlet (Class I Safety Approvals)

* Designate DC Output Connector by replacing "y" with the following:

"D" for 8 Pin DIN Connector
"K" for Kycon KPPX-4P Non Locking Connector
"M" for Molex Connector Part Number 39-01-2060 or equivalent

* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING



"A" Package
C14 Inlet / Class I Safety Approvals

"B" Package
C8 Inlet / Class I Safety Approvals

"C" Package
C18 Inlet / Class II Safety Approvals

"D" Package
C6 Inlet / Class I Safety Approvals

Medical Power Supply

MANGO200 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 7.99 x 4.09 x 1.81” Footprint
- Universal AC Input with Active PFC
- IPX1 Rated Enclosure
- Class I or Class II Construction
- High Efficiency - Level V
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	3.5A$_{RMS}$ at 115VAC
Inrush Current	<150A @ 240 VAC, Cold Start
Power Factor	>0.97
Leakage Current	<100μA @ 264VAC
No Load Input Power	< 0.5W @ 240 VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	49m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Level 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	90% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	960g

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MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO200-12xy	12V	15.00A	18.0A	120mV	±5%
MANGO200-19xy	19V	10.52A	12.6A	190mV	±5%
MANGO200-24xy	24V	8.33A	10.0A	240mV	±5%
MANGO200-28xy	28V	7.14A	8.6A	280mV	±5%
MANGO200-48xy	48V	4.17A	5.0A	480mV	±5%

* Designate Input Type and Safety Class by replacing “x” with the following:

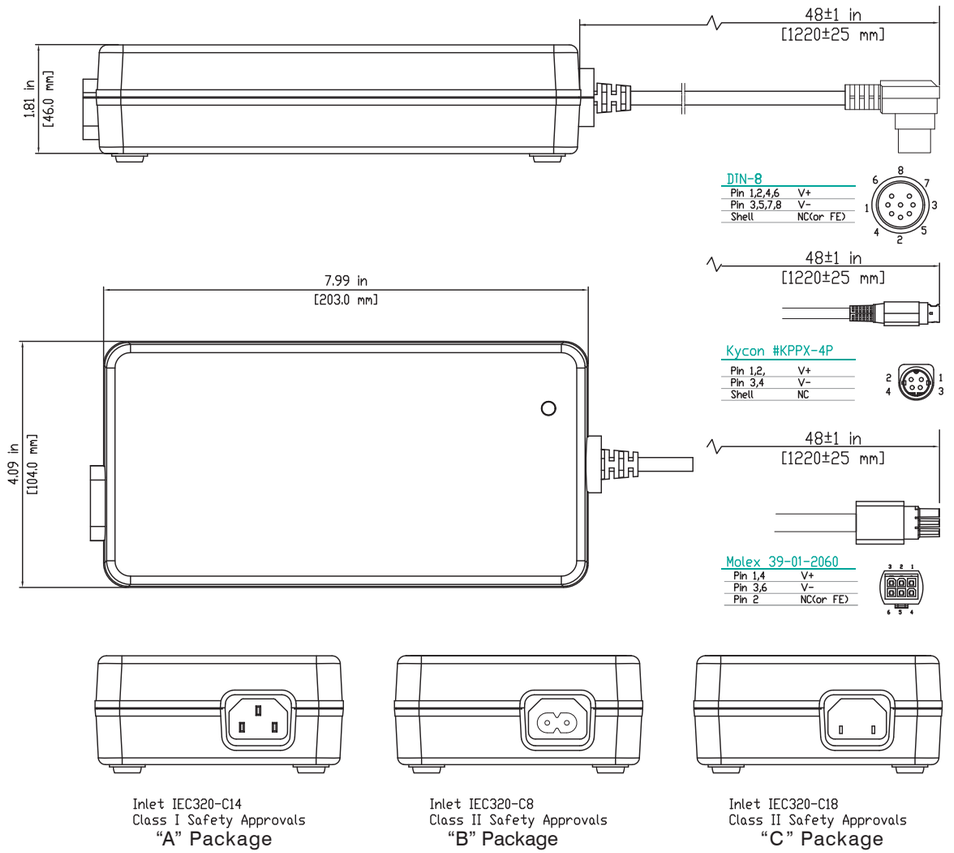
“A” for IEC320-C14 Inlet (Class I Safety Approvals)
“B” for IEC320-C8 Inlet (Class II Safety Approvals)
“C” for IEC320-C18 Inlet (Class II Safety Approvals)

* Designate DC Output Connector by replacing “y” with the following:

“D” for for 8 Pin DIN Connector
“K” for Kycon KPPX-4P Non Locking Connector
“M” for Molex Connector Part Number 39-01-2060 or equivalent

* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING



Medical Power Supply

MANGO220S Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 7.72×2.66×1.26" Footprint
- Universal AC Input with Active PFC
- IPX1 Rated Enclosure
- Class I or Class II Construction
- High Efficiency - Level VI
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	3.5A$_{RMS}$ at 115VAC
Inrush Current	<150A @ 240 VAC, Cold Start
Power Factor	>0.97
Earth leakage Current	<150μA @264VAC 60Hz
Patient leakag Current	<100μA @ 264VAC 60Hz
No Load Input Power	< 0.21W @ 240 VAC

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

GENERAL SPECIFICATIONS

Efficiency	90%-94% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 1500 VAC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	800g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

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MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MANGO220S-12xy	12V	18.33A	22.0A	120mV	±5%
MANGO220S-19xy	19V	11.58A	13.9A	190mV	±5%
MANGO220S-24xy	24V	9.17A	11.0A	240mV	±5%
MANGO220S-28xy	28V	7.86A	9.43A	280mV	±5%
MANGO220S-48xy	48V	4.58A	5.5A	480mV	±5%

* Designate Input Type and Safety Class by replacing "x" with the following:

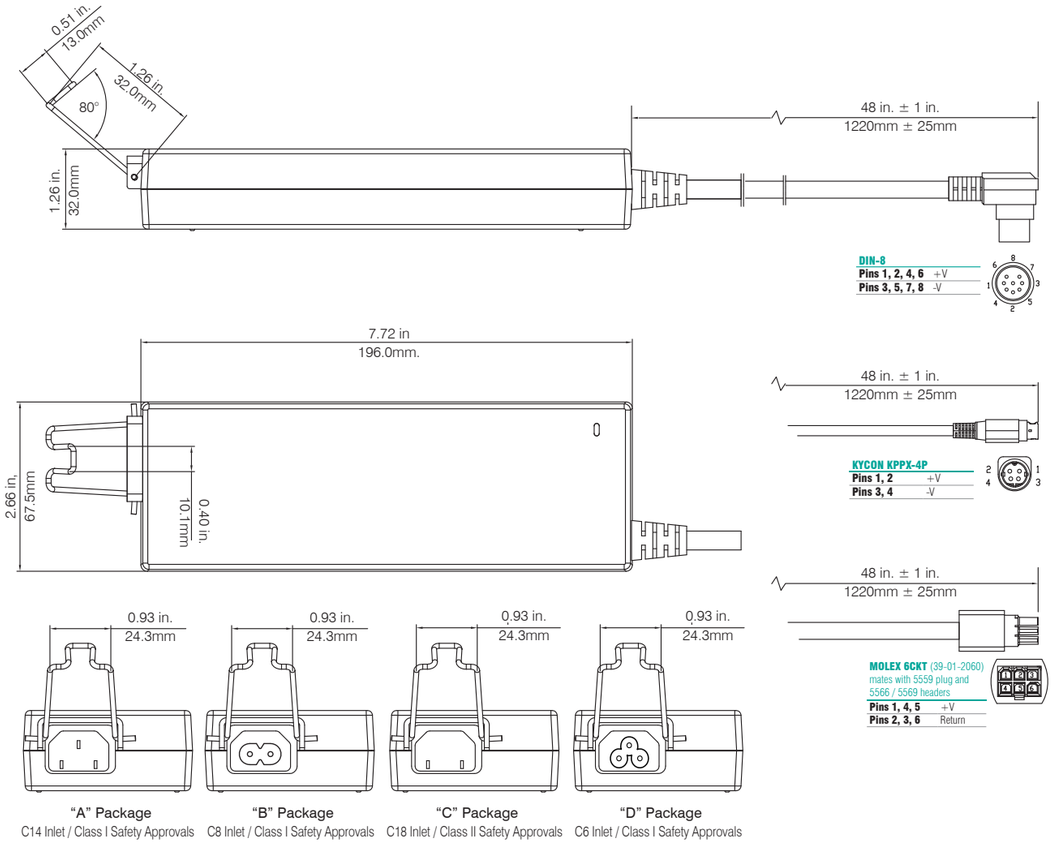
"A" for IEC320-C14 Inlet (Class I Safety Approvals)
"B" for IEC320-C8 Inlet (Class II Safety Approvals)
"C" for IEC320-C18 Inlet (Class II Safety Approvals)
"D" for IEC-320 C6 Inlet (Class I Safety Approvals)

* Designate DC Output Connector by replacing "y" with the following:

"D" for for 8 Pin DIN Connector
"K" for Kycon KPPX-4P Non Locking Connector
"M" for Molex Connector Part Number 39-01-2060 or equivalent

* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING



"A" Package
C14 Inlet / Class I Safety Approvals

"B" Package
C8 Inlet / Class I Safety Approvals

"C" Package
C18 Inlet / Class II Safety Approvals

"D" Package
C6 Inlet / Class I Safety Approvals

Medical Power Supply

MP03004

FEATURES

- Medical 60601-1 Safety Approvals
- Small 7.99 x 4.09 x 1.81” Footprint
- Universal AC Input with Active PFC
- IPX1 Rated Enclosure
- Class I or Class II Construction
- High Efficiency - Level V
- CEC 2008 / ErP2 / EISA 2007 Compliant
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	3.5A$_{RMS}$ at 115VAC
Inrush Current	<150A @ 240 VAC, Cold Start
Power Factor	>0.97
Leakage Current	<100μA @ 264VAC
No Load Input Power	< 0.5W @ 240 VAC

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	49m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input
Over-Voltage	110~140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Level 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$,ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	90% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VDC – Output to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	960g

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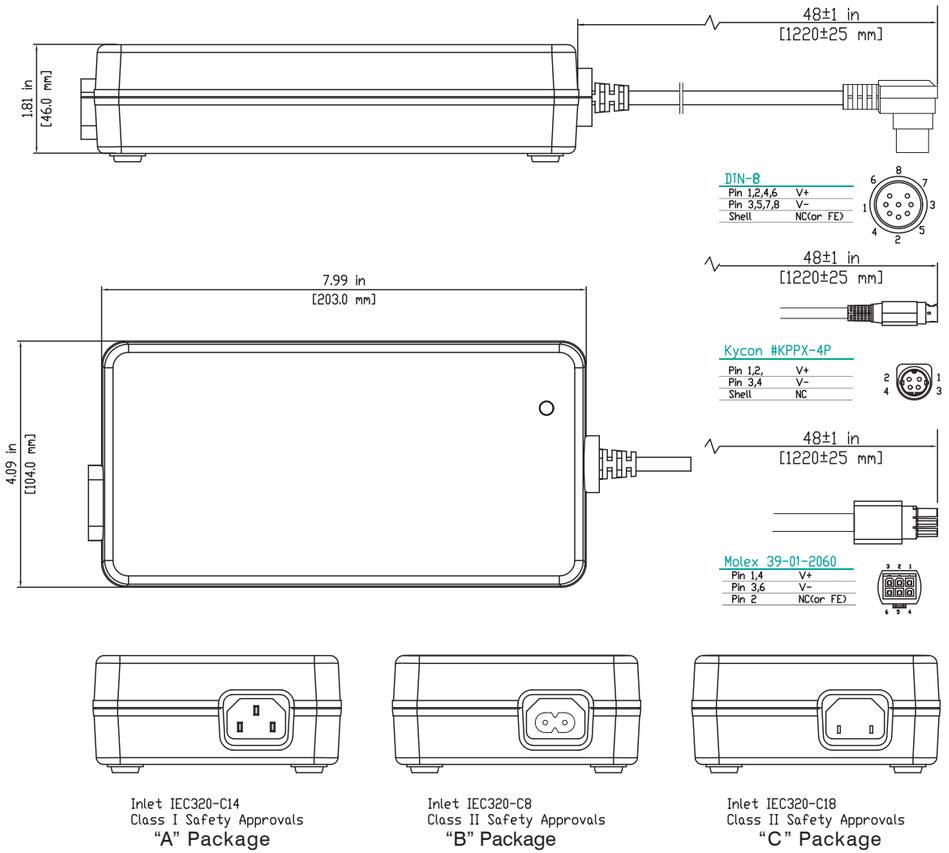
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MP03004	28V	7.15A	8.6A	280mV	±5%

* Designate Input Type and Safety Class by replacing “x” with the following:
  “A” for IEC320-C14 Inlet (Class I Safety Approvals) “C” for IEC320-C18 Inlet (Class II Safety Approvals)
  “B” for IEC320-C8 Inlet (Class II Safety Approvals)
* Designate DC Output Connector by replacing “y” with the following:
  “D” for for 8 Pin DIN Connector “M” for Molex Connector Part Number 39-01-2060 or equivalent
  “K” for Kycon KPPX-4P Non Locking Connector
* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING



Inlet IEC320-C14
Class I Safety Approvals
“A” Package

Inlet IEC320-C8
Class II Safety Approvals
“B” Package

Inlet IEC320-C18
Class II Safety Approvals
“C” Package

Medical Power Supply

MP05004

FEATURES

- Medical 60601-1 Safety Approvals
- Small 5.80 x 2.87 x 1.19” Footprint
- 12V Input Range (11.5-16.0VDC)
- IPX1 Rated Enclosure
- High Power Density - 7.3W/in3
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	11.5 - 16.0 VDC
Input Current	18A at 12VDC
Inrush Current	<25A @ 11.5 VDC, Cold Start
Input Transient	32VDC, 10 secs without damage
UnderVoltage Lockout	shutdown below 11.0 VDC, auto-recovery
OverVoltage Lockout	shutdown > 17.5VDC, auto-recovery
Over Current	shut-down when input >20A, auto-recovery

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-15 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	IEC60068-2-27
Vibration	IEC60068-2-6; IEC60068-2-64

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max after DC Input Applied
Over-Voltage	110-140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
ESD	EN61000-4-2, 4kV contact, 8kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Conducted Immunity	EN61000-4-6 ,3V_{RMS}, Criterion A
Radiated Immunity	EN61000-4-3, 3V/m, Criterion A
Safety Approvals	IEC60601-1, 2nd & 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark

GENERAL SPECIFICATIONS

Efficiency	90% typical
Isolation	Non-Isolated
MTBF	100K Hours, Mil-217F at 25 °C, full load
Weight	450g

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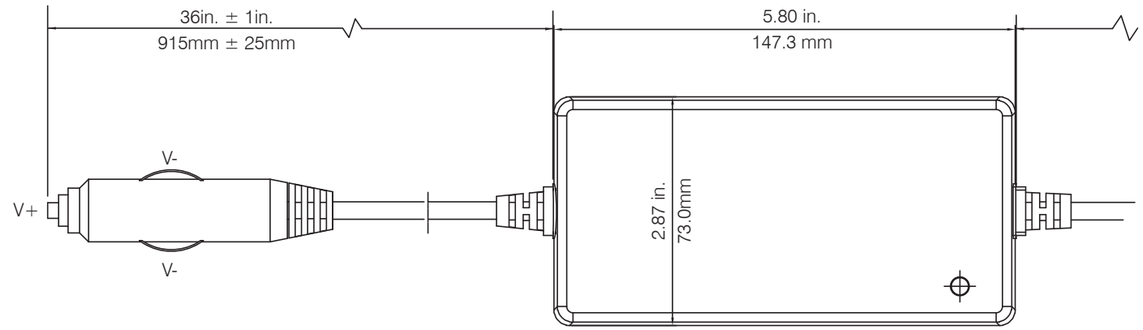
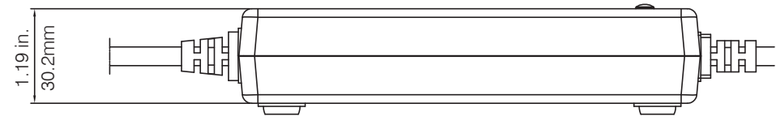
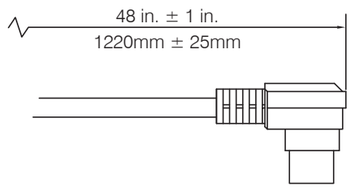
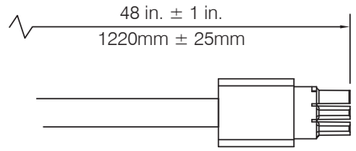
MODELS	OUTPUT VOLTAGE	MAXIMUM CURRENT	RIPPLE & NOISE	TOTAL REGULATION
MP05004	26V	5.70A	260mV	±5%

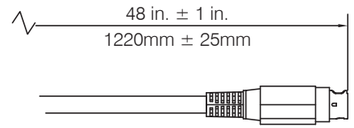
OUTLINE DRAWING





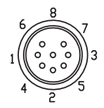






DIN-8

Pins 1, 2, 4, 6	+V
Pins 3, 5, 7, 8	-V



MOLEX 6CKT (39-01-2060) mates with 5559 plug and 5566 / 5569 headers

Pins 1, 4, 5	+V
Pins 2, 3, 6	Return

KYCON KPPX-4P

Pins 1, 2	+V
Pins 3, 4	-V

Medical Power Supply

MDP150 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 5.80 x 2.87 x 1.19” Footprint
- 12V Input Range (11.5-16.0VDC)
- IPX1 Rated Enclosure
- High Power Density - 7.3W/in3
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

INPUT SPECIFICATIONS

Input Voltage	11.5~16.0 VDC
Input Current	18A at 12VDC
Inrush Current	<25A @ 11.5 VDC, Cold Start
Input Transient	32VDC, 10 secs without damage
UnderVoltage Lockout	shutdown below 11.0 VDC, auto-recovery
OverVoltage Lockout	shutdown > 17.5VDC, auto-recovery
Over Current	shut-down when input >20A, auto-recovery

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-15 ~ +40°C
Derating	5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	10~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	IEC60068-2-27
Vibration	IEC60068-2-6; IEC60068-2-64

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max after DC Input Applied
Over-Voltage	110-140% Latching
Over-Load	Hiccup Mode, Auto-Recovery
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Conducted Immunity	EN61000-4-6 ,3V_{RMS}, Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Safety Approvals	IEC60601-1, 2nd & 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark

GENERAL SPECIFICATIONS

Efficiency	90% typical
Isolation	Non-Isolated
MTBF	100K Hours, Mil-217F at 25 °C, full load
Weight	450g

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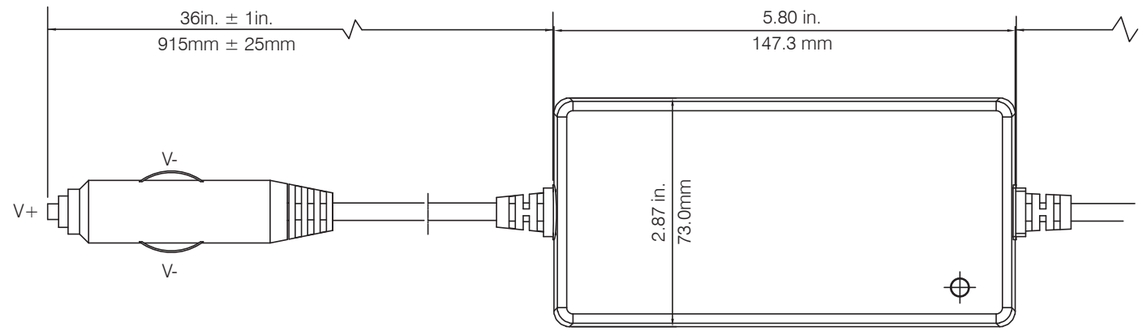
MODELS	OUTPUT VOLTAGE	MAXIMUM CURRENT	RIPPLE & NOISE	TOTAL REGULATION
MDP150-19y	19V	7.90A	190mV	±5%
MDP150-24y	24V	6.25A	240mV	±5%

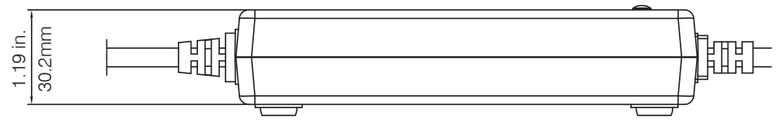
* Designate DC Output Connector by replacing “y” with the following:

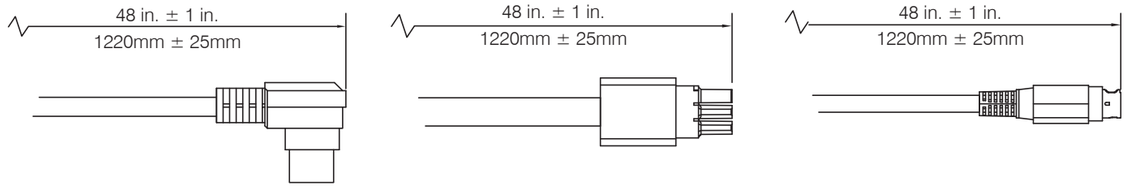
“D” for for 8 Pin DIN Connector
“K” for Kycon KPP-4P Locking Connector
“M” for Molex Connector Part Number 39-01-2060 or equivalent

* Other Connectors available upon request, please consult factory. Consult factory for unique Voltage setpoints or other modifications.

OUTLINE DRAWING

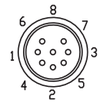






DIN-8

Pins 1, 2, 4, 6	+V
Pins 3, 5, 7, 8	-V



MOLEX 6CKT (39-01-2060)
mates with 5559 plug and 5566 / 5569 headers

Pins 1, 4, 5	+V
Pins 2, 3, 6	Return

KYCON KPPX-4P

Pins 1, 2	+V
Pins 3, 4	-V

Medical Power Supply

MP45S Series

45W Medical Power Supply

FEATURES

- Medical 60601-1 Safety Approvals
- Small 2" x 3" x 0.9" Package
- Class I, Class II Construction Compatible
- Medical (BF) Approvals For Class I
- High Efficiency up to 93%
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT CB CE

INPUT SPECIFICATIONS

Input Voltage	80-264 VAC (Universal)
Input Frequency	47-63Hz
Input Current	1.0A $_{RMS}$ at 100VAC / 0.5A $_{RMS}$ at 240VAC
Inrush Current	<80A @ 230 VAC, Cold Start
Earth Leakage Current	<100μA @ 264VAC (Class I)
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal T2.0A / 250V Fuse (Line & Neutral)
No Load Input Power	<100mW @ 230VAC

OUTPUT SPECIFICATIONS

Output Voltage Total Range	±3%
Line Regulation	±1%
Load Regulation	±2%
Minimum Load	None
Transient Response	±5%, 5%-50% or 50-100%, slew rate 0.5A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	2 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110-140%, Hiccup, Auto-Recovery
Over-Load	Hiccup , Auto-Recovery
Short Circuit	Hiccup , Auto-Recovery
Over-Temperature	Hysteretic

STATUS & CONTROL

Efficiency	88%/92% min at 115VAC/230VAC, full load
Isolation	Input to Output: 4000 VAC, 2xMOPP Input to Ground (Class I): 1500 VAC, 1xMOPP Output to Ground (Class I):1500 VAC, 1xMOPP
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	65g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-10°C~+50°C
Derating	2.5%/°C, >50°C, up to 70°C max,
Storage Temperature	-40°C ~ +80°C
Operating Humidity	10-95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s² (30G) , 10mS on 3 axes
Vibration	10-500 Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

EMC	IEC60601-1-2 4th Edition
Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 , Installation Class3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS}(6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, Class B/C
Safety Approvals	IEC60601-1 3.1 Ed.

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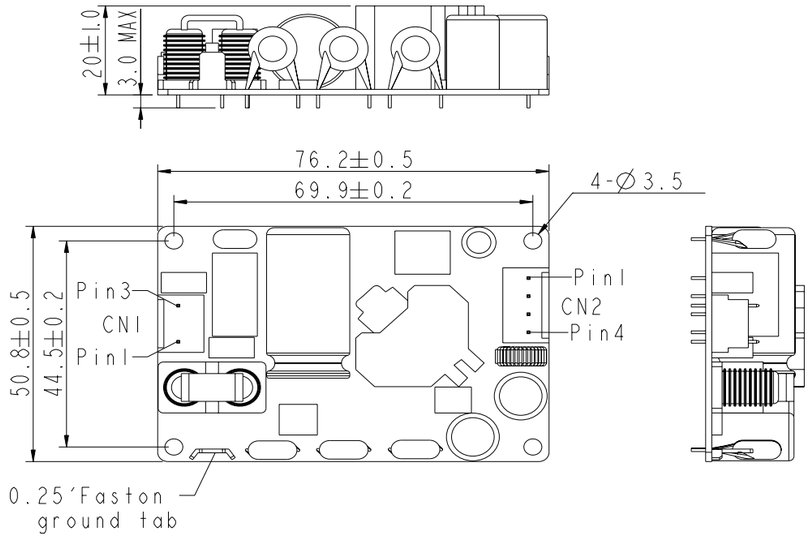
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MP45S-12	12V	3.75A	120mV	±3%
MP45S-15	15V	3.0A	150mV	±3%
MP45S-18	18V	2.5A	180mV	±3%
MP45S-24	24V	1.9A	240mV	±3%

• Derate output power by 2% per VAC for input voltage<90vac .

OUTLINE DRAWING



AC INPUT CN1
JST P/N: B2P3 VH (LF)(SN)
Mates With: JST VHR-3N

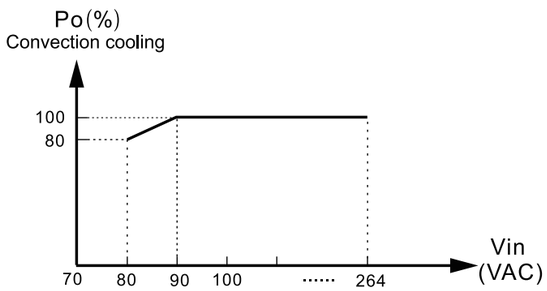
Pin 1	Neutral
Pin 3	Line
0.25"	Faston Earth

DC OUTPUT CN2
JST P/N: B4P-VH (LF)(SN)
Mates With: JST VHR-4N

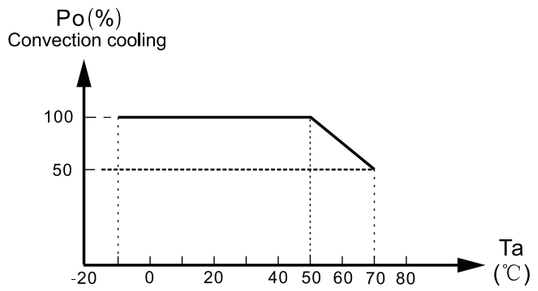
Pin 1 , 2	RTN
Pin 3 , 4	+V

Note: For Class II (No earth ground) applications, all mounting hardware must be non-conductive, or mounting on a non-grounding conductive chassis and the chassis must keep one MOPP from primary and secondary side.

OUTPUT POWER VS INPUT VOLTAGE



OUTPUT POWER VS AMBIENT TEMPERATURE



Medical Power Supply

MP060 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 4.00 x 2.00 x 1.25" Footprint
- 60W/72W Peak - Convection Cooled
- High Efficiency - Up to 87%
- Less than 0.5W No Load Input Power
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	1.5A$_{RMS}$ at 115VAC
Inrush Current	<100A @ 240 VAC, Cold Start
No Load	<0.5W No Load Input Power
Earth Leakage Current	<100μA @ 264VAC(Class I)
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal T3.15A/ 250V Fuse (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±1%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input (Full Load)
Over-Voltage	Primary Side Sense & By Zener Diode
Over-Load	120~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Auto-recovery

GENERAL SPECIFICATIONS

Efficiency	87% typical at 115/230 VAC, full load
Input to Output	4000 VAC, 2xMOPP
MTBF	>100K Hours, Mil-217F at 25 °C, full load
Weight	160g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C (convection cooled)
Derating	2.5%/°C > 40°C, up to 60°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	294m/s² (30G), 11ms on 3 axes, total 18 times
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 6kV contact, 8kV Air Discharge
Radiated Immunity	EN61000-4-3, 3V/m, Criterion A
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, InstallationClass 3 , Criterion A
Conducted Immunity	EN61000-4-6 ,3V$_{RMS}$, Criterion A
Magnetic Field	EN61000-4-8, 3A/m, Criterion A
Dips & Interruptions	EN61000-4-11, Class 3 Criterion A/B/C
Safety Approvals	IEC 60601-1, 3rd Edition ANSI / AAMI ES60601-1 CSA C22.2 No 60601-1 EN60601-1, 3rd Edition CE Mark

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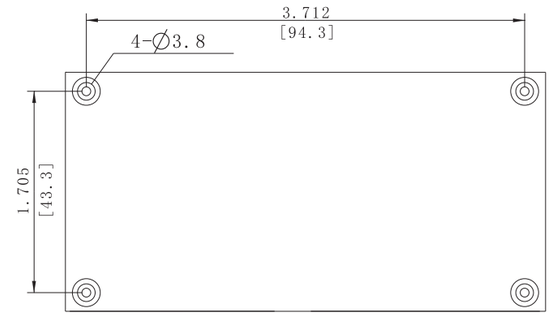
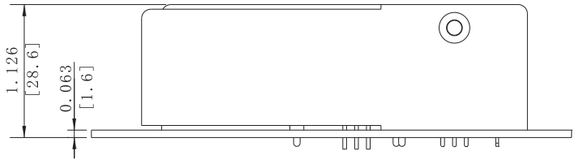
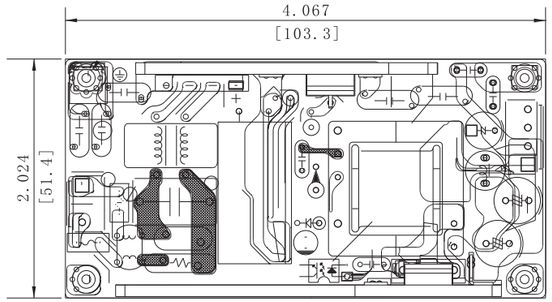
MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MP060-12	12V	5.0A	6A	120mV	±2%
MP060-19	19V	3.15A	3.8A	190mV	±2%
MP060-24	24V	2.5A	3.0A	240mV	±2%
MP060-28	28V	2.14A	2.57A	280mV	±2%
MP060-48	48V	1.25A	1.5A	480mV	±2%

OUTLINE DRAWING







INPUT CONNECTOR
Molex 35978-0330
Housing:Molex 35977-0390
Terminal:Molex 35922-9001

CONNECTIONS

PIN 1	Line
PIN 2	N/C
PIN 3	Neutral

OUTPUT CONNECTOR
Molex 35978-0430
Housing:Molex 35977-0490
Terminal:Molex 35922-9002

CONNECTIONS

PIN 1	+Vo
PIN 2	+Vo
PIN 3	Return
PIN 4	Return

Medical Power Supply

MP65S Series

65W Medical Power Supply

FEATURES

- Medical 60601-1 Safety Approvals
- Small 2" x 3" x 1.0" Package
- Class I, Class II Construction Compatible
- Medical (BF) Approvals For Class I
- High Efficiency up to 94%
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT CB CE

INPUT SPECIFICATIONS

Input Voltage	80-264 VAC (Universal)
Input Frequency	47-63Hz
Input Current	1.3A $_{RMS}$ at 100VAC / 0.5A $_{RMS}$ at 240VAC
Inrush Current	<80A @ 230 VAC, Cold Start
Earth Leakage Current	<100μA @ 264VAC (Class I)
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal T2.0A / 250V Fuse (Line & Neutral)
No Load Input Power	<100mW @ 230VAC

OUTPUT SPECIFICATIONS

Output Voltage Total Range	±3%
Line Regulation	±1%
Load Regulation	±2%
Minimum Load	None
Transient Response	±5%, 5%-50% or 50-100%, slew rate 0.5A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	2 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input
Over-Voltage	110-140%, Hiccup, Auto-Recovery
Over-Load	Hiccup , Auto-Recovery
Short Circuit	Hiccup , Auto-Recovery
Over-Temperature	Hysteretic

STATUS & CONTROL

Efficiency	90%/93% min at 115VAC/230VAC, full load
Isolation	Input to Output: 4000 VAC, 2xMOPP Input to Ground (Class I): 1500 VAC, 1xMOPP Output to Ground (Class I):1500 VAC, 1xMOPP
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	100g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-10°C~+50°C
Derating	2.5%/°C, >50°C, up to 70°C max,
Storage Temperature	-40°C ~ +80°C
Operating Humidity	10-95% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s² (30G) , 10mS on 3 axes
Vibration	10-500 Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

EMC	IEC60601-1-2 4th Edition
Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 , Installation Class3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$(6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, Class B/C
Safety Approvals	IEC60601-1 3.1 Ed.

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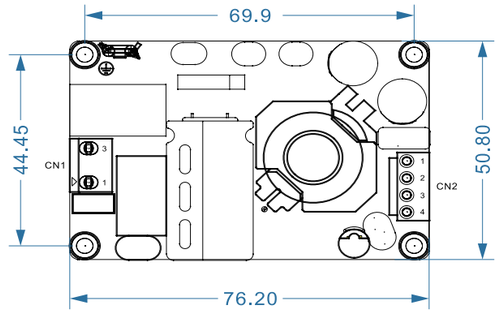
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MP65S-12	12V	5.41A	6.5A	120mV	±3%
MP65S-15	15V	4.33A	5.2A	150mV	±3%
MP65S-18	18V	3.61A	4.33A	180mV	±3%
MP65S-24	24V	2.71A	3.25A	240mV	±3%

•Derate output power by 2% per VAC for input voltage<90vac .

OUTLINE DRAWING



AC INPUT CN1

JST P/N: B2P3 VH (LF)(SN)
Mates With: JST VHR-3N

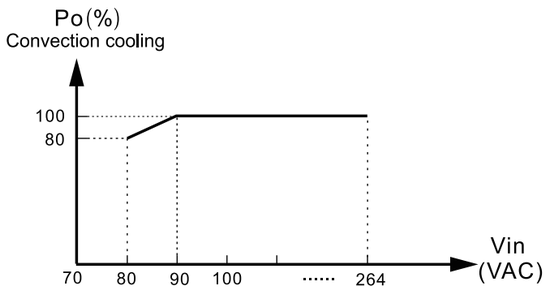
Pin 1	Neutral
Pin 3	Line

DC OUTPUT CN2

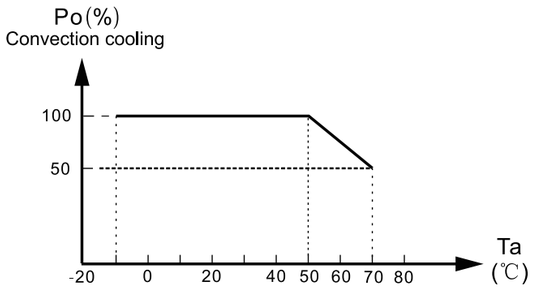
JST P/N: B4P-VH (LF)(SN)
Mates With: JST VHR-4N

Pin 1 , 2	Output VDC
Pin 3 , 4	Return

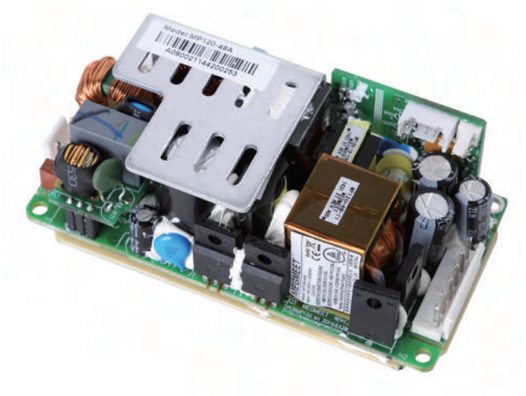
OUTPUT POWER VS INPUT VOLTA GE



OUTPUT POWER VS AMBIENT TEMPERATURE



MP120 Series



FEATURES

- Medical (BF) Safety Approvals
- Small 4 x 2 x 1.35" Package
- Class I or Class II Construction
- Remote On/Off, Power Fail, Remote Sense
- 5VSDB @ 0.5A Output & Fan Output 12V 0.4A
- Universal AC Input with Active PFC
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	3.0A$_{RMS}$ at 115VAC / 1.5A$_{RMS}$ at 230VAC
Inrush Current	<80A @ 240 VAC, Cold Start
Power Factor	>0.95
Earth Leakage Current	<100μA @ 264VAC (ClassI)
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal T3.15A / 250V Fuse (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±2% For Main & 5VSDB ; ±20% For Fan
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input (Full Load)
Over-Voltage	110~140% Latching
Over-Load	120-180% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Latching,recycle input and cool to reset

STATUS & CONTROL

Remote On/Off	Power LED to Shut Down (Isolated Optocoupler)
Power Fail	Isolated transistor of opto-coupler for output 5ms Warning Time
Standby Output	5VSDB @ 500mA
Fan Output	12V 400mA
Remote Sense	Compensates Up To 0.4V

GENERAL SPECIFICATIONS

Efficiency	90% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground (Glass I) 1500 VAC – Output to Ground (Glass I)
MTBF	300K Hours, Mil-217F at 25 °C, full load
Weight	210g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	1.67%/°C, > 40°C, up to 70°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	294m/s² (30G) , 10mS on 3 axes
Vibration	10-500 Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Installation Class 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS,ISM\ band}$), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

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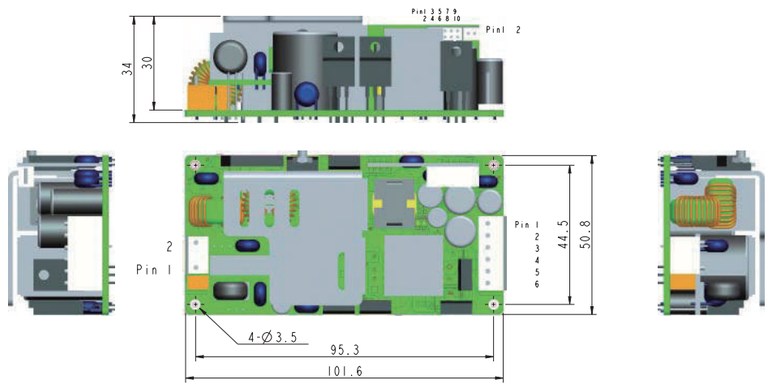
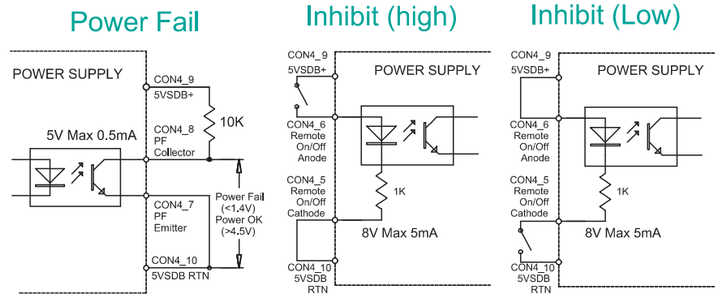
MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT (CONVECTION)	OUTPUT CURRENT[1] (FORCED-AIR)	STANDBY OUTPUT	FAN OUTPUT
MP120-12	12V	10.0A	12.5A	5V 500mA	12V 0.4A
MP120-19	19V	6.32A	7.90A	5V 500mA	12V 0.4A
MP120-24	24V	5.00A	6.25A	5V 500mA	12V 0.4A
MP120-28	28V	4.30A	5.36A	5V 500mA	12V 0.4A
MP120-48	48V	2.50A	3.13A	5V 500mA	12V 0.4A

1) Max. Rated Current with 1.2 m/s (15CFM) forced air flow.

OUTLINE DRAWING



SIGNAL CONFIGURATION



SIGNALS	NOTES
Power Fail	Isolated optocoupler transistor turns off 50-500ms after main output when AC is applied, turns on 1ms min.(typical 5ms) before loss of main output after AC failure
Remote On/Off	Isolated optocoupler diode, power to shut down main output.

AC INPUT

JST P/N: B3P2-VH (LF)(SN)
Mates With: JST VHR-3N

Pin 1	Neutral
Pin 3	Line

DC OUTPUT

JST P/N: B6P-VH (LF)(SN)
Mates With: JST VHR-6N

Pin 1 , 2 , 3	Output VDC
Pin 4 , 5 , 6	Return

SIGNAL CONNECTOR

JST P/N : B10B-PHDSS
Mates With : JST PHDR-10VS

1	V0
2	Return
3	Remote Sense +
4	Remote Sense -
5	Remote on/off (Cathode)
6	Remote on/off (Anode)
7	PF Emitter
8	PF Collector
9	5VSDB
10	5VSDB Return

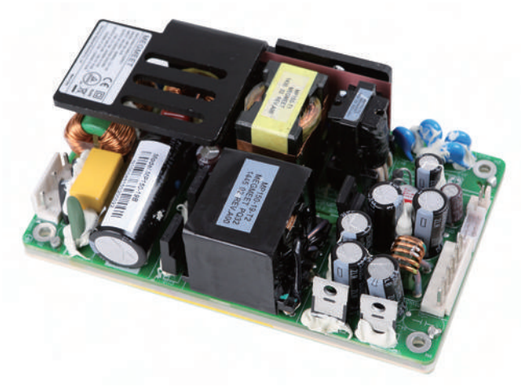
FAN CONNECTOR

Landwin P/N: 2511P0200T
Mates With 2600S0200

Pin 1	Fan Return
Pin 2	Fan Output +

Medical Power Supply

MP150 Series



FEATURES

- Medical 60601-1 Safety Approvals
- Small 5 x 3 x 1.38" Package
- Class I or Class II Construction
- High Efficiency - 90% Typical At Full Load
- Remote On/Off, Power Fail , Remote Sense
- 5VSDB @ 0.5A Output & 12V 0.4A Fan Output
- Universal AC Input With Active PFC
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	3.0A $_{RMS}$ at 115VAC / 1.5A $_{RMS}$ at 230VAC
Inrush Current	<80A @ 240 VAC, Cold Start
Power Factor	>0.95
Earth Leakage Current	<250μA @ 264VAC (Class I)
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal T5A / 250V Fuse (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±2% For Main & 5VSDB ; ±10% For Fan
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input (Full Load)
Over-Voltage	110~140% Latching
Over-Load	120~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Auto-Recovery

STATUS & CONTROL

Remote On/Off	Powered LED = Shut Down (Isolated Optocoupler)
Power Fail	TTL High = Failure (Open Collector) 12ms Warning Time
Standby Output	5VSDB @ 500mA
Fan Output	12V 400mA
Remote Sense	Totally Compensates Up To 0.4V

GENERAL SPECIFICATIONS

Efficiency	90% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VAC– Output to Ground
MTBF	300K Hours, Mil-217F at 25 °C, full load
Weight	360g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Criterion A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Level 3,Criterion A
Conducted Immunity	EN61000-4-6, 3VRMS (6Vrms for ISM and Amateur Band) Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 3A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70%25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC 60601-1, 3rd Edition ; ANSI / AAMI ES60601-1 ; CSA C22.2 No 60601-1 ; EN60601-1, 3rd Edition ;CE Mark

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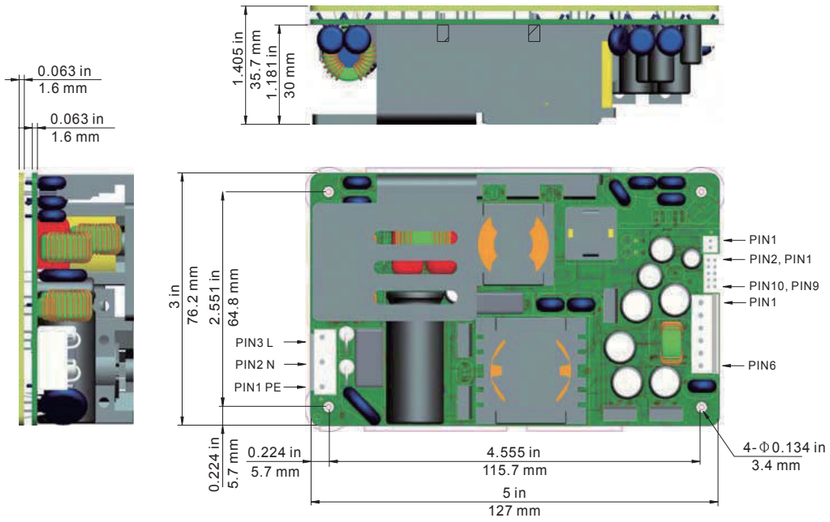
MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT (CONVECTION)	OUTPUT CURRENT[1)] (FORCED-AIR)	STANDBY OUTPUT	FAN OUTPUT
MP150-12	12V	12.5A	16.67A	5V 400mA	12V 0.4A
MP150-19	19V	7.89A	10.53A	5V 400mA	12V 0.4A
MP150-24	24V	6.25A	8.33A	5V 400mA	12V 0.4A
MP150-28	28V	5.36A	7.14A	5V 400mA	12V 0.4A
MP150-48	48V	3.13A	4.17A	5V 400mA	12V 0.4A

Note: 1) Rated Current with 1.2 m/s (15CFM) Forced- Air Flow.

OUTLINE DRAWING



AC INPUT

JST P/N: B3P5-VH (LF)(SN)
Mates With: JST VHR-5N

Pin 1	Earth Ground
Pin 3	Line
Pin 5	Neutral
Pin 2 , Pin 4 Removed	

DC OUTPUT

JST P/N: B6P-VH (LF)(SN)
Mates With: JST VHR-6N

Pin 1 , 2 , 3	Output VDC
Pin 4 , 5 , 6	Return

SIGNAL CONNECTOR

JST P/N : B10B-PHDSS Mates With : JST PHDR-10VS

1	5VSDB Return
2	5VSDB
3	5VSDB Return
4	5VSDB
5	DC OK
6	PF
7	Remote on/off (Cathode)
8	Remote on/off (Anode)
9	Remote Sense -
10	Remote Sense +

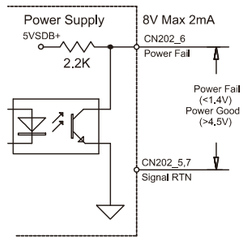
FAN CONNECTOR

Landwin P/N: 2511P0200T
Mates With 2600S0200

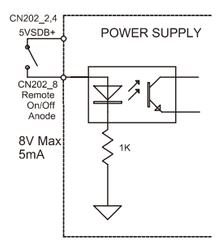
Pin 1	Fan Output +
Pin 2	Fan Return

SIGNAL CONFIGURATION

Power Fail



Remote On/Off



SSIGNALS	NOTES
Power Fail	Optocoupler transistor, goes high 100-500ms after main output when AC applied, goes low 4ms min.(typical 12ms) before loss of main output after AC failure
Remote On/Off	Optocoupler diode, power the diode to shut down the main output .

MCP150 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Battery Charger Output-Lead Acid, or Lithium
- Small 5 x 3 x 1.38" Package
- Class I or Class II Construction
- High Efficiency - 90% Typical At Full Load
- Remote On/Off, Power Fail , Remote Sense
- 5VSDB @ 0.5A Output & Fan Output 12V 0.4A
- Universal AC Input With Active PFC
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	3.0A $_{RMS}$ at 115VAC / 1.5A $_{RMS}$ at 230VAC
Inrush Current	<80A @ 240 VAC, Cold Start
Power Factor	>0.95
Earth Leakage Current	<250μA @ 264VAC (Class I)
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal T5A / 250V Fuse (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±2% For Main & 5VSDB ; ±10% For Fan
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input (Full Load)
Over-Voltage	110~140% Latching
Over-Load	120~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Auto-Recovery

STATUS & CONTROL

Remote On/Off	Powered LED = Shut Down (Isolated Optocoupler)
Power Fail	TTL High = Failure (Open Collector) 12ms Warning Time
Standby Output	5VSDB @ 500mA
Fan Output	12V 400mA
Remote Sense	Totally Compensates Up To 0.4V

GENERAL SPECIFICATIONS

Efficiency	90% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground (Glass I) 500 VAC – Output to Ground (Glass I)
MTBF	300K Hours, Mil-217F at 25 °C, full load
Weight	360g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 CriterionA
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Level 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V $_{RMS}$, Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 3A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70%25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC 60601-1, 3rd Edition; ANSI / AAMI ES60601-1; CSA C22.2 No 60601-1; EN60601-1, 3rd Edition CE Mark

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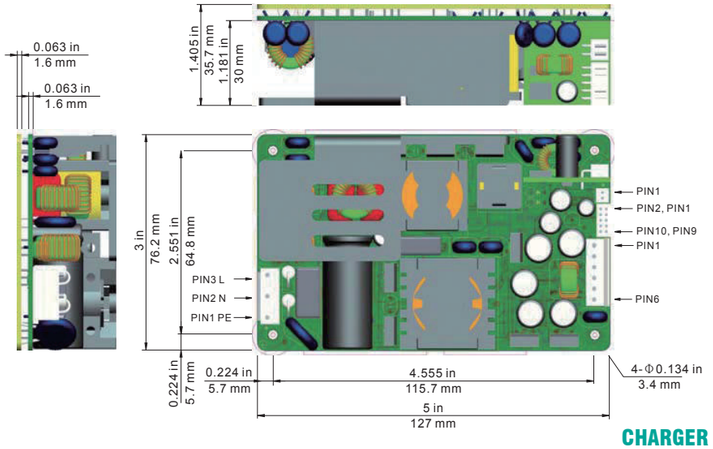
MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT 1) (CONVECTION)	OUTPUT CURRENT 1) (FORCED-AIR)	CHARGER OUTPUT	STANDBY OUTPUT	FAN OUTPUT
MCP150-12	12V	12.5A	16.67A	16.8V 1.0A	5V 500mA	12V 0.4A
MCP150-19	19V	7.89A	10.53A	16.8V 1.0A	5V 500mA	12V 0.4A
MCP150-24	24V	6.25A	8.33A	16.8V 1.0A	5V 500mA	12V 0.4A
MCP150-28	28V	5.36A	7.14A	16.8V 1.0A	5V 500mA	12V 0.4A
MCP150-48	48V	3.13A	4.17A	16.8V 1.0A	5V 500mA	12V 0.4A

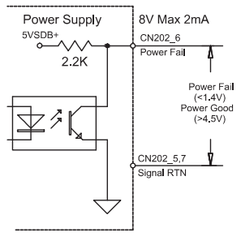
Note: 1) When charger is not working , a rated current is shown in the table. When charger is working, the main output should be derated to 130W at convection cooled or 180W at forced-air cooled.
2) Rated Current with 1.2 m/s (15CFM) Forced- Air Flow.

OUTLINE DRAWING

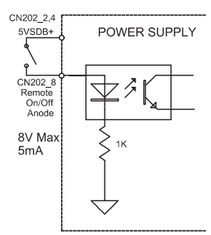


SIGNAL CONFIGURATION

Power Fail



Remote On/Off



SIGNALS	NOTES
Power Fail	Optocoupler transistor, goes high 100-500ms after main output when AC applied, goes low 4ms min. (typical 12ms) before loss of main output after AC failure
Remote On/Off	Optocoupler diode, power the diode to shut down the main output .

AC INPUT

JST P/N: B3P5-VH (LF)(SN)
Mates With: JST VHR-5N

Pin 1	Earth Ground
Pin 3	Line
Pin 5	Neutral
Pin 2 , Pin 4 Removed	

DC OUTPUT

JST P/N: B6P-VH (LF)(SN)
Mates With: JST VHR-6N

Pin 1 , 2 , 3	Output VDC
Pin 4 , 5 , 6	Return

CHARGER CONNECTOR

JST P/N: S5B-XH-A;
Mates With: JST XHP-5

Pin 1	Charger Output +
Pin 2	Charger Output Return
Pin 3	Temperature
Pin 4	1 D+
Pin 5	1 D -

CHARGER STATUS CONNECTOR

JST P/N: S2B-XH-A;
Mates With: JST XHP-2

Pin 1	LED+
Pin 2	GND

SIGNAL CONNECTOR

JST P/N : B10B-PHDSS
Mates With : JST PHDR-10VS

1	5VSDB Return
2	5VSDB
3	5VSDB Return
4	5VSDB
5	Return
6	PF
7	Remote on/off (Cathode)
8	Remote on/off (Anode)
9	Remote Sense-
10	Remote Sense+

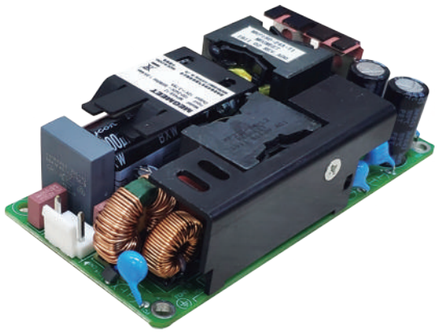
FAN CONNECTOR

Landwin P/N: 2511P0200T
Mates With 2600S0200

Pin 1	Fan Output +
Pin 2	Fan Return

MKP150 Series

132-150W(Convection) / 200-225W(Forced air)Medical Power Supply



FEATURES

- Medical 60601-1 Safety Approvals
- Small 4.1 x 2 x 1" Package
- Class I, Construction Compatible
- Medical (BF) Approvals For Class I
- High Efficiency up to 94%
- High Power Density 28W/in3
- Universal AC Input with Active PFC
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT CB CE

INPUT SPECIFICATIONS

Input Voltage	80-264 VAC (Universal)
Input Frequency	47-63Hz
Input Current	4.0A $_{RMS}$ at 100VAC / 2.0A $_{RMS}$ at 240VAC
Inrush Current	<120A @ 230 VAC, Cold Start
Power Factor	0.98 min. @100VAC 60Hz Full load 0.92 min. @240VAC 50Hz Full load
Earth Leakage Current	<150μA @ 264VAC (Class I)
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal T3.15A / 250V Fuse (Line & Neutral)
No Load Input Power	<0.5W @ 230VAC

OUTPUT SPECIFICATIONS

Output Voltage Total Range	±3%
Line Regulation	±1%
Load Regulation	±2%
Minimum Load	None
Transient Response	±5%, 5%-50% or 50-100%, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	2 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input (150W) >10ms at 115VAC Input (225W)
Over-Voltage	110-150% Latching
Over-Load	110-150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Latching,recycle input and cool to reset

STATUS & CONTROL

Efficiency	90%/94% min at 115VAC/230VAC, full load
Isolation	Input to Output: 4000 VAC, 2xMOPP Input to Ground (Class I): 1500 VAC, 1xMOPP Output to Ground (Class I):1500 VAC, 1xMOPP
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	210g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0°C~+50°C
Derating	2.0%/°C, >50°C, up to 70°C max, for forced air cooling; 1.67%/°C, >40°C, up to 70°C max, for convection cooling;
Storage Temperature	-40°C ~ +80°C
Operating Humidity	10-90% (non-condensing)
Operating Altitude	4000M (max)
Shock	294m/s² (30G) , 10mS on 3 axes
Vibration	10-500 Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

EMC	IEC60601-1-2 4th Edition
Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 , Installation Class3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS}(6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Tadle 9 in IEC60601-1-2 4thED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 300cycles; Criterion A/B/C
Safety Approvals	IEC/EN60601-1 2ndEd. and IEC60601-1 3.1 Ed. ANSI / AAMI ES60601-1 CSA C22.2 No 60601-1 CE Mark

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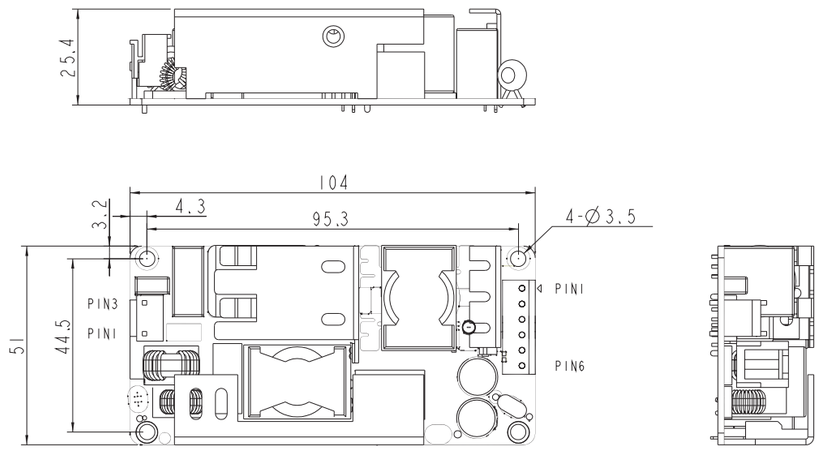
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT (CONVECTION)	OUTPUT CURRENT 1) (FORCED-AIR)
MKP150-12	12V	12.5A	18.75A
MKP150-15	15V	10.0A	15.0A
MKP150-18	18V	8.33A	12.5A
MKP150-24	24V	6.25A	9.375A

•Max. Rated Current with 15CFM Forced- Air Flow.

OUTLINE DRAWING



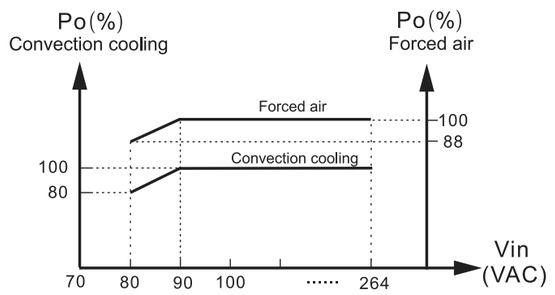
AC INPUT
JST P/N: B3P2-VH (LF)(SN)
Mates With: JST VHR-3N

Pin 1	Line
Pin 3	Neutral

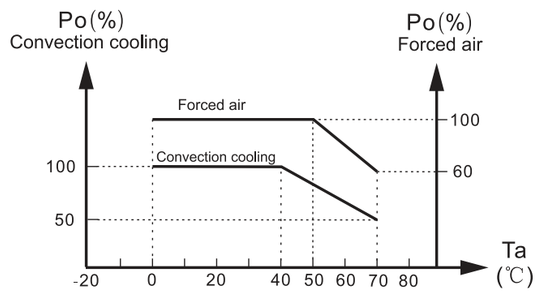
DC OUTPUT
JST P/N: B4P-VH (LF)(SN)
Mates With: JST VHR-4N

Pin 1 , 2 , 3	Output VDC
Pin 4 , 5 , 6	Return

OUTPUT POWER VS INPUT VOLTAGE



OUTPUT POWER VS AMBIENT TEMPERATURE



Medical Power Supply

MKP199C Series

200W Medical Power Supply

FEATURES

- Medical 60601-1 & IT 60950-1 Safety Approvals
- Small 5 x 3 x 1.5" Package
- Class I or Class II Construction
- High Efficiency - 90% typical at full load
- Universal AC Input with Active PFC
- EN55011,EN55022/ FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT CE

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	2.5A $_{RMS}$ at 115VAC / 1.2A $_{RMS}$ at 230VAC
Inrush Current	<80A @ 240 VAC, Cold Start
Power Factor	>0.95
Earth Leakage Current	<250μA @ 264VAC (Class I)
Patient Leakage Current	<100μA @ 264VAC
Input Protection	T5.0A / 250V Fuse (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±2%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical for Main
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>20ms 100VAC,full load
Over-Voltage	110~140% Latching
Over-Load	120~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Auto-Recovery

GENERAL SPECIFICATIONS

Efficiency	90%min at 230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VAC – Output to Ground
MTBF	300K Hours, Mil-217F at 25 °C, full load
Weight	430g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +85°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011,FCC Part J15, Conducted Class B EN55011, FCC Part J15, Radiated Class B
Harmonic Current	EN61000-3-2 Criterion A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact & 16kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Level 3, Criterion A
Conducted Immunity	EN61000-4-6, 3VRMS (6Vrms for ISM and Amateur Band) Criterion A
Radiated Immunity	EN61000-4-6 ,10V/m , Criterion A
Magnetic Field	EN61000-4-8, 3A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70%25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	CE Mark; IEC 60950-1, 3rd Ed & IEC 60601-1, 3rd Ed; ANSI / UL 60950-1 & ANSI / AAMI ES6060; CSA C22.2 No 60950-1 & No 60601-1; EN60950-1, 3rd Ed & EN60601-1, 3rd Ed

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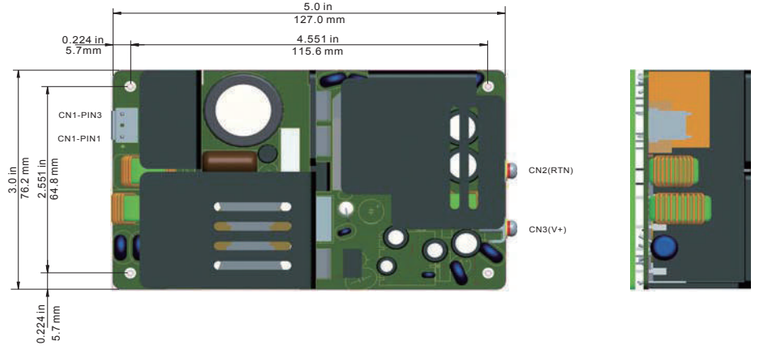
MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE&NOISE
MKP199C-12	12V	16.67A	120mv
MKP199C-19	19V	10.52A	190mv
MKP199C-24	24V	8.33A	240mv
MKP199C-28	28V	7.14A	280mv
MKP199C-48	48V	4.16A	480mv

OUTLINE DRAWING



AC INPUT

JST P/N: B3P5-VH
Mates With: ST VHR-5N

Pin 1	Line
Pin 3	Neutral
Pin 2	Removed(II)

DC OUTPUT

Terminals with 6-32 inches Screw Pan HD;
Mates With:: 16 AWG wire crimped to ring Tongue Terminal AMP: 8-31886-1

CN3(V+)	Output VDC
CN2(RTN)	Return

Medical Power Supply

MKP199-48 Series

200W/300W Medical Power Supply

FEATURES

- Medical 60601-1 Safety Approvals
- Small 5 x 3 x 1.5" Package
- Class II Construction
- High Efficiency - 90% typical at full load
- Remote On/Off, Power Fail signal
- 5VSDB @ 2A Output & Fan Output 12V 0.5A
- Universal AC Input with Active PFC
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT CE

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	3.6A $_{RMS}$ @ 115VAC / 1.8A $_{RMS}$ @ 230VAC
Inrush Current	<80A @ 240 VAC, Cold Start
Power Factor	>0.95
Patient Leakage Current	<250μA @ 264VAC
Input Protection	Internal T5A / 250V Fuse (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	48V
Line Regulation	±0.5%
Load Regulation	±2% For 48V & 5VSDB ; ±15% For Fan
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical for Main; 2% pk-pk for 5VSDB
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>10ms at 115VAC Input (325W)
Over-Voltage	110~140% Latching
Over-Load	120~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Auto-Recovery

STATUS & CONTROL

Remote On/Off	Shorted LED = Enable Power Supply
Power Good	TTL High = Input & Output OK TTL Low = Output NG
Standby Output	5VSDB @ 2.0A
Fan Output	12VFan 500mA

GENERAL SPECIFICATIONS

Efficiency	88/90% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output
MTBF	300K Hours, Mil-217F at 25 °C, full load
Weight	430g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +85°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Criterion A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Level 3, Criterion A
Conducted Immunity	EN61000-4-6, 3VRMS (6Vrms for ISM and Amateur Band) Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-3,(Tadle 9 in IEC60601-1-2 4th ED)
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70%25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC 60601-1, 3rd Edition EN60601-1, 3rd Edition ANSI/AAMI ES60601-1 CSA C22.2 No.60601-1 IEC 600601-1 , 3nd Edition , CE Mark

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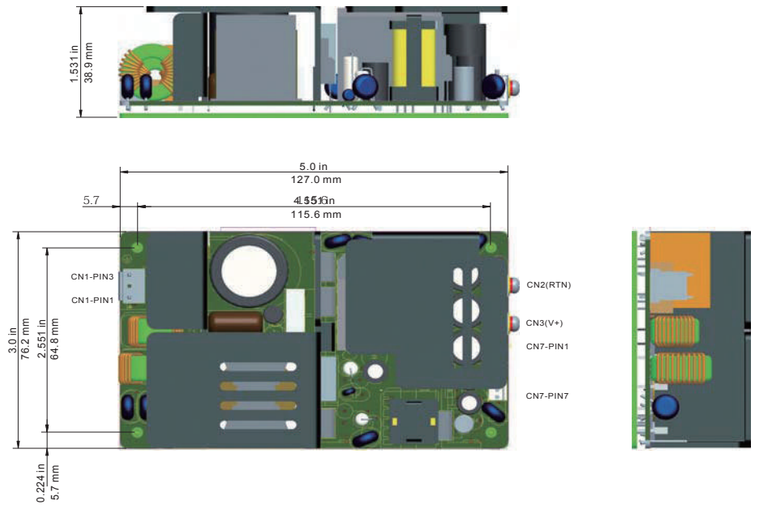
MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT (CONVECTION)	OUTPUT CURRENT[1)] (FORCED-AIR)	STANDBY OUTPUT	FAN OUTPUT
MKP199-48**	48V	4.16A	6.77A	5V 2.0A	12V 0.5A
MKP199-48M	48V	4.16A	6.77A	5V 2.0A	12V 0.5A

*) Max. Rated Current with 300LFM Forced- Air Flow

*) The leakage current of MKP199-48 should be reevaluated in the end products. Its eath leakage current is less than 500uA.
Its patient leakage current is less 200uA

OUTLINE DRAWING



AC INPUT

Molex P/N: 26-60-4030
Mates With:: 09-50-3031

Pin 1	Line
Pin 3	Neutral
Pin 2	Removed

DC OUTPUT

Terminals with 6-32 inches Screw Pan HD
Mates With: 16 AWG wire crimped to ring Tongue
Terminal AMP: 8-31886-1

CN3(V+)	Output VDC
CN2(RTN)	Return

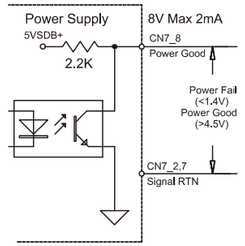
SIGNAL CONNECTOR

Molex P/N: 22-23-2081
Mates With: Molex 22-01-2087

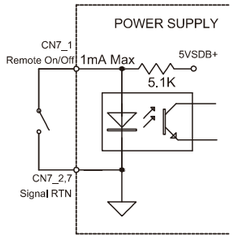
Pin 1	Remote On/Off
Pin 2	RTN
Pin 3	12VFan
Pin 4	RTN
Pin 5	5VSDB
Pin 6	No Use
Pin 7	RTN
Pin 8	Power Good

SIGNALS

Power Good



Remote On/Off



SIGNALS	NOTES
Power Good	Optocoupler transistor, goes high 100-500ms after main output when AC applied .
Remote On/Off	Optocoupler diode,short the diode to enable the main output.

Medical Power Supply

MP03002 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 6.69 X 3.86 X 1.57" U-Frame Package
- Full Load Convection Cooled Operation up to 40°C
- High Efficiency - 90% typical at full load
- Remote Sense Compensation
- Universal AC Input with Active PFC
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty

RoHS COMPLIANT

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	3.5A$_{RMS}$ at 115VAC / 1.75A$_{RMS}$ at 230VAC
Inrush Current	<100A @ 240 VAC, Cold Start
Power Factor	>0.95
Leakage Current	<300μA @ 264VAC
Input Protection	Internal T5A / 250V Fuse (Line & Neutral)

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C (convectio cooled)
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-20 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000M (max)
Shock	30 m/s², 10mS on 3 axes
Vibration	10-55 Hz, 19.6 m/s²(2G), 20mins on 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±1%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical (20MHz BW, differential mode)
Turn-On Delay	3 seconds max @ 115VAC
Hold-UpTime	>10ms at 115VAC Input (Full Load)
Over-Voltage	115~135% Latching
Over-Load	120~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Continuous
Over-Temperature	Latching, recycle input and cool to reset
Remote Sense	Compensates for ≤ 500mV Drop

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Level 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V_{RMS} (6V_{RMS}, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition UL 60601-1 CSA 22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark (LVD)

GENERAL SPECIFICATIONS

Efficiency	90% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground
MTBF	200K Hours, Mil-217F at 25 °C, full load
Weight	520g

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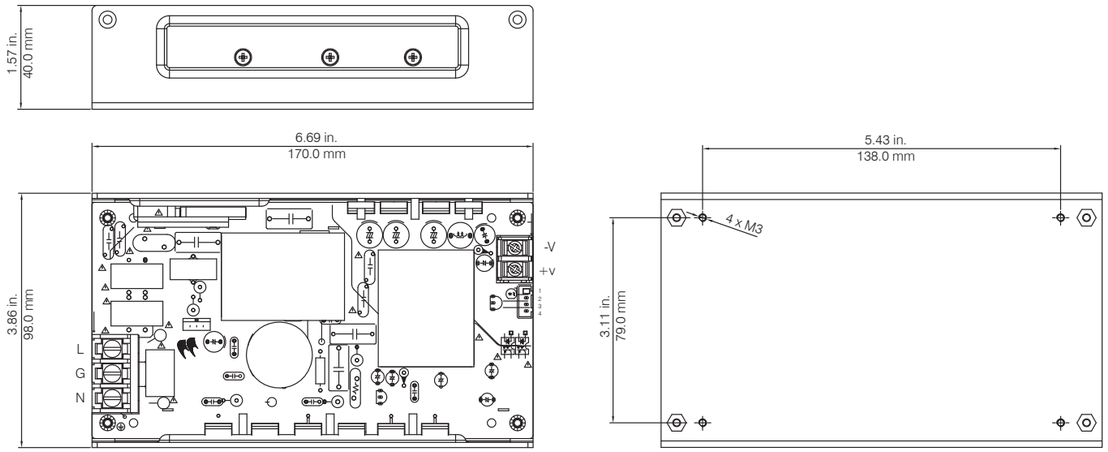
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MP03002-12 V	12V	16.6A	18.0A	120mV	±2%
MP03002-24 V	24V	10.0A	11.0A	200mV	±2%
MP03002-48 V	48V	5.0A	5.5A	300mV	±2%

OUTLINE DRAWING



AC INPUT
Terminal Blocks

L	Line
G	Earth Ground
N	Neutral

DC OUTPUT
Terminal Blocks

+V	Output VDC
-V	Return

SENSE CONNECTOR
JST # B4B-XH-A or equivalent

1	N/C
2	N/C
3	+Sense
4	-Sense

Medical Power Supply

MP240 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Small 6.00 x 3.94 x 1.54" U-Frame Package
- 670 Watt Peak Load Capability
- Full Load Convection Cooled Operation Up To 40°C
- High Efficiency - 93% Typical At Full Load, 230Vdc
- Universal AC Input With Active PFC
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty
- Medical (BF) Safety Approvals

RoHS COMPLIANT

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	3.5A $_{RMS}$ at 115VAC / 1.75A $_{RMS}$ at 230VAC
Inrush Current	<20A @ 240 VAC
Power Factor	>0.97
Earth Leakage Current	<250μA @ 264VAC
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal T5A / 250V Fuse (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±3%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>60ms at 115VAC Input (Full Load)
Over-Voltage	110~140% Latching
Over-Load	110~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

GENERAL SPECIFICATIONS

Efficiency	93% typical at 115/230 VAC, full load
Isolation	4000VAC – Input to Output(2xMOPP) 1500VAC – Input to Earth(1xMOPP) 1500VAC – Output to Earth(1xMOPP)
MTBF	300K Hours, Mil-217F at 25 °C, full load
Weight	900g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C (convection cooled)
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000m (max)
Shock	294m/s² (30G) , 11mS on 3 axes ,total 18 times
Vibration	10-500 Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Installation Class3, Criterion A
Conducted Immunity	EN61000-4-6, 3V $_{RMS}$ (6V $_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9 in IEC60601-1-2 4 th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5 cycles at 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°; 0%, 1cycle and 70% 25/30 cycles at 0°; 0%, 300 cycles , Criterion A/B/C
Safety Approvals	IEC 60601-1, 3rd Edition ANSI / AAMI ES60601-1 CSA C22.2 No 60601-1 EN60601-1, 3rd Edition CE Mark

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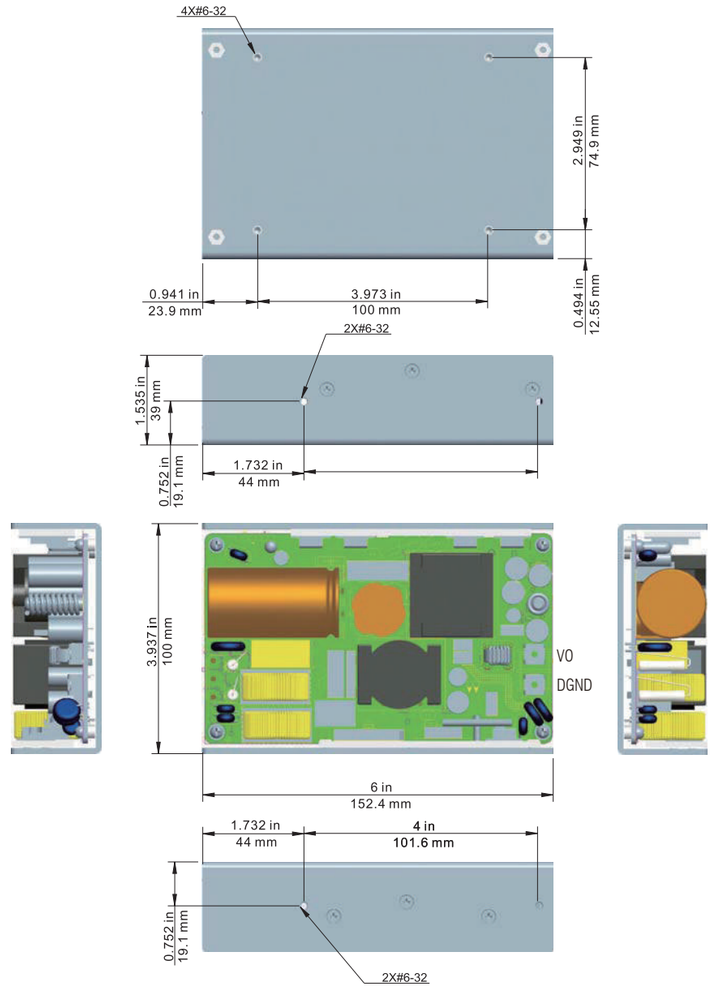
MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MP240-12	12V	20A	35A	120mV	±3%
MP240-19	19V	12.6A	35A	190mV	±3%
MP240-24	24V	10A	28A	240mV	±3%
MP240-28	28V	8.57A	24A	280mV	±3%
MP240-36	36V	6.67A	18.6A	360mV	±3%
MP240-48	48V	5A	14A	480mV	±3%

Notes: The maximum duration of peak current shall be less than 100ms, and the average output power shall be less than 240W.

OUTLINE DRAWING



AC INPUT

P/N: Molex 10-63-4057 or 09-65-2058 or JST equivalent
Mates With Molex housing 09-50-1051 or JST equivalent

L	Line
N	Neutral
E	Earth

DC OUTPUT

Terminal Blocks

VO	Output(+)
DGND	Return

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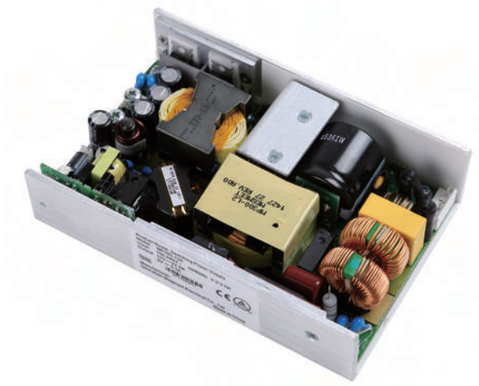
MP300 Series



FEATURES

- Medical 60601-1 Safety Approvals
- Small 6.00 x 3.94 x 1.54" U-Frame Package
- Full Load Convection Cooled Operation Up To 40°C
- High Efficiency - 93% Typical At Full Load, 230Vdc
- Remote On/Off, Power Fail
- 5VSB @ 500mA Output
- Universal AC Input With Active PFC
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty
- Medical (BF) Safety Approvals

RoHS COMPLIANT CB CE

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	4.0A $_{RMS}$ at 115VAC / 2.0A $_{RMS}$ at 230VAC
Inrush Current	<20A @ 240 VAC
Power Factor	>0.97
Earth Leakage Current	<250μA @ 264VAC
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal T5A / 250V Fuse (Line & Neutral)

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C (convection cooled)
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000m (max)
Shock	294m/s² (30G), 11mS on 3 axesn, total 18 times
Vibration	10-500 Hz, 19.6 m/s²(2G), 20mins on 3 axes

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±2%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>15ms at 115VAC Input (Full Load)
Over-Voltage	110~140% Latching
Over-Load	110~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Latching, recycle input and cool to reset

GENERAL SPECIFICATIONS

Efficiency	93% typical at 115/230 VAC, full load
Isolation	4000VAC – Input to Output(2xMOPP) 1500VAC – Input to Earth(1xMOPP) 1500VAC – Output to Earth(1xMOPP)
MTBF	300K Hours, Mil-217F at 25 °C, full load
Weight	960g

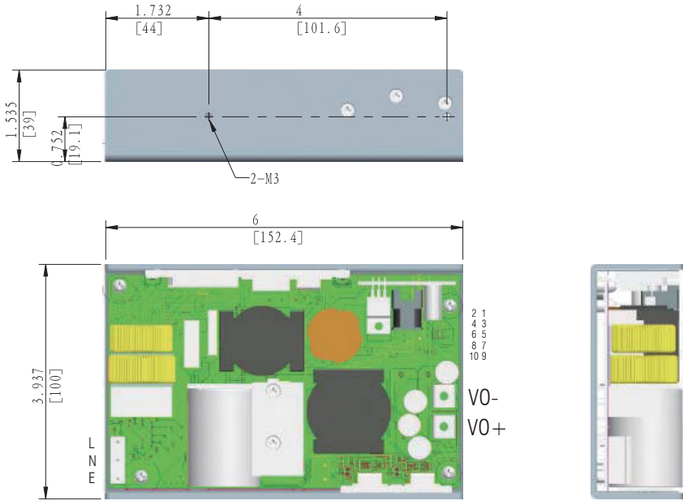
EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Installation Class3, Criterion A
Conducted Immunity	EN61000-4-6, 3V $_{RMS}$ (6V $_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9 in IEC60601-1-2 4 th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5 cycles at 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°; 0%, 1cycle and 70% 25/30 cycles at 0°; 0%, 300 cycles , Criterion A/B/C
Safety Approvals	IEC 60601-1, 3rd Edition ANSI / AAMI ES60601-1 CSA C22.2 No 60601-1 EN60601-1, 3rd Edition CE Mark

MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	STANDBY OUTPUT	MAX TOTAL REGULATION
MP300-12	12V	25.0A	29.0A	120mV	5VSB @ 500mA	±2%
MP300-19	19V	15.8A	18.4A	190mV	5VSB @ 500mA	±2%
MP300-24	24V	12.5A	14.6A	240mV	5VSB @ 500mA	±2%
MP300-28	28V	10.7A	12.5A	280mV	5VSB @ 500mA	±2%
MP300-36	36V	8.3A	9.7A	360mV	5VSB @ 500mA	±2%
MP300-48	48V	6.3A	7.3A	480mV	5VSB @ 500mA	±2%

Notes: The maximum duration of peak current shall be less than 100ms, and the average output power shall be less than 300W.

OUTLINE DRAWING



AC INPUT

P/N: Molex 10-63-4057 or 09-65-2058 or JST equivalent
Mates With Molex housing 09-50-1051 or JST equivalent

L	Line
N	Neutral
E	Earth

DC OUTPUT

Terminal Blocks

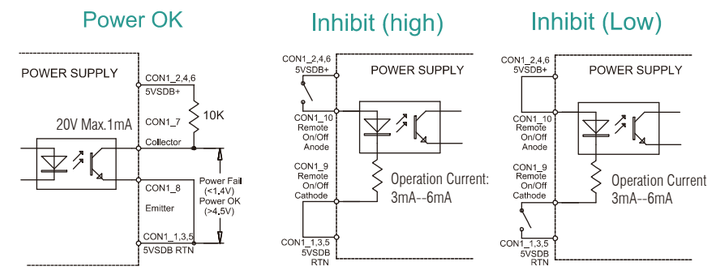
VO-	Return
VO+	Output(+)

SIGNAL CONNECTOR

JST # B10B-PHDSS or equiv.

1	5VSB RTN(Signal RTN)
2	5VSB
3	5VSB RTN(Signal RTN)
4	5VSB
5	5VSB RTN(Signal RTN)
6	5VSB
7	Power Fail (Collector)
8	Power Fail (Emitter)
9	Remote on/off (Cathode)
10	Remote on/off (Anode)

SIGNAL CONFIGURATION



SIGNALS	NOTES
Power OK	Isolated optocoupler transistor,turns off 5-500ms after main output when AC is appllied; turns on 4mS min. before loss of main output after AC failure.
Remote On/Off	Switch on the main output@when optocoupler diode turns off(0-0.8V); Switch off the main output@when optocoupler diode turns on(4.5V-5.25V).

MP400 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Full Load Convection Cooled Operation Up To 40°C
- High Efficiency - 92% Typical At Full Load
- Remote On/Off, Power OK & DC OK
- 5VSB @500mA Output
- Universal AC Input With Active PFC
- EN55011 / FCC Part 15J Class B Cond. Emissions
- 3 Year Warranty
- Medical (BF) Safety Approvals

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INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	5.5A$_{RMS}$ at 115VAC / 2.8A$_{RMS}$ at 230VAC
Inrush Current	<25A @ 240 VAC, Cold Start
Power Factor	>0.97
Earth Leakage Current	<250μA @ 264VAC
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal 8A / 250V Fuse (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±2%
Minimum Load	None
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk max
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input (Full Load)
Over-Voltage	110~140% Latching
Over-Load	110~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Auto-Recovery

GENERAL SPECIFICATIONS

Efficiency	92% typical at 115/230 VAC, full load
Isolation	4000VAC – Input to Output(2xMOPP) 1500VAC – Input to Earth(1xMOPP) 1500VAC – Output to Earth(1xMOPP)
MTBF	300K Hours, Mil-217F at 25 °C, full load
Weight	930g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C (convection cooled)
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	4000m (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6 m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5, Installation Class3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS}$, ISM band), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9 in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5 cycles at 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°; 0%, 1cycle and 70% 25/30 cycles at 0°; 0%, 300 cycles , Criterion A/B/C
Safety Approvals	IEC 60601-1, 3rd Edition ANSI / AAMI ES60601-1 CSA C22.2 No 60601-1 EN60601-1, 3rd Edition CE Mark

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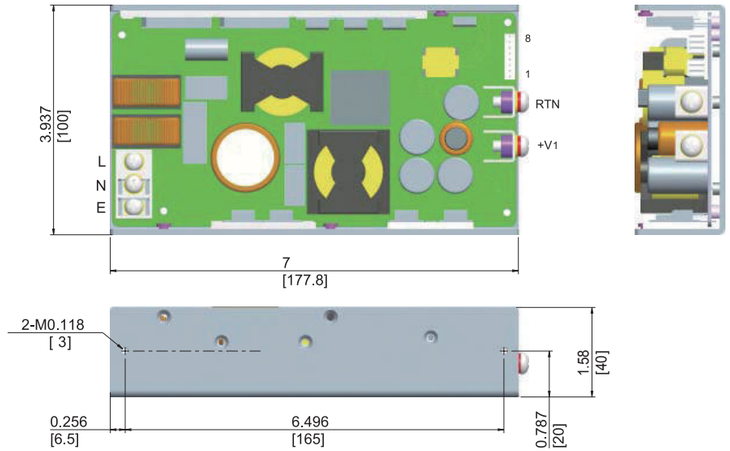
MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	STANDBY OUTPUT	MAX TOTAL REGULATION
MP400-12	12V	30.0A	33.3A	120mV	5VSB @ 500mA	±2%
MP400-15	15V	26.6A	30.0A	150mV	5VSB @ 500mA	±2%
MP400-18	18V	22.2A	25.0A	180mV	5VSB @ 500mA	±2%
MP400-24	24V	16.67A	18.8A	240mV	5VSB @ 500mA	±2%
MP400-28	28V	14.2A	16.1A	280mV	5VSB @ 500mA	±2%
MP400-36	36V	11.1A	12.5A	360mV	5VSB @ 500mA	±2%
MP400-48	48V	8.33A	9.4A	480mV	5VSB @ 500mA	±2%

Notes: 1.The maximum duration of peak current shall be less than 100ms, and the average output power shall be less than 400W.
For 12V,the average output power shall be less than 360W.
2.The power supply need be mounted on the metal plate

OUTLINE DRAWING



AC INPUT

Terminal Blocks

L	Line
N	Neutral
E	Earth

DC OUTPUT

Terminal Blocks

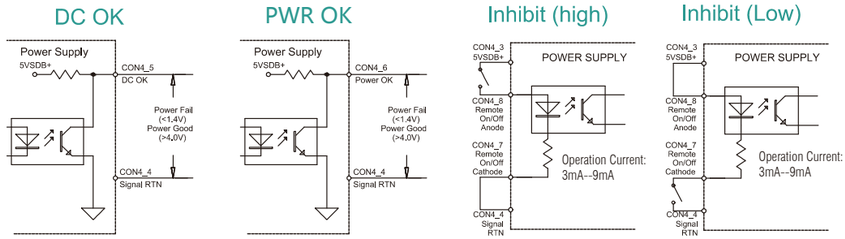
RTN	Return
+V1	Output(+)

SIGNAL CONNECTOR

AMP P/N 640456-8

8	Remote on/off (Anode)
7	Remote on/off (Cathode)
6	PWR OK
5	DC OK
4	5VSB Return
3	5VSB
2	-SENSE
1	+SENSE

OUTLINE DRAWING



SIGNALS	NOTES
DC OK	HIGH Level(3.6V-5.25V)@Normal Operation; LOW Level(0-0.4V)@main output is below 90% nominal voltage.
PWR OK	Goes HIGH(3.6V-5.25V) 5-500mS after main output is above 90% nominal voltage when AC is applid, Goes LOW(0-0.4V) 4mS min. before loss of main output after AC failure.
Remote On/Off	Switch on the main output@when optocoupler diode turns off(0-0.8V); Switch on the main output@when optocoupler diode turns on(4.5V-5.25V).

Medical Power Supply

MP600 Series

FEATURES

- Medical 60601-1 Safety Approvals
- Internal Variable Speed Fan Forced-Air Cooling
- High Efficiency - 90% Typical At Full Load
- Remote On/Off, Power OK & DC OK
- 5VSDB @ 100mA Output
- Universal AC Input With Active PFC
- EN55011 / FCC Part 15J Class A Emissions
- 3 Year Warranty

RoHS COMPLIANT

INPUT SPECIFICATIONS

Input Voltage	90~264 VAC (Universal)
Input Frequency	47~63Hz
Input Current	8.0A $_{RMS}$ at 115VAC / 4.0A $_{RMS}$ at 230VAC
Inrush Current	<40A @ 240 VAC, Cold Start
Power Factor	>0.95
Earth Leakage Current	<250μA @ 264VAC (Class I)
Patient Leakage Current	<100μA @ 264VAC
Input Protection	Internal 10A / 250V Fuse (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±2%
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>15ms at 115VAC Input (Full Load)
Over Voltage	110~150% Latching
Over-Load	110~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Auto-Recovery

STATUS & CONTROL

Remote On/Off	Default and level low :turn-on main power Level high:shut down main power
Power Fail	TTL High=AC input fail (Open Collector)
DC OK	TTL High=Main power OK (Open Collector)
Standby Output	5VSDB @ 100mA

GENERAL SPECIFICATIONS

Efficiency	88/90 typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground 500 VAC – Output to Ground
MTBF	300K Hours, Mil-217F at 25 °C, full load
Weight	1150g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C (Internal Fan Forced Air Flow)
Derating	2.5%/°C > 40°C, up to 50°C max
Storage Temperature	-40 ~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	294m/s² (30G) , 11mS on 3 axesn ,total 18 times
Vibration	10-500Hz, 19.6m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class A, Conducted EN55011, FCC Part J15, Class A, Radiated
Harmonic Current	EN61000-3-2 Criterion A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 8kV contact, 15kV Air Discharge
EFT/Burst	EN61000-4-4, Level 3, Criterion A
Surge	EN61000-4-5 Level 3, Criterion A
Conducted Immunity	EN61000-4-6, 3V$_{RMS}$ (6V$_{RMS,ISM\ band}$), Criterion A
Radiated Immunity	EN61000-4-3, 10V/m, Criterion A
Proximity Fields Immunity	EN61000-4-3, (Table 9in IEC60601-1-2 4th ED)
Magnetic Field	EN61000-4-8, 30A/m, Criterion A
Dips & Interruptions	EN61000-4-11, 0% 0.5cycles, 1 cycles; 70% 25/30 cycles; 0% 250/300cycles; Criterion A/B/C
Safety Approvals	IEC60601-1, 3rd Edition ANSI / AAMIES60601-1 CSA C22.2 No. 60601-1 EN60601-1, 3rd Edition CE Mark

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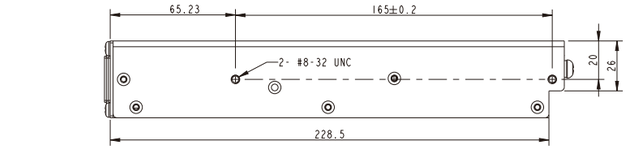
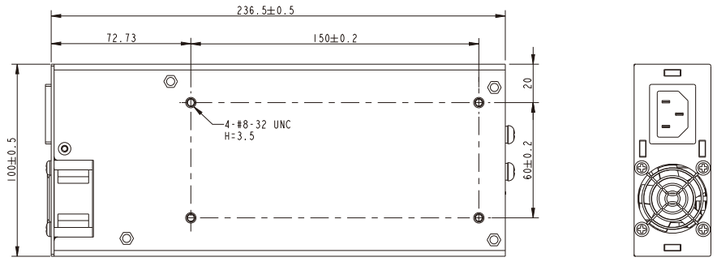
MODELS	MAIN OUTPUT VOLTAGE	OUTPUT CURRENT*	RIPPLE& NOISE	STANDBY OUTPUT	MAX TOTAL REGULATION
MP600-12	12V	50.0A	120mV	5VSDB @ 100mA	±2%
MP600-19	19V	31.6A	190mV	5VSDB @ 100mA	±2%
MP600-24	24V	25.0A	240mV	5VSDB @ 100mA	±2%
MP600-28	28V	21.5A	280mV	5VSDB @ 100mA	±2%
MP600-48	48V	12.5A	480mV	5VSDB @ 100mA	±2%

Notes * Cooling:Internal Fan Forced-Air Cooling

OUTLINE DRAWING





AC INPUT

IEC320-C14 Inlet

L	Line
G	Earth Ground
N	Neutral

DC OUTPUT

Terminal Blocks

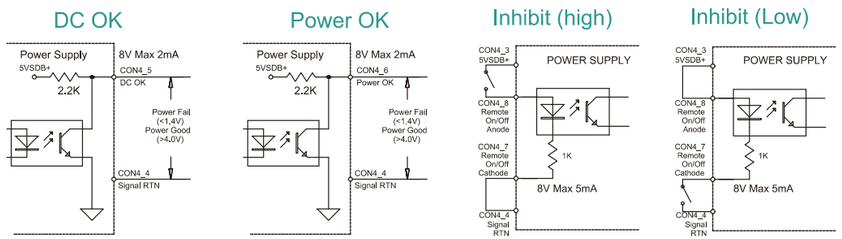
+V	Output VDC
-V	Return

SIGNAL CONNECTOR

AMP P/N : 640456-8

1	+Sense
2	-Sense
3	5VSDB
4	5VSDB Return
5	DC OK
6	PWR OK
7	Remote on/off (Cathode)
8	Remote on/off (Anode)

OUTLINE DRAWING



SIGNALS

NOTES

DC OK	Optocoupler transistor, signal goes high 100-300ms after main output rise up 90%; high: 4V-5.5V, low: 0V-1.4V.
PWR OK	Optocoupler transistor ,signal goes low 2ms minbefore main output drop to 90% and AC drop;high: 4V-5.5V, low: 0V-1.4V.
Remote On/Off	Isolated optocoupler diode power to shut down main output.

MKP680

680W Medical Power Supply

FEATURES

- Medical 60601-1 Safety Approvals
- 309x249.5x105mm
- High Efficiency - Up to 75%
- EN55011 / FCC Part 15J Class B Emissions
- 3 Year Warranty
- Medical (BF) Safety Approvals

The product is applied to the respiratory machines in the intensive care unit. Intelligent switch management between three input sources, one AC input and two cell inputs to maximize the uninterrupted work of the respiratory machine . Intelligent charging/discharging management to extend the service life of the battery. Hardware circuit can automatically achieve the output without interruption in case of software failure.

RoHS COMPLIANT CE

INPUT SPECIFICATIONS

Input Voltage	85~264 VAC (Universal)/19~30VDC
Input Frequency	47~63Hz
Input Current	9.5A $_{RMS}$ @ 115VAC/35A $_{RMS}$ @ 19VDC
Inrush Current	<22A @ 240 VAC, Cold Start
Off power battery comsumption	<2mA
Earth Leakage Current	<190μA @ 264VAC(Class I)
Input Protection	Internal T15A/ 250V (Line & Neutral)

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Line Regulation	±0.5%
Load Regulation	±5%
Minimum Load	+5V/0.8A
Transient Response	±5%, 50% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk typical
Turn-On Delay	3 seconds max @ 115VAC
Hold-Up Time	>20ms at 115VAC Input (Full Load)
Over-Voltage	Primary Side Sense & By Zener Diode
Over-Load	120~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over-Temperature	Auto-recovery

STATUS & CONTROL

Efficiency	75% typical at 115/230 VAC, full load
Isolation	4000 VAC – Input to Output 1500 VAC – Input to Ground
MTBF	>50K Hours, Mil-217F at 25 °C, full load
Weight	3600g

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0 ~ +40°C
Derating	2.5%/°C > 40°C, up to 60°C max
Storage Temperature	-40~ +80°C
Operating Humidity	5~95% (non-condensing)
Operating Altitude	3000M (max)
Shock	294m/s², 10mS on 3 axes
Vibration	10-500Hz, 19.6m/s²(2G), 20mins on 3 axes

EMC & SAFETY

Emissions	EN55011, FCC Part J15, Class B, Conducted EN55011, FCC Part J15, Class B, Radiated
Harmonic Current	EN61000-3-2 Class A
Voltage Flicker	EN61000-3-3
ESD	EN61000-4-2, 6kV contact, 8kV Air Discharge
EFT/Burst	EN61000-4-3, 3V/m, Criterion A
Surge	EN61000-4-4, Level 3, Criterion A
Conducted Immunity	EN61000-4-5, InstallationClass 3 , Criterion A
Radiated Immunity	EN61000-4-6 ,3V $_{RMS}$, Criterion A
Magnetic Field	EN61000-4-8, 3A/m, Criterion A
Dips & Interruptions	EN61000-4-11, Class 3 Criterion A/B/C
Safety Approvals	IEC 60601-1, 3rd Edition ANSI / AAMI ES60601-1 CSA C22.2 No 60601-1 EN60601-1, 3rd Edition

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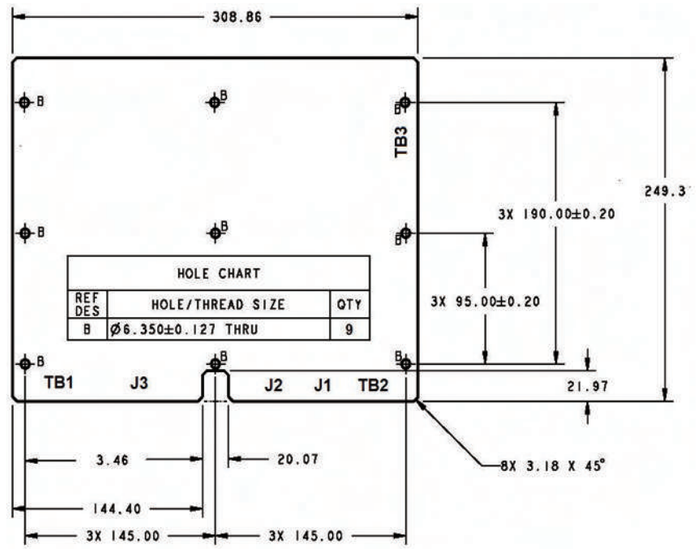
MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	PEAK CURRENT	RIPPLE & NOISE (MAX)	MAX TOTAL REGULATION
MKP680	+5V	10 A	10 A	100mV	±2%
	+24V	17A	20A	500mV	±5%
	+24V	4.5A	10A	500mV	±5%
	+15V	0.5A	0.5A	150mV	±5%
	-15V	0.1A	0.1A	150mV	±5%
	+5V	0.015A	0.015A	100mV	±3.5%
	24V电池充电1	3.2A	3.2A		
	24V电池充电2	1A	1A		

OUTLINE DRAWING



INPUT CONNECTOR

TB1:WECO(979-DS/04)

输入源	AC Input	充放电2	充放电1
端子位号	TB1	TB2	TB3
Pin 1	Line	Positive	Positive
Pin 2	Neutral	Positive	Positive
Pin 3	NC	Return	Return
Pin 4	Earth	Return	Return

OUTPUT CONNECTOR

J1： MOLEX(A-41791-0006)

Pin Number	1，2，3	4，5，6
Description	+24V/400W Output	+24V/400W Return

J2： FCI(D15P24B6PV00LF)

Pin Number	4,5,12,13	6,7,8,14,15
Description	24V/100W Output	+24V Return
Pin Number	1，9	2，10
Description	+15V Output	±15V Return

J2： FCI(D15P24B6PV00LF)

Pin Number	Description	Pin Number	Description	Pin Number	Description
1	On/Off Switch	20	Run on External Battery	8	Alarm In
2	On/Off Switch Return	21	+24V Disable	43	Alarm In Return
18	Alarm Switch input	5	Internal Battery Status-CPU Board	25	Alarm Out
34	Battery Backed +5V	6	Internal Battery Status	42	Alarm Out Return
35	3.6V Lithium Battery Input	22	Running on External Battery	9, 26	Power Fail
36	Battery Voltage Return	23	Running on AC	10, 11, 12, 13, 27,	5V return
37	Battery Current	39	AC Present Indicator	28, 29, 44 & 45	
38	Battery Voltage	40	27.5V (Unswitched)	30 & 46	5V Sense Return
3	External Battery Status	7	Charging LED Indicator	47 & 48	+5V sense
4	Alarm Switch output	24	AC Present LED Indicator	14, 15, 16, 17, 31,	+5V Output
19	Run On AC	41	LED Indicator Return	32, 33, 49 & 50	

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MR653900T-C

3900W Medical Power Supply

FEATURES

- ICE62368-1 Safety Approvals
- 398.2x220x84mm Package
- RS-422 Instant Messaging
- High Efficiency - 90% typical at full load
- Three-phase input 176~250Vac
- EN 55032:2015, EN 55024/AI:2015 Emissions
- 3 Year Warranty

RoHS COMPLIANT CE

INPUT SPECIFICATIONS

Input Voltage	176~250 VAC (Three-phase AC)
Input Frequency	47~63Hz
Input Current	15A $_{RMS}$
Inrush Current	<30A @ 250 VAC, Cold Start
Power Factor	>0.92
Earth Leakage Current	3.5mA Max
Input Protection	T15A / 250V Fusel)

OUTPUT SPECIFICATIONS

Output Voltage	65Vdc
Line Regulation	±0.5%
Load Regulation	±1%
Transient Response	±5%, 25% step-load, slew rate 1A/μS
Ripple / Noise	1% pk-pk
Turn-On Delay	3～10s
Over-Voltage	70V±1.5V Latching
Over-Load	65A, Automatic Recovery After Uninstall
Short Circuit	Constant current 10A, automatic recovery after unloading
Over-Temperature	Auto-Recovery

Communication & CONTROL

communication method	RS-422 communication
Power control signal	Differential signal, turn on psu: 2.0~4.3V turn off psu:-4.3~-2.0V
Power status signal	Differential signal, main power start: 2.0~4.3V ,other :-4.3~-2.0V
Power failure signal	Differential signal, Psu operate normally: 2.0~4.3V , abnormal:-4.3~-2.0V

GENERAL SPECIFICATIONS

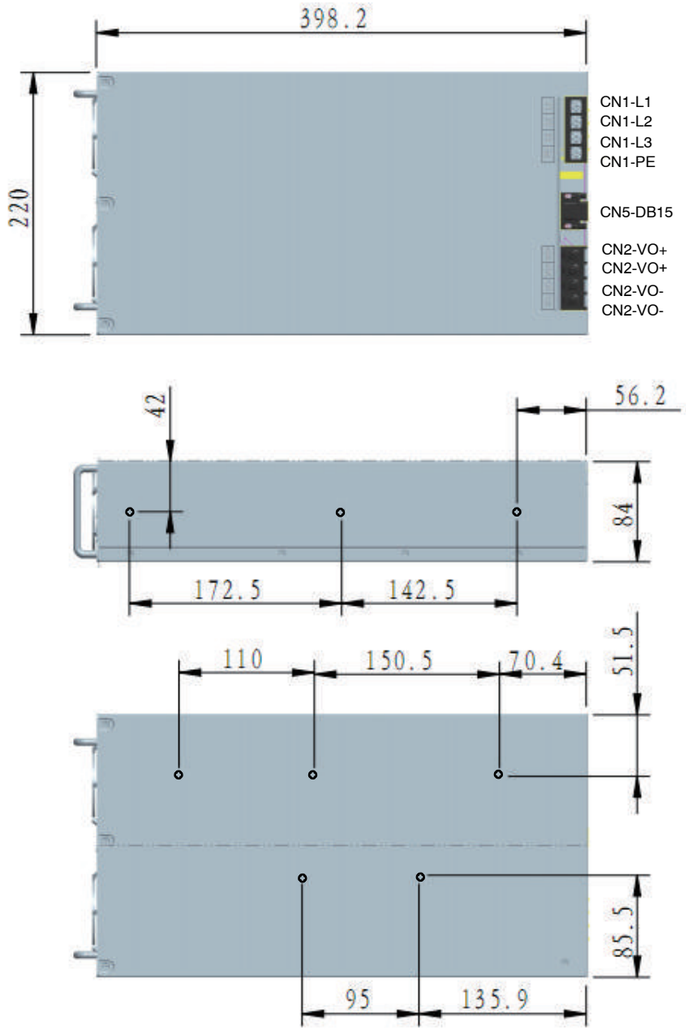
Efficiency	90% typical at 208 VAC, full load
Isolation	4242 VDC – Input to Output 2120 VDC – Input to PE 1000 VDC – Output to PE
MTBF	200K Hours, at 208Vac 25 °C, full load
Weight	7.5Kg

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-10~ +50℃
Storage Temperature	-25 ~ +70℃
Operating Humidity	10~90%
Operating Altitude	3000M (max)
Vibration	29.4m/s²(3G), 8 hours on 3 axes

EMC & SAFETY

Emissions	EN55022, FCC Part J15, Class A, Conducted EN55022, FCC Part J15, Class A, Radiated
ESD	IEC61000-4-2 level 3 Criterion A
EFT/Burst	IEC61000-4-4 level 3 Criterion A
Surge	IEC61000-4-5 level 3 Criterion A
Conducted Immunity	IEC61000-4-6 level 3 Criterion A
Radiated Immunity	IEC61000-4-3 level 3 Criterion A
Magnetic Field	IEC61000-4-8 level 4 Criterion A
Dips & Interruptions	IEC61000-4-11 CriterionA/B/C
Safety Approvals	EN 62368-1:2014; IEC 62368-1:2014 (SecondEdition); EN 55032:2015; EN 55024/AI:2015; CE Mark



AC INPUT

Molex P/N: TB1300-03-4P-C

CN1-Pin 1	L1
CN1-Pin 2	L2
CN1-Pin 3	L3
CN1-Pin 4	PE

DC OUTPUT

Molex P/N: TB1270-00-4P

CN2-Pin 1	VO+
CN2-Pin 2	VO+
CN2-Pin 3	VO-
CN2-Pin 4	VO-

SIGNAL CONNECTOR

Molex P/N: S007200370
Mates With: Molex DBH-15P

CN5-Pin 1	ON/OFF_Ctrl_P(+)
CN5-Pin 2	ON/OFF_Ctrl_N(-)
CN5-Pin 3	ON/OFF_Stat_P(+)
CN5-Pin 4	ON/OFF_Stat_N(-)
CN5-Pin 5	Fault_Stat_P(+)
CN5-Pin 6	Fault_Stat_N(-)
CN5-Pin 7	RSS422-A
CN5-Pin 8	RSS422-B
CN5-Pin 9	RSS422-Z
CN5-Pin 10	RSS422-Y
CN5-Pin 11	CBL_Det
CN5-Pin 12	SGND
CN5-Pin 1 3	NC
CN5-Pin 14	NC
CN5-Pin 15	NC

SIGNALS	NOTES
ON/OFF_Ctrl	Remote ON/OFF signal@level=high(2.0~4.3V),turn on PSU, @ level=low(-4.3~-2.0V) ,turn off PSU
ON/OFF_Stat	When ON/OFF_Stat is turn on PSU and output voltage Vo>50V @ level=high(2.0~4.3V)other@ level=low(-4.3~-2.0V)
Fault_Stat	PSU protect states signal when OTP,OVP,OCP,UVP,FAN fault,phase loser@ level=high(2.0~4.3V) other@ level=low(-4.3~-2.0V)
RS422 communication	Dual differential signal , Baud rate:115200bit
CBL_Det	cable detector

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Cayman

FEATURES

- Large battery capacity
- Low power consumption, strong load capacity
- Overcharge protection , Overdischarge protection
- Overcurrent protection, Short Circuit protection
- Over-temperature protection, device temperature rise during work is low

CE

CONSTRUCTIONS & CELL

Battery nominal capacity	3400mAH
Battery pack internal structure	1S2P
Battery Nominal Voltage	3.7V
Battery Initial internal impedance	≦ 500mΩ
Battery cell type	BAK 103450AR1 1700mAh 3.7V
Charge status indication	N/A
Communication interface mode	N/A

CHARGE/DISCHARGE SPECIFICATIONS

Maximum Charge Voltage	4.2V
Standard Charge current	680mA (0.2C)
Fast Charge current	1700mA (0.5C)
Maximum Charge current	3400mA
Minimum Discharge Voltage	2.3V
Standard Discharge current	680mA (0.2C)
Maximum Discharge current	2000mA
Self-consumption current	<10μA

CHARGE/DISCHARGE SPECIFICATIONS

Overcurrent protection	2.5-3.5A; Automatic recovery
Overcharge protection	Protection 4.28V±0.05V ; recovery 3.98V±0.10V
Overdischarge protection	Protection 2.30V±0.10V ; recovery 2.4V±0.10V
Short Circuit protection	Active, Auto-recovery
Over-temperature protection	Active

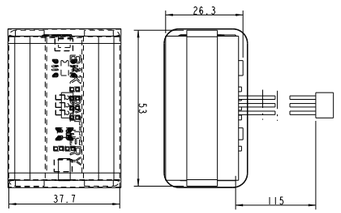
ENVIRONMENTAL SPECIFICATIONS

0.2C Charge	0℃~ +55 ℃
0.5C Charge	10℃~ +45 ℃
0.2C Discharge	-10℃~ +60 ℃
Relative humidity	45%-85% RH
Altitude	3000m Max
Application Storage	-20°C~ + 60°C, 65%+/-20% RH
Long Time Storage	-10°C~ + 35°C, 65%+/- 0% RH
long period storage	25~30°C , 65%+/-20% RH
Drop	100cm , 6 side , Function is OK. Deformation; explosion and catch fire is no allowed.
Vibration	16.7 Hz , 1.0G , X, Y, Z axis , 30min(Each axis) , Function is OK. Deformation; explosion and catch fire is no allowed

EMC & SAFETY

UN38.3
IEC62133-1

OUTLINE DRAWING



PIN	SIGNAL	Description
1	Pack+	Positive
2	Pack-	Negative
3	NTC	Thermistor 10k ohm at 25ºC

CAUTION & NOTES

Do not dismantle, open or shred secondary cells or batteries ;
Do not expose cells or batteries to heat or fire. Avoid storage in direct sunlight ;
Observe the plus (+) and minus (–) marks on the cell, battery and equipment and ensure correct use ;
In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice。

ORCA

FEATURES

- Large battery capacity
- Low power consumption, strong load capacity
- Overcharge protection , Overdischarge protection
- Overcurrent protection, Short Circuit protection
- Over-temperature protection, device temperature rise during work is low

CB CE

CONSTRUCTIONS & CELL

Battery nominal capacity	5400mAH
Battery pack internal structure	1S3P
Battery Nominal Voltage	3.7V
Battery Initial internal impedance	≦ 200mΩ
Battery cell type	BAK 103450AR2 1800mAh 3.7V
Charge status indication	N/A
Communication interface mode	N/A

CHARGE/DISCHARGE SPECIFICATIONS

Maximum Charge Voltage	4.2V
Standard Charge current	1080mA (0.2C)
Fast Charge current	2700mA (0.5C)
Maximum Charge current	4000mA
Minimum Discharge Voltage	2.9V
Standard Discharge current	1080mA (0.2C)
Maximum Discharge current	4000mA
Self-consumption current	<20μA

CHARGE/DISCHARGE SPECIFICATIONS

Overcurrent protection	2.5-3.5A; Automatic recovery
Overcharge protection	Protection 4.28V±0.05V ; recovery 3.98V±0.10V
Overdischarge protection	Protection 2.30V±0.10V ; recovery 2.4V±0.10V
Short Circuit protection	Active, Auto-recovery
Over-temperature protection	Active

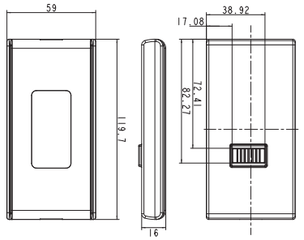
ENVIRONMENTAL SPECIFICATIONS

0.2C Charge	0℃~ +55 ℃
0.5C Charge	10℃~ +45 ℃
0.2C Discharge	-10℃~ +60 ℃
Relative humidity	45%-85% RH
Altitude	3000m Max
Application Storage	-20°C~ + 60°C, 65%+/-20% RH
Long Time Storage	-10°C~ + 35°C, 65%+/- 0% RH
long period storage	25~30°C , 65%+/-20% RH
Drop	100cm , 6 side , Function is OK. Deformation; explosion and catch fire is no allowed.
Vibration	16.7 Hz , 1.0G , X, Y, Z axis , 30min(Each axis) , Function is OK. Deformation; explosion and catch fire is no allowed

EMC & SAFETY

UN38.3
IEC62133-1

OUTLINE DRAWING



PIN	SIGNAL	Description
1,2	Ground	Negative
3	Thermistor	Thermistor 10k ohm at 25ºC
4	NC	
5,6	LiPO+	Positive

CAUTION & NOTES

Do not dismantle, open or shred secondary cells or batteries ;
Do not expose cells or batteries to heat or fire. Avoid storage in direct sunlight ;
Observe the plus (+) and minus (–) marks on the cell, battery and equipment and ensure correct use ;
In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice。

Megmeet Battery Pack

VWSP-430

FEATURES

- Non-rechargeable for Army
- Low power consumption, strong load capacity
- Overcurrent protection
- Short Circuit protection

CE

CONSTRUCTIONS & CELL

Battery nominal capacity	3400mAh 36Wh
Battery pack internal structure	1S8P
Battery Nominal Voltage	12.0V
Battery Initial internal impedance	≦ 550mΩ
Battery cell type	CR123A 1700mAh
Charge status indication	N/A
Communication interface mode	N/A

CHARGE/DISCHARGE SPECIFICATIONS

Maximum Charge Voltage	N/A
Standard Charge current	N/A
Fast Charge current	N/A
Maximum Charge current	N/A
Minimum Discharge Voltage	6.0V
Standard Discharge current	20mA
Maximum Discharge current	3000mA (1.0C)
Self-consumption current	<20μA

CHARGE/DISCHARGE SPECIFICATIONS

Overcurrent protection	Automatic recovery
Overcharge protection	N/A
Overdischarge protection	N/A
Short Circuit protection	Automatic recovery

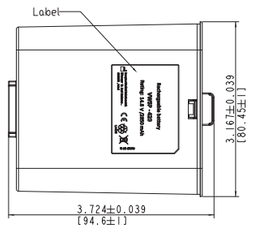
ENVIRONMENTAL SPECIFICATIONS

0.2C Charge	N/A
0.5C Charge	N/A
0.2C Discharge	-10℃~ +60 ℃
Relative humidity	45%-85% RH
Altitude	3000m
Application Storage	-20°C~ + 60°C, 65%+/-20% RH
Long Time Storage	-10°C~ + 35°C, 65%+/- 0% RH
long period storage	25~30°C , 65%+/-20% RH
Drop	100cm，6 side，Function is OK. Deformation; explosion and catch fire is no allowed.
Vibration	16.7 Hz，1.0G，X, Y, Z axis，30min(Each axis)，Function is OK. Deformation; explosion and catch fire is no allowed

EMC & SAFETY

UN38.3

OUTLINE DRAWING



CAUTION & NOTES

Do not dismantle, open or shred secondary cells or batteries ;
Do not expose cells or batteries to heat or fire. Avoid storage in direct sunlight ;
Observe the plus (+) and minus (–) marks on the cell, battery and equipment and ensure correct use ;
In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice。

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VWSP-420

FEATURES

- Large battery capacity
- Low power consumption, strong load capacity
- Overcharge protection , Overdischarge protection
- Secondary OVP protection
- Overcurrent protection , Short Circuit protection
- Over-temperature protection, component temperature rise during work is low

CB CE

CONSTRUCTIONS & CELL

Battery nominal capacity	2850mAh 42Wh
Battery pack internal structure	1S4P
Battery Nominal Voltage	14.8V
Battery Initial internal impedance	≦ 250mΩ
Battery cell type	N18650CL-29-3C
Charge status indication	N/A
Communication interface mode	N/A

CHARGE/DISCHARGE SPECIFICATIONS

Maximum Charge Voltage	16.8V
Standard Charge current	570mA (0.2C)
Fast Charge current	1425mA (0.5C)
Maximum Charge current	2700mA
Minimum Discharge Voltage	10V
Standard Discharge current	570mA (0.2C)
Maximum Discharge current	2850mA (1.0C)
Self-consumption current	<20μA

CHARGE/DISCHARGE SPECIFICATIONS

Overcurrent protection	4-10A; Auto-recovery
Overcharge protection	Protection 4.25V±0.05V; Recovery 4.0V±0.15V
Overdischarge protection	Protection 2.5V±0.15V; Recovery 2.9V±0.15V
Short Circuit protection	Active, Auto-recovery
Over-temperature protection	Active

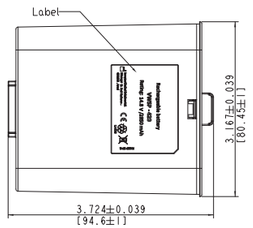
ENVIRONMENTAL SPECIFICATIONS

0.2C Charge	0℃~ +55 ℃
0.5C Charge	10℃~ +45 ℃
0.2C Discharge	-10℃~ +60 ℃
Relative humidity	45%-85% RH
Altitude	3000m Max.
Application Storage	-20°C~ + 60°C, 65%+/-20% RH
Long Time Storage	-10°C~ + 35°C, 65%+/- 0% RH
long period storage	25~30°C , 65%+/-20% RH
Drop	100cm，6 side，Function is OK. Deformation; explosion and catch fire is no allowed.
Vibration	16.7 Hz，1.0G，X, Y, Z axis，30min(Each axis)，Function is OK. Deformation; explosion and catch fire is no allowed

EMC & SAFETY

UN38.3
IEC62133-1

OUTLINE DRAWING



CAUTION & NOTES

Do not dismantle, open or shred secondary cells or batteries ;
Do not expose cells or batteries to heat or fire, Avoid storage in direct sunlight ;
Observe the plus (+) and minus (–) marks on the cell, battery and equipment and ensure correct use ;
In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.