

- ✓ Safety: Medical IEC 60601-1-1 3rd Ed, Amend 1; IEC62368-1 and IEC60950-1(I.T.E.)
- ✓ EMC: Medical IEC 60601-1-2 4th Ed, Class B
- ✓ BF Leakage, 2 MOPP
- ✓ Universal 80-264 VAC Input, 50/60 Hz
- ✓ Class I and Class II Applications
- ✓ Open Frame and Enclosed Options
- ✓ Compact 3" x 2" x 0.95" Open Frame Footprint
- ✓ DoE Efficiency Level VI, RoHS-compliant



**PRODUCT DESCRIPTION**

The Astrodyne TDI ASM65 series of Switching Power Supplies are designed for medical and industrial applications. These products operate over the input voltage range of 80 to 264 VAC and 50/60Hz frequency and produce up to 65 Watts of regulated DC output. They have safety certification to IEC60601 for use across a wide variety of medical applications, including those within the home. They are compliant with the latest DoE Efficiency Level VI; IEC 60601-1-1, 3<sup>rd</sup> Edition, Amendment 1, IEC62368-1 and IEC 60950-1 safety; and IEC 60601-1-2, 4<sup>th</sup> Edition, Class B EMC standards.

**PRODUCT MODELS**

Model	Output Power	Output Voltage	Output Current	Efficiency
<b>Open Frame Models – Header Connectors</b>				
ASM65-050-BNH-0F0	40W	5VDC	10.0A	83%
ASM65-075-BNH-0F0	50W	7.5VDC	8.67A	86%
ASM65-090-BNH-0F0	55W	9VDC	7.22A	87%
ASM65-120-BNH-0F0	65W	12VDC	5.42A	88%
ASM65-150-BNH-0F0	65W	15VDC	4.33A	88%
ASM65-180-BNH-0F0	65W	18VDC	3.61A	88%
ASM65-240-BNH-0F0	65W	24VDC	2.71A	88%
ASM65-280-BNH-0F0	65W	28VDC	2.32A	88%
ASM65-360-BNH-0F0	65W	36VDC	1.81A	88%
ASM65-480-BNH-0F0	65W	48VDC	1.35A	88%

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<b>Model</b>	<b>Output Power</b>	<b>Output Voltage</b>	<b>Output Current</b>	<b>Efficiency</b>
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**Enclosed Models – Header Connectors**

ASM65-050-BEH-0F0	40W	5VDC	10.0A	83%
ASM65-075-BEH-0F0	50W	7.5VDC	8.67A	86%
ASM65-090-BEH-0F0	55W	9VDC	7.22A	87%
ASM65-120-BEH-0F0	65W	12VDC	5.42A	88%
ASM65-150-BEH-0F0	65W	15VDC	4.33A	88%
ASM65-180-BEH-0F0	65W	18VDC	3.61A	88%
ASM65-240-BEH-0F0	65W	24VDC	2.71A	88%
ASM65-280-BEH-0F0	65W	28VDC	2.32A	88%
ASM65-360-BEH-0F0	65W	36VDC	1.81A	88%
ASM65-480-BEH-0F0	65W	48VDC	1.35A	88%

**Enclosed Models – Terminal Block Connectors**

ASM65-050-BET-0F0	40W	5VDC	10.0A	83%
ASM65-075-BET-0F0	50W	7.5VDC	8.67A	86%
ASM65-090-BET-0F0	55W	9VDC	7.22A	87%
ASM65-120-BET-0F0	65W	12VDC	5.42A	88%
ASM65-150-BET-0F0	65W	15VDC	4.33A	88%
ASM65-180-BET-0F0	65W	18VDC	3.61A	88%
ASM65-240-BET-0F0	65W	24VDC	2.71A	88%
ASM65-280-BET-0F0	65W	28VDC	2.32A	88%
ASM65-360-BET-0F0	65W	36VDC	1.81A	88%
ASM65-480-BET-0F0	65W	48VDC	1.35A	88%

## 65W Medical and Industrial Power Supply

## ASM65

### INPUT SPECIFICATIONS

Input Voltage Range	100-240VAC rated 80-264VAC tested
Input Frequency	47-63 Hz (50/60 Hz nom.)
Input Current (rated)	1.7A max at 100VAC 0.8A max at 240VAC
Input to Earth Leakage	50uA max at 264VAC, 50 Hz
Input to Output Leakage	67uA typ, 100uA max at 264VAC, 50Hz

### MAIN OUTPUT SPECIFICATIONS

Output Voltage	See selection chart
Output Power	65W max
Minimum Output Load	20% for ea. output (ASM65D) no minimum for ASM65
No Load Power	100mW typ, 210mW max
Set Point Accuracy	±2% max, Vout < 12V ±1% max, Vout ≥ 12V
Load Regulation	±2% max, Vout < 12V ±1% max, Vout ≥ 12V
Line Regulation	±0.5% max
Efficiency	See selection chart
Over Voltage Protection*	110 to 135% Vout, recycle power to reset
Over Load Protection*	110 to 160% x Rated Power, Auto Recovery
Short Circuit Protection*	Auto Recovery
Temperature Coefficient	±0.04%/°C
Hold-up Time, full load	30ms typ, 230VAC 12ms typ, 115VAC
Ripple/Noise	200mV pk-pk max, Vout < 12V 1% pk-pk max, Vout ≥ 12V

### ISOLATION SPECIFICATIONS

Input to Output	4000 VAC, 2 MOPP
Input to Earth	1500 VAC, 1 MOPP
Output to Earth	1500 VAC

All Specifications are typical at nominal input, full load, 25°C unless specified otherwise.

### SAFETY AND COMPLIANCE CERTIFICATIONS

Safety Approvals (Pending)	IEC 60601-1 3 <sup>rd</sup> Ed, Amend 1, IEC 62368-1 and IEC 60950-1: cTUVus, CSA C22.2, CB Scheme
EMC Overall	EN60601-1-2, 4 <sup>th</sup> Ed, Class B
Conducted and Radiated Emissions	EN 55011 (CISPR11), Class B
Harmonic Current	EN 61000-3-2, Class A
Voltage Fluctuations	EN 61000-3-3
ESD Immunity	EN 61000-4-2, Level 4
RF Field Immunity	EN 61000-4-3, Level 3
EFT Burst Immunity	EN 61000-4-4, Level 3
Surge Immunity	EN 61000-4-5, Level 3
Conducted Immunity	EN 61000-4-6, Level 3
Magnet Field Immunity	EN 61000-4-8, Level 4
Voltage Dips and Interruptions	EN 61000-4-11

### MECHANICAL SPECIFICATIONS

Package Types	Open Frame, Enclosed
Size **	3" x 2" x 1.07" 76.2 x 50.8 x 27.1 mm
Weight	3.88oz / 110g Open frame 6.35oz / 180g Enclosed

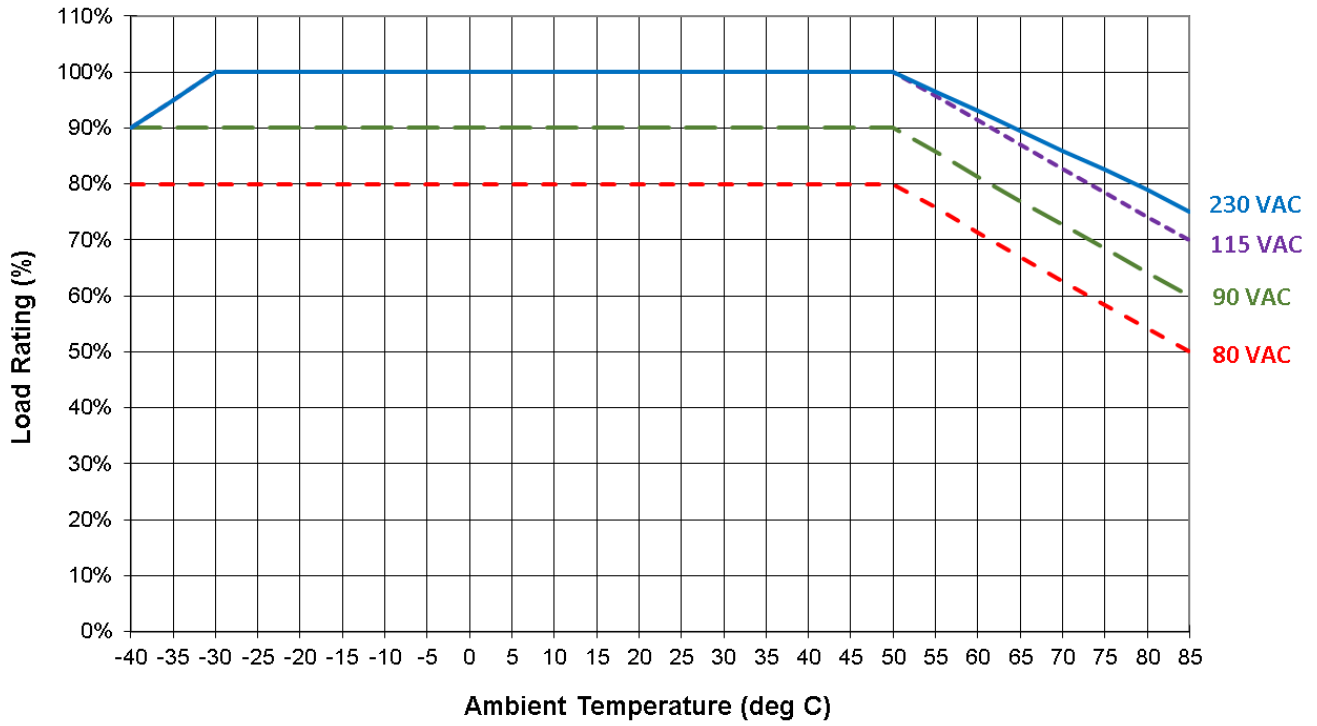
\*\* Open frame; see Outline Drawings for enclosed

### ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30 to +50°C at Full Load, -40 to +85°C with Derating See derating charts
Cooling	Free Air Convection
Storage Temperature*	-40 to +85°C
Operating Humidity*	0% to 95%, non-condensing
Operating Altitude	3000m max

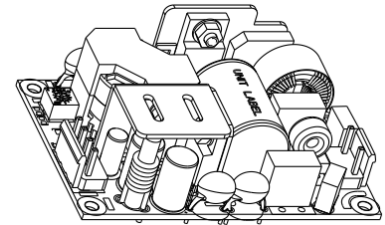
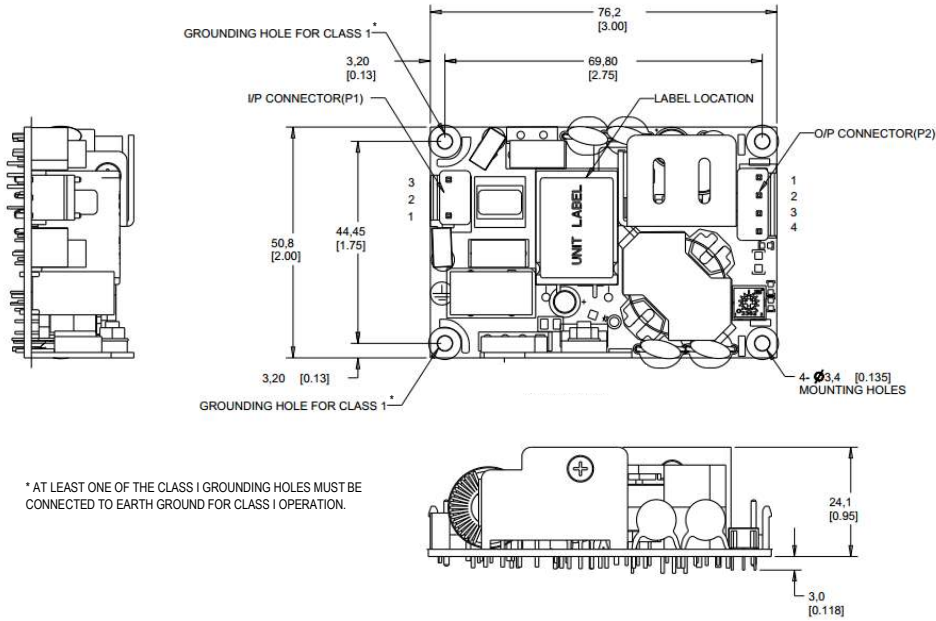
\* These are stress ratings. Exposure of the devices to any of these conditions may adversely affect long term reliability. Operation under conditions other than the standard operating conditions is neither warranted nor implied.

**THERMAL PERFORMANCE**



**OUTLINE DRAWINGS**

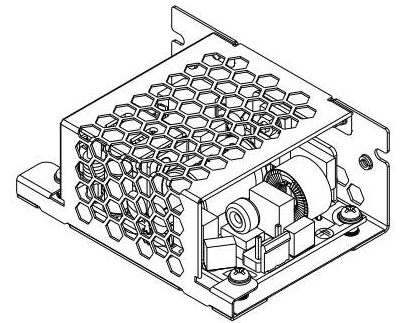
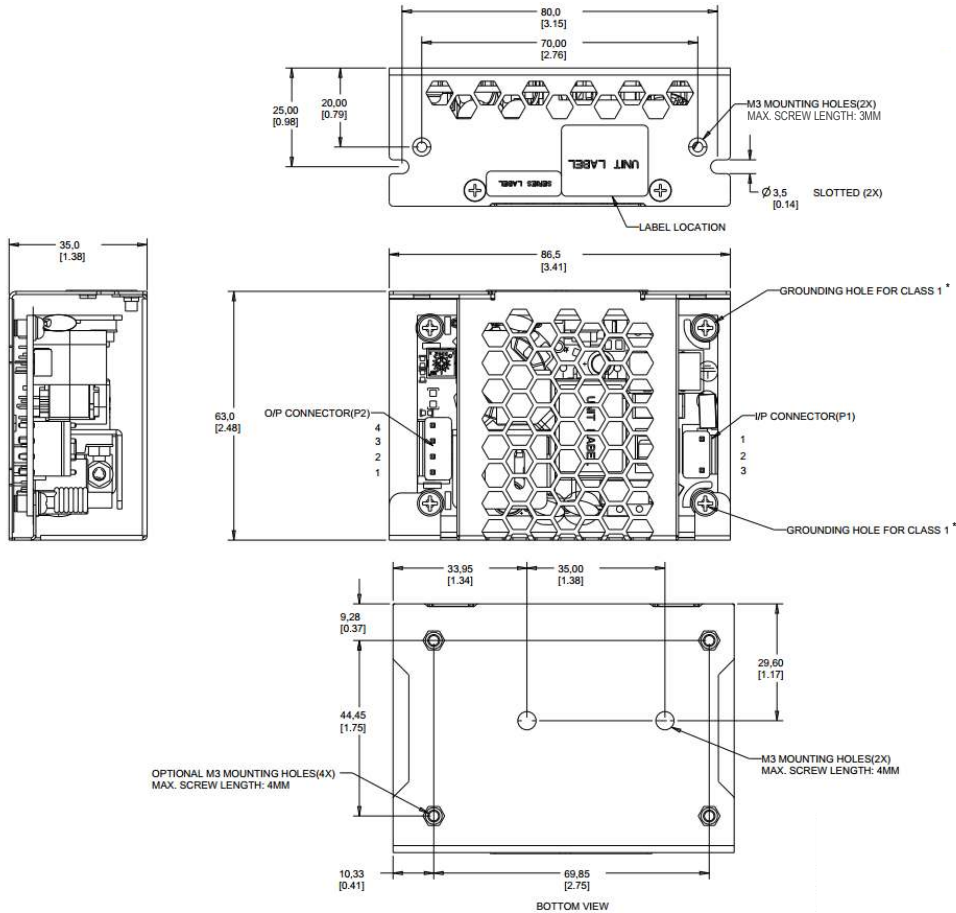
**Open Frame with Headers – ASM65-xxx-BNH-zzz**



TERMINAL ASSIGNMENT		
P1	1	ACN
	2	NC
	3	ACL
P2	1	DC_OUTPUT+
	2	DC_OUTPUT+
	3	DC_OUTPUT-
	4	DC_OUTPUT-

\* AT LEAST ONE OF THE CLASS I GROUNDING HOLES MUST BE CONNECTED TO EARTH GROUND FOR CLASS I OPERATION.

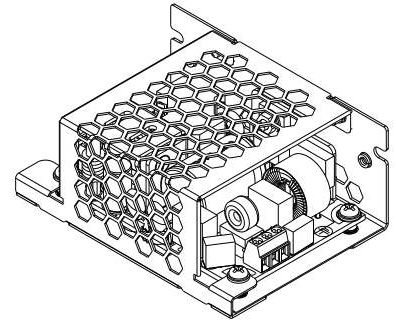
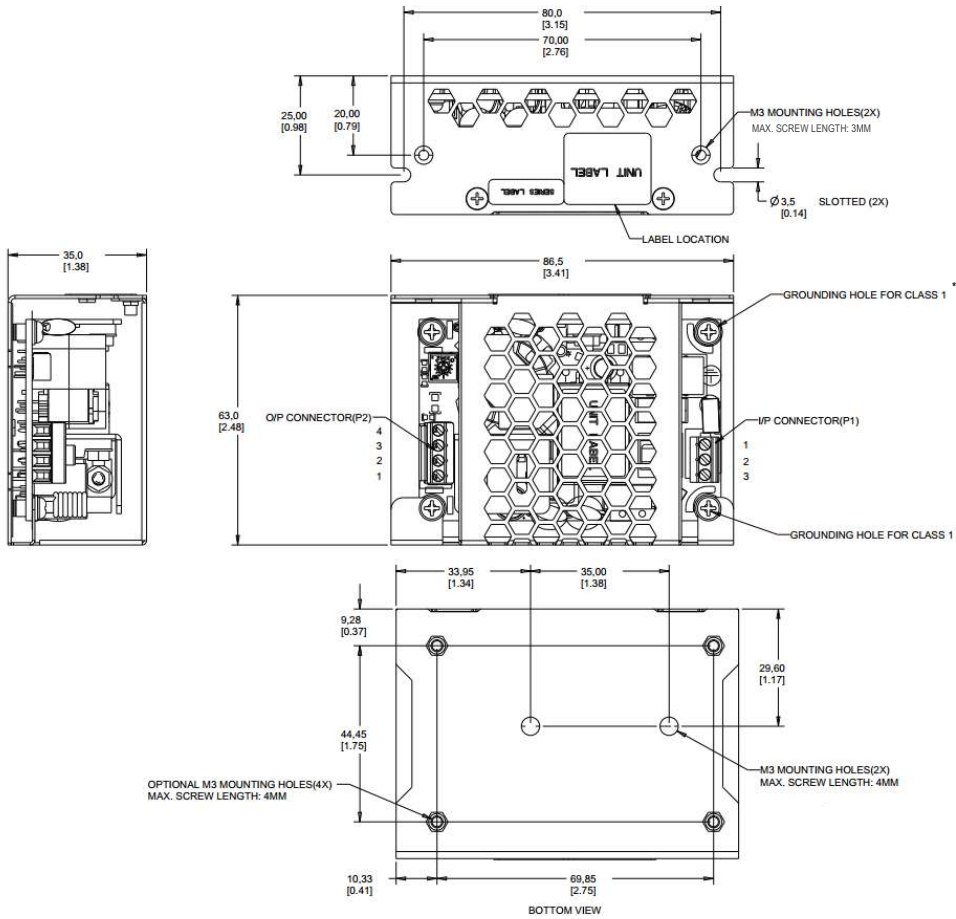
**Enclosed with Headers – ASM65-xxx-BEH-zzz**



TERMINAL ASSIGNMENT		
P1	1	ACN
	2	NC
	3	ACL
P2	1	DC_OUTPUT+
	2	DC_OUTPUT+
	3	DC_OUTPUT-
	4	DC_OUTPUT-

\* ANY LOCATION ON THE METAL CHASSIS/ENCLOSURE CAN INSTEAD BE CONNECTED TO EARTH GROUND FOR CLASS I OPERATION.

**Enclosed with Terminal Blocks– ASM65-xxx-BET-zzz**



TERMINAL ASSIGNMENT		
P1	1	ACN
	2	NC
	3	ACL
P2	1	DC_OUTPUT+
	2	DC_OUTPUT+
	3	DC_OUTPUT-
	4	DC_OUTPUT-

\* ANY LOCATION ON THE METAL CHASSIS/ENCLOSURE CAN INSTEAD BE CONNECTED TO EARTH GROUND FOR CLASS I OPERATION.

**CONNECTOR INFORMATION**

**AC Input Connector (P1):**

PCB Header	Mating Housing and equivalents	Terminal Contacts and equivalents
CviLux CI5203P1V00	CviLux CI5203S000M or JST VHR-3N	CviLux CI52T031BE0 (AWG# 18~22) or JST SVH-21T-P1.1 (AWG# 18~22)

**DC Output Connector (P2):**

PCB Header	Mating Housing and equivalents	Terminal Contacts and equivalents
CviLux CI5204P1V00	CviLux CI5204S000M or JST VHR-4N	CviLux CI52T031BE0 (AWG# 18~22) or JST SVH-21T-P1.1 (AWG# 18~22)