# SL ME60 Family

# 60W Single Output External Power Medical Grade











Meets UL/EN/IEC60601-1-2, 4Th Edition For EMC\*

Approved To En/IEC/UL60601-1, 3rd Edition With Isolation Levels Which Satisfy The 2 MOPP Requirements

Meets DoE Efficiency Level VI Requirements No Load Input Power Average Efficiency

Up To 60W Of AC-DC Power

Universal Input 90-264Vac Input Range

Desktop Style Package

Meets EN55011/CISPR11, FCC Part 15.109 Class B Conducted & Radiated Emissions, With 6db Margin

E-Cap Life Of >7 Years

3 Year Warranty

IP22 Rated Enclosure









## **MODEL SELECTION**

ME60A0551F01         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG           ME60A0903F01         9.0V         6.00A         56W         90mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG           ME60A1203F01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5mm         9V:1150mm, 18AWG           ME60A1803F01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         9V:1150mm, 18AWG           ME60A4803F01         18.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         9V:1150mm, 1500mm, #18AWG           ME60A4803F01         48.0V         1.35A         60W         480mV pk-pk         ±1%         ±5%         6 pin Molex Type, center Positive         #18AWG           ME60A3093N01         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%         6 pin Molex Type.         #18AWG           ME60A1503N01         15.0V         4.00A         60W         120mV pk-pk         ±1%         ±5%         9.5mm         18AWG           ME60A2403N01         24.0V         2.70A         60W										
ME60A0903F01         9.0V         6.00A         56W         90mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG         Class I Desktop IEC60320 C14         Class II Desktop IEC60320 C18		Volts								Input Configuration
ME60A1203F01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         Type2         #18AWG           ME60A1203F01         15.0V         4.00A         60W         150mV pk-pk         ±1%         ±5%         9.5mm         9V:1150mm         18AWG         All others: 1straight Barrel Type, center positive         Positive         9V:1150mm         18AWG         All others: 1straight Barrel Type, center positive         Positive         Positive         Positive         Positive         All others: 1straight Barrel Type, center positive	ME60A0551F01	5.0V	7.00A	35W	75mV pk-pk	±1%	±5%			
ME60A1203F01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5 mm         9V:1150mm         Class I Desktop, IEC60320 C14         Class II Desktop, IEC60320 C14         Class II Desktop, IEC60320 C14         Class II Desktop IEC60320 C18         Clas	ME60A0903F01	9.0V	6.00A	56W	90mV pk-pk	±1%	±5%			
ME60A1503F01         15.0V         4.00A         60W         150mV pk-pk         ±1%         ±5%         2.5 x 3.5 x 9, 5mm Straight Barrel Type, center positive         9.5mm All others: 1500mm, all others: 1500mm, bridge Barrel Type, center positive           ME60A2403F01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         9.5mm Straight Barrel Type, center positive         4ll others: 1500mm, #18AWG           ME60A2403F01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         6 pin Molex Type?         1150mm, #18AWG           ME60A2551N01         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%         6 pin Molex Type?         1150mm, #18AWG           ME60A1203N01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         9V:1150mm #18AWG           ME60A1503N01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         95mm Straight Barrel Type, center positive           ME60A2403N01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         90mit pk-pk         4ll others: 150mm, positive           ME60A4803N01         48.0V         1.35A         60W         480mV pk-pk         ±1%	ME60A1203F01	12.0V	5.00A	60W	120mV pk-pk	±1%	±5%			Class I Deskton
ME60A1803F01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         Straight Barrel Type, center positive         All Others: 1500mm, #18AWG           ME60A2403F01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         Type, center positive         #18AWG           ME60A4803F01         48.0V         1.35A         60W         480mV pk-pk         ±1%         ±5%         6 pin Molex Type         #18AWG           ME60A0903N01         5.0V         7.00A         56W         90mV pk-pk         ±1%         ±5%         6 pin Molex Type         #18AWG           ME60A1203N01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         9.5mm Straight Barrel Type, center positive         PW:1150mm 18AWG All others: 1500mm, #18AWG           ME60A1803N01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         Straight Barrel positive         1500mm, #18AWG           ME60A2403N01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         6 pin Molex positive         1150mm, #18AWG           ME60A3203001         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%         6 pin M	ME60A1503F01	15.0V	4.00A	60W	150mV pk-pk	±1%	±5%			IEC60320 C14
ME60A2403F01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         positive         #18AWG           ME60A4803F01         48.0V         1.35A         60W         480mV pk-pk         ±1%         ±5%         6 pin Molex         1150mm, #180mG           ME60A0903N01         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%         6 pin Molex         1150mm, #180MG           ME60A1203N01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5 m         9V:1150mm #18AWG           ME60A1503N01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         Straight Barrel Type, center positive         H8AWG           ME60A2403N01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         Straight Barrel Type, center positive         1500mm, #18AWG           ME60A4803N01         48.0V         1.35A         60W         480mV pk-pk         ±1%         ±5%         6 pin Molex Type, center positive         1150mm, #18AWG           ME60A0551Q01         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%         6 pin Molex Type, center Positive         #18AWG <td>ME60A1803F01</td> <td>18.0V</td> <td>3.30A</td> <td>60W</td> <td>180mV pk-pk</td> <td>±1%</td> <td>±5%</td> <td></td> <td></td> <td>несеріасіе</td>	ME60A1803F01	18.0V	3.30A	60W	180mV pk-pk	±1%	±5%			несеріасіе
ME60A0551N01         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%           ME60A0903N01         9.0V         6.00A         56W         90mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG           ME60A1203N01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5 mm         9V:1150mm, #18AWG           ME60A1803N01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         Straight Barrel Type, center positive         1500mm, #18AWG           ME60A2403N01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         6 pin Molex Type2         H8AWG           ME60A4803N01         48.0V         1.35A         60W         480mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG           ME60A0551Q01         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG           ME60A1203Q01         9.0V         6.00A         56W         90mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9 9.5mm         9V:1150mm         18AWG           ME60A1203Q01         12.0V         5.	ME60A2403F01	24.0V	2.70A	60W	240mV pk-pk	±1%	±5%			
ME60A0903N01         9.0V         6.00A         56W         90mV pk-pk         ±1%         ±5%         6 pin Molex Type2         1150mm, #18AWG           ME60A1203N01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5mm         9V:1150mm 18AWG         All others: 1500mm, #18AWG	ME60A4803F01	48.0V	1.35A	60W	480mV pk-pk	±1%	±5%			
ME60A1203N01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         Type2         #18AWG         Class II Desktop         Class II Desktop         Class II Desktop         EEC60320 C8         Receptacle           ME60A1803N01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         9.5mm         All others: 1500mm, #18AWG         All others: 1500mm, #18AWG         All others: 1500mm, #18AWG         HE60A2403N01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG         HE60A3000mm, #18AWG         HE60A3000mm, #18AWG         HE60A3000mm, #18AWG         HE60A30000mm, #18AWG         #18AWG         #18AWG         Class II Desktop         LEC60320 C18         Class II Desktop         LEC60320 C18         LEC60	ME60A0551N01	5.0V	7.00A	35W	75mV pk-pk	±1%	±5%			
ME60A1203N01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%           ME60A1503N01         15.0V         4.00A         60W         150mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5mm         9V:1150mm 18AWG           ME60A1803N01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         Straight Barrel Type, center positive         All others: 1500mm, #18AWG           ME60A2403N01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         6 pin Molex Type2         1150mm, #18AWG           ME60A4803N01         48.0V         75mV pk-pk         ±1%         ±5%         6 pin Molex Type2         1150mm, #18AWG           ME60A0903Q01         9.0V         6.00A         56W         90mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5mm         9V:1150mm 18AWG           ME60A1203Q01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5mm         9V:1150mm 18AWG           ME60A1503Q01         15.0V         4.00A         60W         150mV pk-pk         ±1%         ±5%         Straight Barrel Type, center         Type, center	ME60A0903N01	9.0V	6.00A	56W	90mV pk-pk	±1%	±5%		,	
ME60A1503N01         15.0V         4.00A         60W         150mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5 mm         99:1150mm         18AWG           ME60A1803N01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         Straight Barrel Type, center positive         All others: 1500mm, #18AWG           ME60A2403N01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG           ME60A4803N01         48.0V         1.35A         60W         480mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG           ME60A0551Q01         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG           ME60A1203Q01         9.0V         6.00A         56W         90mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5 x 9.5 mm         9V:1150mm 18AWG           ME60A1203Q01         12.0V         5.00A         60W         120mV pk-pk         ±1%         ±5%         Straight Barrel Type, center         All others: 1500mm,           ME60A1503Q01         15.0V         4.00A         60W         150mV pk-pk         ±1%         ±5%         50m         All other	ME60A1203N01	12.0V	5.00A	60W	120mV pk-pk	±1%	±5%			Class II Deskton
ME60A1803N01         18.0V         3.30A         60W         180mV pk-pk         ±1%         ±5%         Straight Barrel Type, center Positive         All others: 1500mm, #18AWG           ME60A2403N01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         Description of the positive         #18AWG           ME60A4803N01         48.0V         1.35A         60W         480mV pk-pk         ±1%         ±5%         6 pin Molex Type         1150mm, #18AWG           ME60A0551Q01         5.0V         7.00A         35W         75mV pk-pk         ±1%         ±5%         6 pin Molex Type2         #18AWG           ME60A0903Q01         9.0V         6.00A         56W         90mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5 x 9.5 mm         9V:1150mm 18AWG           ME60A1203Q01         15.0V         4.00A         60W         150mV pk-pk         ±1%         ±5%         Straight Barrel Type, center         All others: 1500mm,	ME60A1503N01	15.0V	4.00A	60W	150mV pk-pk	±1%	±5%			IEC60320 C8
ME60A2403N01         24.0V         2.70A         60W         240mV pk-pk         ±1%         ±5%         positive         #18AWG           ME60A4803N01         48.0V         1.35A         60W         480mV pk-pk         ±1%         ±5%         6 pin Molex Type2         1150mm, #18AWG           ME60A0903Q01         9.0V         6.00A         56W         90mV pk-pk         ±1%         ±5%         2.5 x 5.5 x 9.5mm         9V:1150mm 	ME60A1803N01	18.0V	3.30A	60W	180mV pk-pk	±1%	±5%			несертасіе
ME60A0551Q01 5.0V 7.00A 35W 75mV pk-pk ±1% ±5% 6 pin Molex Type2 #18AWG ME60A0903Q01 9.0V 6.00A 56W 90mV pk-pk ±1% ±5% ME60A1203Q01 12.0V 5.00A 60W 120mV pk-pk ±1% ±5% ME60A1503Q01 15.0V 4.00A 60W 150mV pk-pk ±1% ±5% Straight Barrel Type, center Type, center Type, center Type, center Type, center	ME60A2403N01	24.0V	2.70A	60W	240mV pk-pk	±1%	±5%			
ME60A0903Q01 9.0V 6.00A 56W 90mV pk-pk ±1% ±5%  ME60A1203Q01 12.0V 5.00A 60W 120mV pk-pk ±1% ±5%  ME60A1503Q01 15.0V 4.00A 60W 150mV pk-pk ±1% ±1% ±5%  ME60A1503Q01 15.0V 4.00A 60W 150mV pk-pk ±1% ±1% ±1% ±1% ±1% ±1% ±1% ±1% ±1% ±1%	ME60A4803N01	48.0V	1.35A	60W	480mV pk-pk	±1%	±5%			
ME60A0903Q01 9.0V 6.00A 56W 90mV pk-pk ±1% ±5%  ME60A1203Q01 12.0V 5.00A 60W 120mV pk-pk ±1% ±5%  ME60A1503Q01 15.0V 4.00A 60W 150mV pk-pk ±1% ±1% ±5%  ME60A1503Q01 15.0V 4.00A 60W 150mV pk-pk ±1% ±1% ±1% ±5% ±1% ±1% ±1% ±1% ±1% ±1% ±1% ±1% ±1% ±1	ME60A0551Q01	5.0V	7.00A	35W	75mV pk-pk	±1%	±5%			
ME60A1203Q01 12.0V 5.00A 60W 120mV pk-pk ±1% ±5% 9.5mm 18AWG All others: Type, center Type, center Type, center Type, center 1500mm,	ME60A0903Q01	9.0V	6.00A	56W	90mV pk-pk	±1%	±5%			Class II Deskton
ME60A1503Q01 15.0V 4.00A 60W 150mV pk-pk ±1% ±5% Straight Barrel Type, center 1500mm,	ME60A1203Q01	12.0V	5.00A	60W	120mV pk-pk	±1%	±5%			IEC60320 C18
	ME60A1503Q01	15.0V	4.00A	60W	150mV pk-pk	±1%	±5%	3		несеріасіе
	ME60A1803Q01	18.0V	3.30A	60W	180mV pk-pk	±1%	±5%	71		

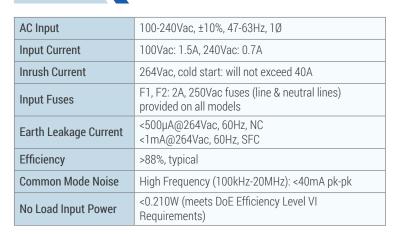


Model Number	Volts	Output Current	Output Power	Ripple & Noise <sup>1</sup>	Line Regulation	Load Regulation	Output Connector	Output Cable	Input Configuration
ME60A2403Q01	24.0V	2.70A	60W	240mV pk-pk	±1%	±5%			
ME60A4803Q01	48.0V	1.35A	60W	480mV pk-pk	±1%	±5%			

#### Notes:

- Measured at the output connector, with noise probe directly across output and load terminated with 0.1μF ceramic and 10μF low ESR capacitors. For 5V models, values listed are typical, 100mV pk-pk maximum
- 2. Molex p/n 39-01-2060 or equivalent. See outline drawing for pinout information
- 3. For Input Class I models: For AC GND connected to output common (-), insert a "B" in the part number where the "A" is located (TE60B1203F01)
- 4. All specifications are typical at nominal input, full load, at 25°C ambient unless noted

#### **INPUT**



#### **ENVIRONMENT**

Operating Temperature	-20°C to +70°C. See curve for derating				
Relative Humidity	5% to 95%, non-condensing				
Weight	400g				
Dimensions	W: 2.67" x L: 4.25" x H: 1.29" W: 67.9mm x L: 108mm x H: 32.7mm				
Altitude	Operating: to 5000m. Non-operating: -500 to 40,000 ft.				
Storage Temperature	-40°C to +85°C				
Vibration	Operating: 0.003g/Hz, 1.5grms overall, 3 axes, 10 min/axis, 1-500Hz. Non-Oper.: random waveform, 3 minutes per axis, 3 axes and Sine waveform, Vib. frequency/acceleration: 10-500Hz/1g, sweep rate of 1 octave / minutes, Vibration time of 10 sweeps / axes, 3 axes				
Shock	Operating: Half-sine, 20gpk, 10mS, 3 axes, 6 shocks total Non-Operating: Half-sine waveform, impact acceleration of 100G, Pulse duration of 6 mS, Number of shocks: 3 for each of the three axis				

#### **OUTPUT**

Output Voltage	See models chart on pg 1		
Output Power	60W continuous – See models chart for specific voltage model ratings		
Turn On Time	Less than 1 sec @115Vac, full load		
Hold-up Time	20mS min., at full Load, 100Vac input		
Ripple and Noise	See models chart on pg 1		

#### **EMI/EMC COMPLIANCE**

Conducted Emissions	EN55011/CISPR11 Class B, FCC Part 15.107, Class B: 6db margin typ, at 115 and 230Vac
Radiated Emissions	EN55011/CISPR11 Class B, FCC Part 15.109, Class B: 3db margin typ, at 115 and 230Vac
Electro-Static Discharge (ESD) Immunity on Power ports	EN55024/IEC61000-4-2, Level 4: +/- 8kV contact, +/- 15kV air, Criteria A IEC60601-1-2, 4th Edition, Table 4
Flicker Test	EN61000-3-3

### **SAFETY**

Safety Standards	EN/IEC/UL60601-1, 3rd edition		
Drop Test	1.4m from table top to wooden platform, 4 faces		

All specifications are typical at nominal input, full load, at 25°C ambient unless noted Consult factory for information regarding testing for or usage under special environments

#### **RELIABILITY**

	>250,000 hours, full load, 110 & 220Vac
	input, 25°C amb., per Telcordia 332 Issue 6



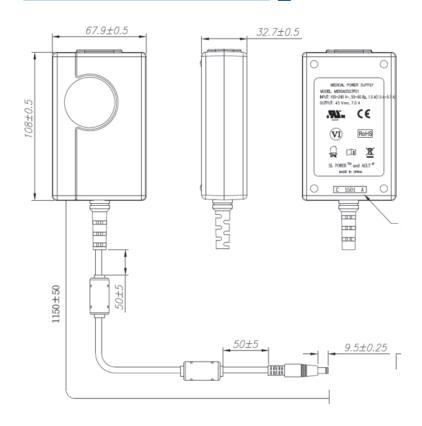
#### **PROTECTION**

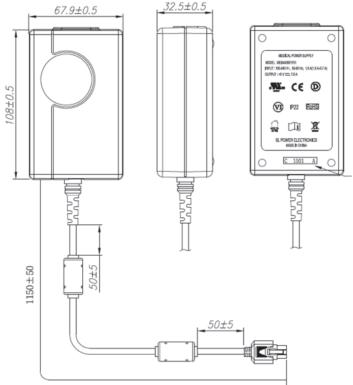
Overvoltage Protection	130 to 150% of output voltage (max. 60V on 48V model), hiccup mode				
Short Circuit Protection	Hiccup Mode, auto recovery				
Overtemperature Protection	Will shutdown upon an overtemperature condition, auto-recovery				
Overload Protection	130 to 180% of rating, Hiccup Mode				

### **ISOLATION**

Isolati	***	Input-Output: 2 MOPP Input-Ground: 1 MOPP Output-Ground: 1 MOPP
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#### **MECHANICAL DRAWINGS**





See Note 3:

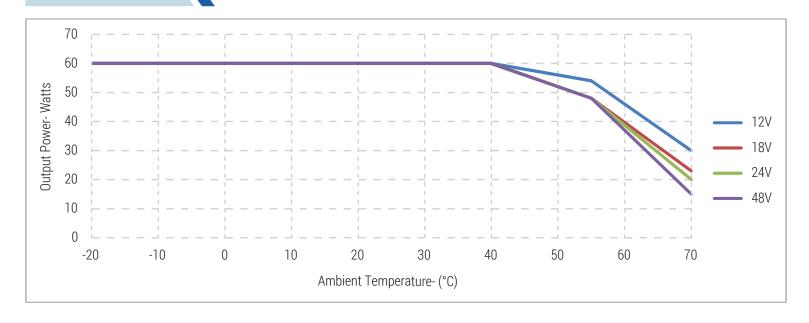
9V through 48V Models: 2.5 x 5.5 x 9.5mmor equiv. Barrel Connector, center positive<sup>2</sup>

#### Notes:

- All dimensions in mm
- Other options are available
- 3. Cable length on 12V through 48V models is 1500mm, nominal
- The unit should not be covered or enclosed to protect against excessive case temperature rise

5V Models: Output Connector: 6 pin Molex 39-01-2060 or equiv. Pins 1, 4 = (+), pins 3, 6 = (-), pins 2, 5 = NC<sup>2</sup>

## **DERATING CHART**



#### **CONNECTOR INFORMATION**

Standard models include a 2.5 x 5.5 x 9.5mm straight barrel type connector (Ault #3), center positive (6-pin Molex type - #51 – on 5V models) Other standard options are listed below. The "03" in the standard model number is replaced by the applicable digits below:

Connector No.	Description	Connector No.	Description
02	2.1 x 5.5 x 9.5 mm straight barrel plug - Center positive	45	2.5 x 5.5 x 9.5 mm straight barrel plug, locking - Center positive
03	2.1 x 5.5 x 9.5 mm straight barrel plug - Center positive (Standard models)	48	3 pin Snap n Lock, Kycon Kpp - 3P or equivalent (Pin 1 = (+); pin 2 = (-))
12	5 pin DIN - 180 male connector (Pins 3, 5 = (+); pins 1, 2, 4 = (-))	49	4 pin Snap n Lock, Kycon Kpp - 4P or equivalent (Pins 1, 3 = (+); pins 2, 4 = (-); pins 5, 6 = NC)
22	6 pin DIN male connector (Pins 1, 2 = (+); pins 4, 5 = (-))	51	6 pin Minifit - Molex 39-01-2060 or equivalent (Pins 1, 4 = (+); pins 3, 6 = (-))
23	8 pin DIN male connector (Pins 3, 7 = (+); pins 1, 4, 6, 8 = (-); shell = FG)	65	Stripped and Tinned Leads
32	9 pin "D" type, female (Pins 8 = (+); pins 5=(-); all others = NC)	70	2.1 x 5.5 x 11mm right angle barrel plug (high retention) - Center positive
33	2.5 x 5.5 x 12.5 mm straight barrel plug- Center positive	71	2.5 x 5.5 x 11mm right angle barrel plug (high retention) - Center positive
40	2.1 x 5.5 x 9.5 mm right angle barrel plug (High retention) - Center positive	72	2.1 x 5.5 x 9.5 mm straight barrel plug (High retention, no spark ) - Center positive
41	2.5 x 5.5 x 9.5 mm right angle barrel plug (High retention) - Center positive	73	2.5 x 5.5 x 9.5 mm straight barrel plug (High retention, no spark ) - Center positive
42	2.1 x 5.5 x 11 mm straight barrel plug (High retention) - Center positive	74	EIAJ#5 style connector - Central positive
43	2.5 x 5.5 x 11 mm straight barrel plug (High retention) - Center positive	99	Micro USB
44	2.1 x 5.5 x 9.5 mm straight barrel plug, locking - Center positive		

These are the most common standard connectors. SL Power has the capability to incorporate any non-standard output connector. All output connectors are limited by wattage range and application type. The SL Power applications team is available to provide professional support and can be contacted here: info@slpower.com.

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