



samlexpower®

**Switch Mode
DC Power
Supplies**

SEC-1235
SEC-1235M

**Owner's
Manual**

Please read this
manual BEFORE
installing your
Power Supply.

OWNER'S MANUAL | Index

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SECTION 1 | Important Safety Instructions

CAUTION: RISK OF ELECTRIC SHOCK! DO NOT OPEN!

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. THERE ARE NO USER SERVICEABLE PARTS INSIDE—REFER TO QUALIFIED SERVICE PERSONNEL.

The following safety symbols will be used in this manual to highlight safety & information:



WARNING!

Indicates possibility of physical harm to the user in case of non-compliance.



CAUTION!

Indicates possibility of damage to the equipment in case of non-compliance.



INFO

Indicates useful supplemental information.

Please read before using your power supply:

1. It is recommended that you return your power supply to a qualified Samlex dealer for any service or repair. Incorrect assembly may result in electric shock or fire.
2. To reduce the risk of electric shock, unplug the power supply from the outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
3. An extension cord should not be used unless absolutely necessary. **If an extension cord must be used, make sure that the pins on the plug are the same number, size and shape as those of the original power supply plug.**
4. Place the unit in an area that will allow air to flow freely around the unit. **DO NOT BLOCK OR OBSTRUCT** vent openings on the side/bottom of the unit.
5. Keep the unit away from moisture and water.
6. **NEVER operate the units in parallel.**



WARNING!

Your power supply should be grounded to reduce the risk of electric shock. The power supply comes with a detachable power cord that has a 3-prong, grounded male plug (NEMA5-15P). The round prong of the plug gets connected to the chassis of the unit. When the power cord is plugged into the corresponding 3 slot female receptacle (NEMA5-15R), the chassis of the unit is automatically connected to the earth ground through the equipment grounding conductor that is connected to the round slot of the female NEMA5-15R receptacle.

The power cord must be plugged into a NEMA5-15R outlet that is properly installed and grounded in accordance with all local codes and ordinances. Never alter the power cord that has been provided. If the plug of the cord will not fit the outlet, have a proper outlet installed by a qualified electrician. Improper connection can result in risk of electric shock.

DO NOT USE THE POWER SUPPLY FOR DIRECT CHARGING OF BATTERY OR DIRECT CONNECTION TO A BATTERY FOR BATTERY BACK-UP. (Please read the section on "Battery Charging & Battery Back-up").

SECTION 2 | Layout & Dimensions

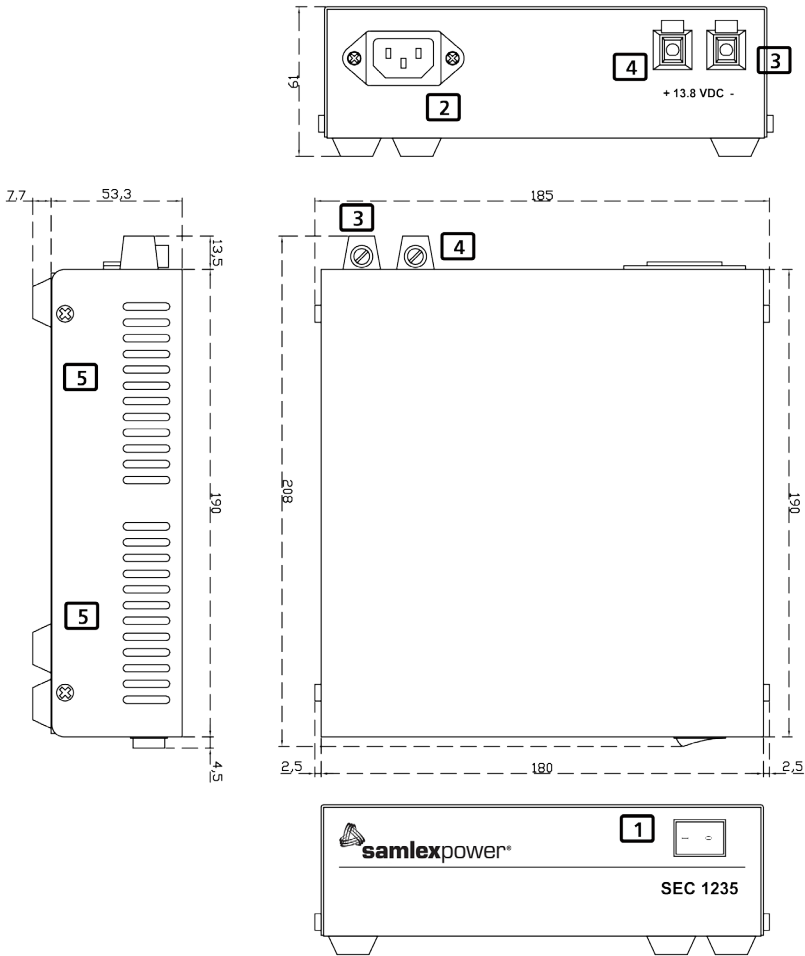


Figure 2.1 Layout & Dimensions - SEC-1235

1. Lighted Power ON/OFF Rocker Switch (Lights Red when ON)
2. AC Power Cord Inlet: Type "IEC 320-C14" for detachable power cord with "IEC 320-C13" connector on one end and NEMA5-15P plug on the other end.
3. Black Negative (-) DC Load Terminal {Tubular hole Dia 5mm/0.2" and set screw (slot head, #10, 24 TPI, 5/16" long)}
4. Red Positive (+) DC Load Terminal {Tubular hole Dia 5mm/0.2" and set screw (slot head, #10, 24 TPI, 5/16" long)}
5. Air inlet slots for cooling fan (cooling fan and air outlet slots at the bottom - not shown)

Dimensions: WxDxH 185 x 208 x 61 mm / 7.28 x 8.19 x 2.40 in

SECTION 2 | Layout & Dimensions

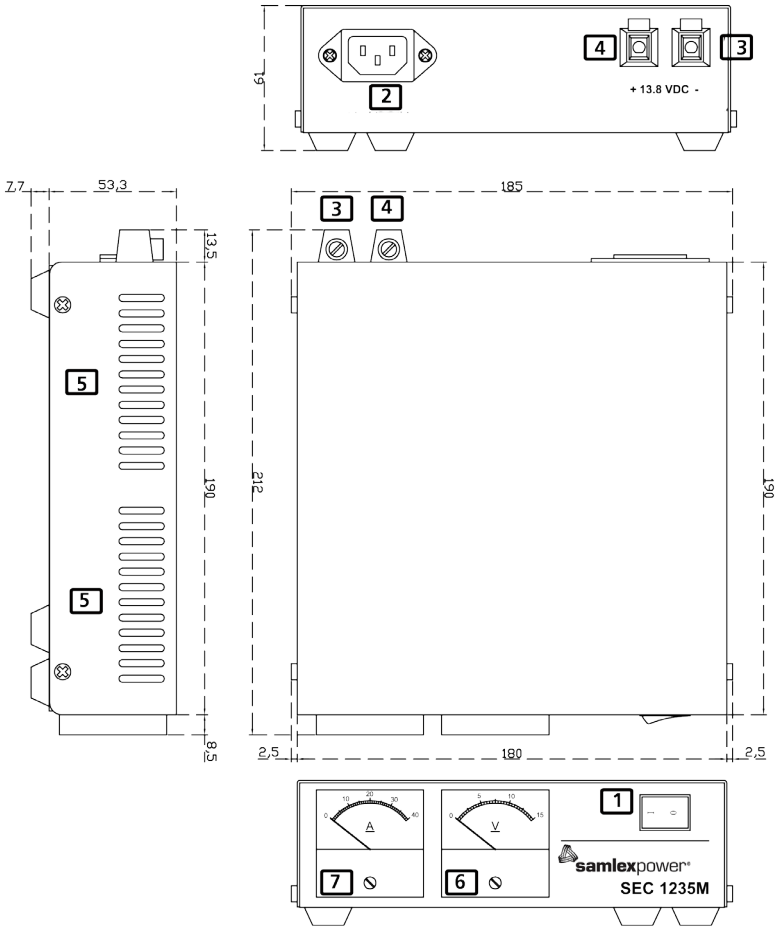


Figure 2.2 Layout & Dimensions - SEC-1235M

1. Lighted Power ON/OFF Rocker Switch (Lights Red when ON)
2. AC Power Cord Inlet: Type "IEC 320-C14" for detachable power cord with "IEC 320-C13" connector on one end and NEMA5-15P plug on the other end.
3. Black Negative (-) DC Load Terminal {Tubular hole Dia 5mm/0.2" and set screw (slot head, #10, 24 TPI, 5/16" long)}
4. Red Positive (+) DC Load Terminal {Tubular hole Dia 5mm/0.2" and set screw (slot head, #10, 24 TPI, 5/16" long)}
5. Air inlet slots for cooling fan (cooling fan and air outlet slots at the bottom - not shown)
6. Voltmeter
7. Ammeter

Dimensions: WxDxH 185 x 212 x 61 mm / 7.28 x 8.35 x 2.40 in

SECTION 3 | Product Overview

Description & Features

SEC-1235 & SEC-1235M are Switched Mode Power Supplies (SMPS) which convert 120V, 50/60 Hz (or 230V, 50/60 Hz*) AC power to regulated 13.8V DC power based on *Pulse Width Modulation (PWM)* control. **Note***: The units are factory preset to operate from an input voltage of 120 VAC, 50/60 Hz. These may be set to operate from an input voltage of 230 VAC, 50/60 Hz by changing internal settings as described below under "Operation from AC Input of 230 VAC".

Features:

- Based on switched mode technology and PWM control - output switching frequency = 30.5 KHz.
- Compact and light weight - High efficiency and less heat dissipation.
- SEC-1235M comes with voltmeter and ammeter.
- Protected against short circuit, overload and over temperature.
- Cooling by temperature controlled fan.
- UL safety certified and listed under UL Standard UL60950-1 for Information Technology Equipment Power Supply.
- Complies with FCC Part 15(B) for limits on EMI for Class B Digital Devices.

Operation from AC Input Voltage of 230 VAC

These units have been preset to operate from an input voltage of 120 VAC, 50/60 Hz. The units can be set to operate from an input voltage of 230 VAC, 50/60 Hz. by changing the position of an internal jumper. The procedure for conversion to input voltage of 230 VAC, 50/60 Hz is as follows:

- Switch OFF the unit and unplug the power cord from the AC outlet
- Remove the top cover
- For 120 VAC operation (pre-set condition), points "D" and "E" on the printed circuit board (PCB) have been connected (shorted) with a flexible wire jumper. To convert to 230 VAC input, disconnect the quick disconnect connector at point "D" by pulling it upwards. Tape this end with an insulation tape and use a cable tie to tie it securely to the wire harness running above
- The fuse on the AC side for the preset input voltage of 120 VAC is rated at 250V, 8A. For 230 VAC operation, the fuse has to be rated at 250V, 4A. Replace the existing 8A fuse with a 4A fuse. See under "SPECIFICATIONS" for details on the 4A fuse.
- The detachable power cord that is provided has an "IEC 320-13" female connector on one end that will mate with the "IEC 320-C14" male AC inlet connector on the power supply. The other end of this power cord has a 120 VAC NEMA5-15P plug meant for connection to the 120 VAC, NEMA5-15R outlet. For operation on 230 VAC, 50 Hz, a different detachable power cord will have to be used. Use an appropriate power cord that has an "IEC 320-13" female connector on one end (for connection to the "IEC 320-C14" AC inlet connector on the power supply) and a 230 VAC plug on the other end corresponding to the 230 VAC outlet. Please ensure that the new 230 VAC power cord uses two pole, 3 wire grounding configuration (this will ensure proper earth grounding).

Connection & Operation



WARNING!

The unit has been pre-set to operate from an input voltage of 120 VAC. Hence, before plugging the unit to the AC outlet, please ensure that the local AC power supply voltage is 120 VAC. Operation from 230 VAC is possible by changing internal settings. Please see details under "OPERATION FROM AC INPUT VOLTAGE OF 230 VAC."

SECTION 3 | Product Overview

NOTE: The DC output connectors (RED + and Black -) have a tubular hole of diameter 0.2" (5mm) with a set screw. If bare wire with stranded conductors is used to connect the load to the above output connectors of the power supply, the strands will spread out as the set screw is tightened and hence, the set screw will not pinch all the strands. As a result, the effective cross section of the current conducting area of the wire will be reduced resulting in voltage drop at the load end, reduced efficiency and also overheating. For a firm connection, crimp / solder a suitable pin type of copper terminal on the wire end to be connected to the power supply. For convenience, a pair of terminals has been provided for crimping / soldering to the wire end.

Operation

- Ensure that the ON/OFF switch on the power supply is switched OFF and it is un-plugged from the AC outlet.
- Switch OFF the 12V load to be connected to the power supply. Connect the Positive input wire of the load to the RED (Positive) terminal of the power supply and the Negative input wire of the load to the BLACK (Negative) terminal of the power supply. Ensure that the connections are secure and tight.
- Plug the power supply into the AC outlet. Press the ON/OFF switch of the power supply to the ON position and check that the switch is illuminated indicating availability of the AC input power. If the ON/OFF switch is not illuminated, recheck the AC input connection, AC outlet and the fuse inside the power supply.
- The voltmeter on SEC-1235M will read 13.8V.
- Now switch ON the DC load.
- The ammeter on SEC-1235M will indicate the current drawn by the load.
- Ensure that the continuous load is limited to 30A.

Cooling Fan Control / Thermal Protection



WARNING!

Operate the unit in a well ventilated, open and cool area. **DO NOT** block the openings at the fan discharge on the bottom of the unit and the suction openings on the sides.

The units are cooled by convection and by forced air cooling. A temperature controlled fan has been provided to improve cooling at higher loads and at higher ambient temperatures. The switching on of the fan is controlled by a sensor mounted on the power transformer. The fan will be switched on when the temperature of the sensor reaches 60°C +/- 5°C. The fan will be automatically switched off when the sensor cools down to 50°C +/- 5°C. Thus, at lower loads or during lower ambient temperatures, the fan may remain switched OFF.

An additional protection is provided to shut down the power supply in case the fan fails or if the air flow is blocked or if the ambient temperature is very high. A second temperature sensor is also mounted on the power transformer and will activate at 105°C +/- 5°C and shut down the output of the power supply. After the power supply cools down to 95°C +/- 5°C, the temperature sensor will deactivate and the power supply will resume operation automatically.

Adjusting Output Voltage

The output voltage can be adjusted with the help of the internal potentiometer marked "VR2". Adjustment range is (11V to 16V).

SECTION 3 | Product Overview



WARNING! At output voltages higher than 13.8V, the maximum output current should be reduced linearly from 30A at 13.8V to 25A at 16V.

Protections

Overload/Short Circuit

The units are protected against overload by constant current limiting at 35A. If the load tries to draw more than 35A, the output voltage will drop and will no longer be regulated. The output voltage will drop to near 0V in case of a dead short. The unit will recover automatically once the overload condition is removed.

Over Temperature

Protection is provided to shut down the power supply in case the fan fails or if the air flow is blocked or if the ambient temperature is very high. A temperature sensor is mounted on the power transformer and will activate at 105°C +/- 5°C and shut down the output of the power supply. After the power supply cools down to 95°C +/- 5°C, the temperature sensor will de-activate and the power supply will resume operation automatically.



WARNING! THESE UNITS ARE POWER SUPPLIES AND NOT BATTERY CHARGERS. DO NOT CONNECT THESE UNITS DIRECTLY TO A BATTERY.

The voltage of a 12V battery in a deep discharged condition will be around 10 to 11.4V. When a deeply discharged 12V battery is charged at say 13.8V, it will initially draw a very large current. As the battery capacity is restored, the battery voltage increases to around 13.8V when fully charged and the current drawn by the battery reduces a few hundred mA.

If a deeply discharged battery is directly charged by SEC-1235 / SEC-1235M, the battery will initially draw a very large current and thus, will force the power supply into current limit mode for prolonged period of time. This is harmful for the power supply as operating under prolonged periods under current limit conditions is an abnormal operating condition.

SEC-1235 / SEC-1235M may be used for battery charging and battery backup application only when the battery is charged through a suitable external isolating diode and charge limiting resistor in series with the power supply. The isolating diode will ensure that the battery does not feed power back into the power supply and the series connected charge limiting resistor will limit the maximum charging current to a value less than the current limit.

It is recommended that the optional Battery Backup Module BBM-12100 may be used in conjunction with the power supply for battery charging / backup application.

Call Technical Support at 1-800-561-5885 for further assistance.

SECTION 4 | Troubleshooting Guide

Symptom	Possible Cause	Remedy
<p>ON / OFF Switch is ON</p> <ul style="list-style-type: none"> Switch is NOT lighted No DC output 	<p>No AC power from the AC outlet</p> <p>Internal AC side fuse is blown</p>	<p>Check AC power is available at the AC outlet. Breaker feeding the AC outlet may have tripped.</p> <p>Open the top cover and check the AC side fuse. Replace if blown.</p> <p>If the fuse blows again, the input section is damaged. Please call Tech Support.</p>
<p>ON / OFF Switch is ON</p> <ul style="list-style-type: none"> Switch is lighted No DC output 	<p>Unit has shut down due to over temperature – Temperature of output transformer windings is: $\geq 105^{\circ}\text{C} \pm 5^{\circ}\text{C} / 221^{\circ}\text{F} \pm 9^{\circ}\text{F}$ (For SEC-1223 only)</p>	<p>Check that the fan is running. If not, the fan / fan control circuit may have been damaged. Call Tech Support.</p> <p>Check that the fan suction vents on the sides of the unit and the discharge vents on the bottom of the unit are not blocked.</p> <p>The unit will reset automatically when the transformer windings cool down to $\leq 75^{\circ}\text{C} \pm 5^{\circ}\text{C} / 167^{\circ}\text{F} \pm 9^{\circ}\text{F}$</p>
<p>ON / OFF Switch is ON</p> <ul style="list-style-type: none"> Switch is lighted DC Output voltage drops 	<p>If the voltage loses regulation and drops to $< 13.5\text{V}$, the unit is overloaded and is in current limit. The load is trying to draw \geq the current limit value of 35A</p> <p>If the voltage drop is considerable with voltage $< 2\text{V}$, the load side is seeing a short circuit and short circuit current limited to the current limited to 35A is being driven into the short circuit.</p> <p>AC input voltage setting has been changed to 230 VAC but AC input voltage fed to the unit is 120 VAC.</p>	<p>Reduce the current drawn by the load to less than the continuous rating of 30A.</p> <p>Switch OFF the load. Remove the short circuit on the load side.</p> <p>Ensure that AC input voltage setting has been changed back to preset condition of 120 VAC.</p>
<p>GFCI outlet / GFCI breaker supplying AC power to the unit trips when the unit is switched ON</p>	<p>Additional RF noise currents from the unit that are filtered to Earth Ground increase the net Leakage Current on the GFCI outlet / GFCI breaker to $> 5\text{mA}$</p>	<p>Switch OFF other SMPS devices operating from the same GFCI outlet / GFCI breaker to reduce the net leakage current to $< 5\text{mA}$</p> <p>Move the unit to another GFCI outlet / GFCI breaker that has lesser number of SMPS load(s) or no SMPS load</p> <p>Power the unit from normal, non GFCI outlet or from an outlet not protected by GFCI breaker</p>

Section 5 | Limiting Electromagnetic Interference



CAUTION!

Conducted and radiated noises in this unit are limited as per the applicable National / International Standards. In North America, the applicable standard is FCC Part 15(B) for Class "B" Digital Devices for Residential Installations. The corresponding European standard is EN55022, Class "B" & EN61000-3-2, 3.

This unit generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, this does not guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures recommended in the following paragraphs.

UN-INTENTIONAL RF NOISE GENERATED BY SWITCHED MODE POWER SUPPLIES (SMPS)

Switched Mode Power Supplies (SMPS) employ high frequency switching (25 KHz in this unit) and thus, are a source of radio interference, a recipient of radio interference and a conduit of radio interference. (Older Linear Type, low frequency 50 / 60 Hz transformer based power supplies do not employ high frequency switching voltages and will be quieter as compared to SMPS).

The primary emission sources originate in the switching devices due to their fast switching current transitions: harmonics of the switching frequency and broadband noise created by under-damped oscillations in the switching circuit. The secondary source is from the bridge rectifier, both rectifier noise and diode recovery. The AC input rectifier / capacitor in the front end of the SMPS (excepting those with Power Factor correction) generate power supply harmonics due to the non-linear input current waveform. The noise is both conducted and radiated through the input power cord and the DC output wiring to the radio.

FILTRATION OF CONDUCTED NOISE

The conducted RF noise from this SMPS unit is limited to the maximum allowable levels by internal filtration. The filtered RF noise currents (< few hundred micro Amps) are bypassed to the chassis of the power supply. The chassis is, in turn, connected to the Earth Ground pin of the AC input power cord (for Class 1 units). Thus, the filtered noise currents are intentionally leaked to the Earth Ground. This is termed as the "Earth Leakage Current".

EXCESSIVE RF OUTPUT INTERFERENCE BY SMPS DUE TO INCOMING RF INTERFERENCE WHEN POWERING RADIO TX / RX

SMPS are also recipients of radio interference. The normal operation of the power supply can be disturbed due to RF noise getting coupled into the power supply. Thus, the power supply may generate excessive RF noise and lose output voltage regulation due to excessive transmitter energy being coupled through the AC / DC lines to the power supply's regulator feedback path. This may be due to antenna being too close or due to the antenna or feed system not radiating properly. First check the antenna system SWR.

Section 5 | Limiting Electromagnetic Interference

Then, if necessary, relocate either the antenna or the power supply farther apart. The receiver may “hear” the power supply. A slowly moving, slightly buzzing carrier heard in the receiver may be caused by the antenna being too close. As with the transmitter related noise pick up, a loose coaxial connector or a broken or a missing ground may aggravate this problem. Normally, this noise will be below the background or “band” noise. Increase the separation between the power supply and the receiving antenna. Use an outdoor antenna. This will reduce the amount of signal picked up from the power supply and also increase the amount of the desired signal.

ADDITIONAL GUIDELINES FOR REDUCING RF NOISE

- Use additional appropriate AC Radio Frequency Interference (RFI) Power Line Filter rated for minimum 10A immediately before the AC input of the power supply. For example, consider suitability of Model # 10VN1 from TE Connectivity www.te.com or similar. Filtered, Ferrite Coated Cord Set is another choice. These cord sets, with integral line interference filters, reduce Common and Differential Mode Interferences over a wide frequency range. Because they are shielded, they are also effective against radiated interferences. In addition to the built-in filter networks, the cable conductors are coated with an RF absorbing ferrite compound. This provides additional attenuation at high frequencies that is lacking in most regular LC filters. The RF absorption of the ferrite-coated cable avoids resonances at high frequencies, reducing the conducted and radiated RF noises even further. For example, consider suitability of EMC Cord “IMU-14” from EMC Eupen www.emceupen.com or similar.
- Use additional appropriate DC radio frequency interference (RFI) power line filter rated for minimum 30 A immediately after the DC output of the power supply. For example, consider suitability of 30A filter Model # “FD10EE030” from Curtis Industries www.curtisind.com or similar.
- Twist the Positive and Negative wires from the output of the power supply to the radio.
- The DC side Positive and Negative outputs of these power supplies are isolated from the chassis. As explained earlier, the noise currents are filtered to the chassis of the unit and the chassis is connected to the Earth Ground through the Earth Ground Pin of the AC power outlet receptacle. Avoid connecting (referencing) the DC Negative output terminal of the power supply to the Earth Ground.
- Connect a ¼” wavelength of wire on the Negative terminal of the power supply. Connect one end of the wire to the Negative terminal and leave the other end free. The wavelength corresponds to the wavelength of the interfering frequency. (May not be practical for long wave lengths).

[Formula: Wave length (Meters) = 300 / frequency in MHz]

COMBINED FILTERED NOISE CURRENTS FROM MULTIPLE SMPS ON A BRANCH CIRCUIT MAY TRIP GROUND FAULT CIRCUIT INTERRUPTER (GFCI)

During malfunction or an accident, the metal chassis of a device may get energized to unsafe voltage due to internal high voltage section coming in contact with the chassis. If a person standing on Earth touches this energized chassis, a leakage current

Section 5 | Limiting Electromagnetic Interference

proportional to the person's skin resistance will flow through the person's body to Earth Ground. The leakage current through the body is higher when the skin contact resistance is lower i.e. if the skin is wet or wounded. This leakage current does not return to the power source but is dissipated in Earth Ground. A leakage current of $> 5\text{mA}$ could produce lethal electrical shock. Ground Fault Circuit Interrupter (GFCI) is used for safety against electrical shock due to leakage. GFCI measures the difference between the current sent to the load and returned from the load and will trip and disconnect the power circuit if the difference is $> 5\text{mA}$. GFCIs are normally installed in AC Branch Circuits feeding power outlets in wet areas like marine craft, RVs, spas, hot-tubs, kitchens, washrooms, etc.

As explained earlier, RF noise filtration circuits in SMPS generate intentional Earth Leakage Current. SMPS are used extensively as DC power sources in modern day electrical / electronic devices e.g. Audio / Video / Computing devices, power supplies, battery chargers etc. A single GFCI outlet / GFCI breaker may be serving multiple SMPS loads and therefore, will be sensing the sum of all the Earth Leakage Currents and, if the sum is $> 5\text{mA}$ after connecting this unit, the GFCI will trip. In such a case, disconnect other SMPS based device(s) being served by this GFCI one by one till the net leakage current is reduced to $< 5\text{mA}$ and the GFCI does not trip. **Other solution is to power this unit from a GFCI outlet / GFCI breaker that does not have any SMPS load or power from an outlet that is not protected by GFCI.**

SECTION 6 | Specifications

	SEC-1235	SEC-1235M
AC INPUT		
Nominal AC Input Voltage	120 VAC (100-130VAC), 50/60 Hz : Factory Preset 230VAC (200 – 260VAC), 50/60Hz: By internal jumper setting	
Input Current	7.5 A @ 120 VAC; 3.5A @ 230VAC	
Input Current at No Load	120 mA \pm 10% @120VAC	
Inrush current at Startup	30A +/- 5A for < 5 ms	
DC OUTPUT		
Output Voltage	13.8VDC \pm 0.1V	
Output Current	<ul style="list-style-type: none"> • Continuous: 30A; • Current Limit: 35A, Auto recovery 	
Output Noise and Ripple	< 150 mV Peak to Peak	
Peak Efficiency	85% +/-5%	
Output Metering	-	Voltmeter and Ammeter
DESIGN		
Type	Switch Mode Power Supply (SMPS) with Fixed Frequency Pulse Width Modulation (PWM)	
Output Side Switching Frequency	30.5 KHz	
PROTECTIONS		
Short Circuit, Overload	Constant Current Limiting at 35A; Auto Reset	
Over Voltage	Regulated by PWM Controller	
Over Temperature	Output shuts down when Power Transformer winding temperature $\geq 105^{\circ}\text{C} \pm 5^{\circ}\text{C} / 221^{\circ}\text{F} \pm 9^{\circ}\text{F}$; Auto reset on cooling down to $\leq 75^{\circ}\text{C} \pm 5^{\circ}\text{C} / 167^{\circ}\text{F} \pm 9^{\circ}\text{F}$	
COOLING		
Forced Air	Temperature controlled fan. ON when Power Transformer winding temperature is $\geq 60^{\circ}\text{C} \pm 5^{\circ}\text{C} / 140^{\circ}\text{F} \pm 9^{\circ}\text{F}$; OFF when cools down to $\leq 40^{\circ}\text{C} \pm 5^{\circ}\text{C} / 104^{\circ}\text{F} \pm 9^{\circ}\text{F}$	

NOTE: Specifications are subject to change without notice.

SECTION 6 | Specifications

	SEC-1235	SEC-1235M
FUSE		
Internal AC Side Fuse, 120VAC Input (Preset)	<ul style="list-style-type: none"> • 5 mm x 20 mm Glass Fuse • 250V, 8A, Time Delay Type • Littelfuse - "218008" 	
Internal AC Side Fuse, 230VAC Input (By internal jumper setting)	<ul style="list-style-type: none"> • 5 mm x 20 mm Glass Fuse • 250V, 4A, Time Delay Type • Littelfuse - "218004" 	
COMPLIANCE		
Safety	UL safety listed as "Information Technology Equipment Power Supply" for USA (UL Standard ANSI/UL-60950-1) and for Canada (CSA Standard CAN/CSA-C22.2 No. 60950-1)	
Electro Magnetic Interference EMI – Radiated & Conducted	FCC Part 15(B), Class B	
INPUT / OUTPUT CONNECTIONS		
AC Input Connection	<ul style="list-style-type: none"> • "IEC 320-C14" Inlet Connector on the unit • Detachable Power Cord with: <ul style="list-style-type: none"> ○ "IEC 320-C13" Connector on one end ○ NEMA5-15P Plug on the other end 	
DC Output Connectors	Terminal with Tubular Hole - Diameter 5mm / 0.2" and set screw (#10, 24 TPI, 5/16" long)	
ENVIRONMENTAL		
Operating Temperature Range	0°C / 32°F to 40°C / 104°F	
DIMENSIONS AND WEIGHT		
Dimensions (W x D x H)	185 x 208 x 61 mm	185 x 212 x 61 mm
	7.28 x 8.19 x 2.40 in	7.28 x 8.35 x 2.40 in
Weight	1.54 kg	
	3.4 lb	

NOTE: Specifications are subject to change without notice.

SECTION 7 | Warranty

3 YEAR LIMITED WARRANTY

SEC-1235/SEC-1235M manufactured by Samlex America, Inc. (the "Warrantor") is warranted to be free from defects in workmanship and materials under normal use and service. The warranty period is 3 years for the United States and Canada, and is in effect from the date of purchase by the user (the "Purchaser").

Warranty outside of the United States and Canada is limited to 6 months. For a warranty claim, the Purchaser should contact the place of purchase to obtain a Return Authorization Number.

The defective part or unit should be returned at the Purchaser's expense to the authorized location. A written statement describing the nature of the defect, the date of purchase, the place of purchase, and the Purchaser's name, address and telephone number should also be included.

If upon the Warrantor's examination, the defect proves to be the result of defective material or workmanship, the equipment will be repaired or replaced at the Warrantor's option without charge, and returned to the Purchaser at the Warrantor's expense. (Contiguous US and Canada only).

No refund of the purchase price will be granted to the Purchaser, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so. Warranty service shall be performed only by the Warrantor. Any attempt to remedy the defect by anyone other than the Warrantor shall render this warranty void. There shall be no warranty for defects or damages caused by faulty installation or hook-up, abuse or misuse of the equipment including exposure to excessive heat, salt or fresh water spray, or water immersion.

No other express warranty is hereby given and there are no warranties which extend beyond those described herein. This warranty is expressly in lieu of any other expressed or implied warranties, including any implied warranty of merchantability, fitness for the ordinary purposes for which such goods are used, or fitness for a particular purpose, or any other obligations on the part of the Warrantor or its employees and representatives.

There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives for injury to any persons, or damage to person or persons, or damage to property, or loss of income or profit, or any other consequential or resulting damage which may be claimed to have been incurred through the use or sale of the equipment, including any possible failure of malfunction of the equipment, or part thereof. The Warrantor assumes no liability for incidental or consequential damages of any kind.

Samlex America Inc. (the "Warrantor")
www.samlexamerica.com

Contact Information

Toll Free Numbers

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Website

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samlexamerica®