

IP67 SCP-X Extreme Environment Series

The SolaHD IP67 SCP-X power supplies provide the versatility and cost efficiency to deliver reliable distributed and remote field power to machine controls. Mounts directly on the machine or production line, eliminating the complexity and cost of unnecessary enclosures and excess wiring. Quick change connectors simplify connectivity to distributed I/O devices on industrial machinery. The SCP-X Series is available in a variety of configurations, to meet the diverse needs of automotive manufacturing, conveyor, and other applications where 24 Vdc power is required for geographically dispersed devices.

General Features

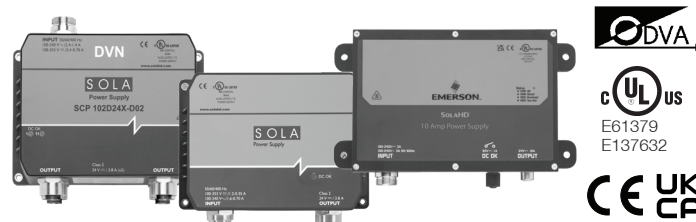
- IP66/67 rated versatile enclosure
- Reliable operation from -40 °C to 60 °C without derating
- Diagnostic Status LED to indicate that DC output is functioning correctly
- Can be mounted in any orientation without limitation
- Universal AC and DC input voltages
- Five year limited warranty

Class 2 Low Power Models (SCP100 and SCP102)

- Class 2 rating assures that each output will need not exceed 100 Watts
- A total of four models, providing single or dual outputs, and grounded or isolated output configurations
- Two output ratings:
 - Single Output provides 100 Watts maximum, using a single output connector.
 - Dual Output provides two electrically-isolated 100 Watt power supplies in a single IP67 case. Two connectors are provided for each output, for a total of 4 connectors, simplifying connection to multiple devices.
- Two output wiring configurations:
 - Grounded output models are designed for control power applications where a grounded power supply output is required.
 - Isolated Output models are designed for applications where the output must be isolated from ground, such as with DeviceNet™.
- Input connector: 3-pin IP67 7/8" plug, external thread
- Output connector: 4-pin IP67 7/8" receptacle, internal thread

High Power Model (SCP 240S24X-CP1)

- 10 A 24 Vdc output capacity provides more power in a stand-alone enclosure
- Power Boost up to 150% of nominal output (15 A) for 4 seconds, provides additional capacity for loads with high inrush current requirements



- Same mounting dimensions as competitive power supplies with lower output capacity
- DC OK Relay contact, for providing diagnostic information to a PLC, DCS, IPC, or other controller
- High efficiency, greater than 90% at 120 Vac input
- Input connector: 3-pin IP67 7/8" plug, external thread
- Low inrush current of less than 10 A
- Output connector: 5-pin IP67 L-Code M12 receptacle, internal thread
- DC OK connector: 4-pin IP67 A-Code M12 receptacle, external thread

Certifications

All Models

- cUL US Listed, Audio/video, Information and Communication Technology Equipment, E137632
 - UL/CSA 62368-1, UL/CSA 60950-1
- CE Low Voltage Directive/UK CA Electrical Equipment (Safety) Regulations 2016
 - IEC/EN 62368-1
- CB Certificate - IEC/EN 60950-1, IEC/EN 62368-1

Models SCP 100S24X-CP1, SCP 100S24X-DVN1, SCP 102D24X-C02, SCP 102D24X-D02

- cUL US Listed, Industrial Control Equipment, E61379
 - UL 508, CSA C22.2 No. 107.1

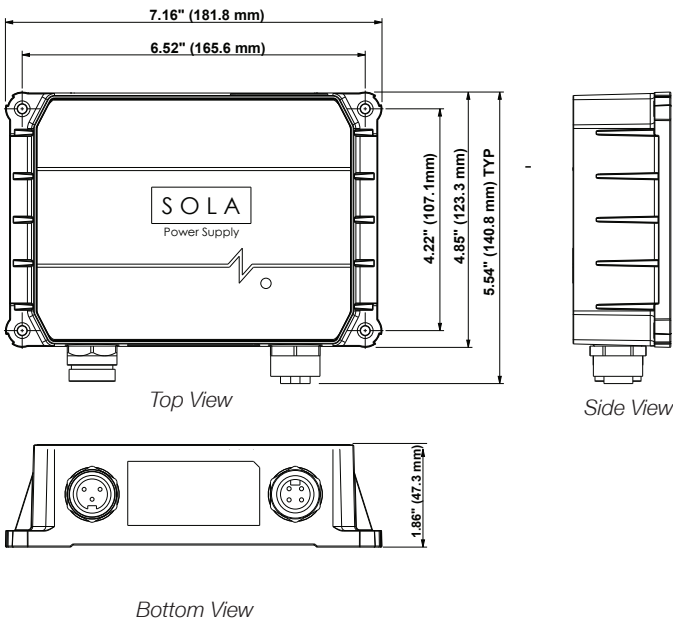
Model SCP 240S24X-CP1

- cUL US Listed, Electrical Equipment for Measurement, Control and Laboratory Use; Control Equipment, E61379
 - UL/CSA 61010-1, UL/CSA 61010-2-201
- CE Low Voltage Directive/UK CA Electrical Equipment (Safety) Regulations 2016
 - IEC/EN 61010-1, IEC/EN 61010-2-201
- CB Certificate – IEC/EN 60950-1, IEC/EN 62368-1, IEC/EN 61010-1, IEC/EN 61010-2-201

Related Products

- SDN-D Series
- SDN-C Series
- SVL Series

SCP100S24X-CP1 and SCP100S24X-DVN1 Mechanical Diagrams

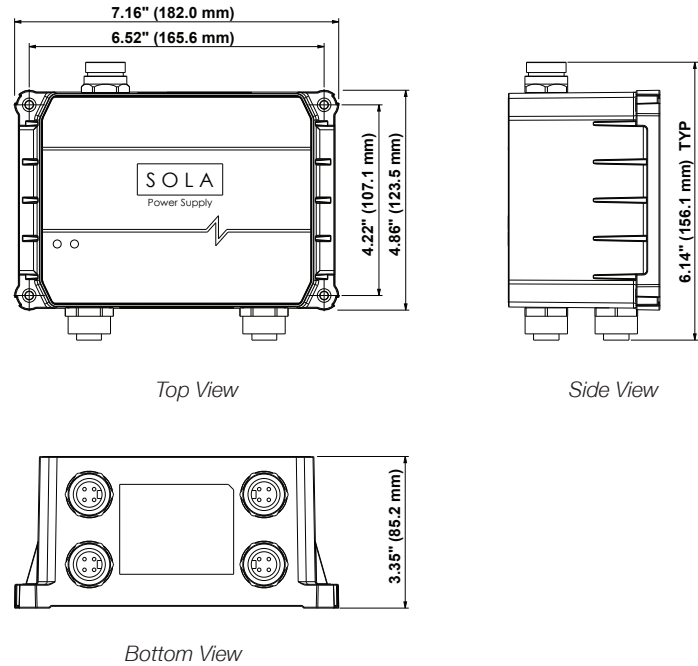


Electrical Connections

Input	Output	
50/60/400 Hz 100–240 V ac 100–353 V dc, 0.7–1.6 A	24 V dc, 3.8 A, Class 2	
SCP 100S24X-CP1		
1 = Ground 2 = Power 3 = Neutral		1 = +24 V dc 2 = +24 V dc 3 = 0 V dc ⁽¹⁾ 4 = 0 V dc ⁽¹⁾ 
SCP 100S24X-DVN1		
1 = Ground 2 = Power 3 = Neutral		1 = +24 V dc 2 = +24 V dc 3 = Ground ⁽²⁾ 4 = -V dc ⁽³⁾ 

- NOTES:
- 0 Vdc connections are internally bonded to ground.
 - Ground is isolated from V-.
 - Vdc is isolated from ground. -Vdc is a separately derived source, so it is permissible to bond to ground if required in the application.

SCP102D24X-C02 and SCP102D24X-D02 Mechanical Diagrams

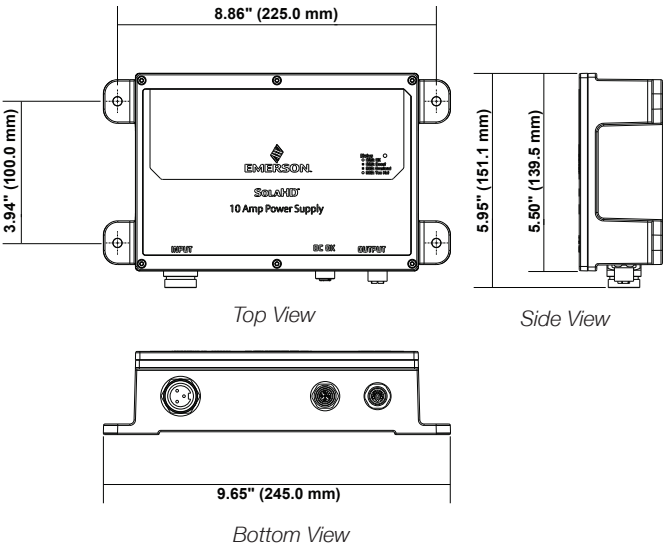


Electrical Connections

Input	Output	
50/60/400 Hz 100–240 Vac / 2.4 - 1.4A 100–353 Vdc / 2.4 - 0.7A	24 Vdc, 3.8 A (x2), Class 2	
SCP 102D24X-C02		
1 = Ground 2 = Power 3 = Neutral		1 = +24 V dc 2 = +24 V dc 3 = 0 V dc ⁽¹⁾ 4 = 0 V dc ⁽¹⁾
SCP 102D24X-D02		
1 = Ground 2 = Power 3 = Neutral		1 = +24 V dc 2 = +24 V dc 3 = Ground ⁽²⁾ 4 = -V dc ⁽³⁾

- NOTES:
- 0 Vdc connections are internally bonded to ground.
 - Ground is isolated from V-.
 - Vdc is isolated from ground. -Vdc is a separately derived source, so it is permissible to bond to ground if required in the application.

SCP240S24X-CP1 Mechanical Diagrams



Electrical Connections

Input	DC OK	Output
50/60 Hz 100–240 V ac 100–340 V dc, 3 A	50 V, 1A dry contact	24 V dc, 10 A
1 = Ground 2 = Power 3 = Neutral		

- NOTES:
- 1. +24 Vdc connections are internally bonded.
 - 2. 0 Vdc connections are internally bonded to ground.

Selection Table

Catalog Number	Output Current	Output Voltage	Output Power
SCP 100S24X-CP1	3.8 A	24 Vdc	100 W
SCP 100S24X-DVN1			
SCP 102D24X-C02	7.6 A total (3.8 A max. per pair)		2 x 100 W
SCP 102D24X-D02			
SCP 240S24X-CP1	10 A (15 A for 4 sec.)		240 W

Recommended Cordsets (to be provided by user) ⁽¹⁾⁽²⁾⁽³⁾

Catalog Number	Input Cordset	Output Cordset(s)	DC OK Relay Cordset
SCP 100S24X–CP1	3-pin IP67 7/8" receptacle, internal thread Harting Part #: 21349697394xxx Molex Part #: 113030K13MxxxE	4-pin IP67 7/8" plug, external thread Molex Part #: 114030K12Mxxx	Not Applicable
SCP 100S24X–DVN1			
SCP 102D24X–C02		5-pin IP67 L-Code M12 plug, external thread Harting Part #: 2133A8A7524xxx Molex Part #: LLP5030B63Mxxx	4-pin IP67 A-Code M12 plug, internal thread Harting Part #: 21348485491xxx Molex Part #: 884030K05Mxxx
SCP 102D24X–D02			
SCP 240S24X–CP1			

- 1. Cordsets are to be provided by user. Use part numbers recommended or equivalent. Many other cordset configurations are possible, depending on specific application requirements. Unused connectors must have an appropriate cap to retain the IP67 rating. Contact Technical Support for more assistance.
- 2. xxx is the length of the cordset in tenths of a meter.
- 3. SCP102D24X-C02 and SCP102D24X-D02 have (4) output connectors.

IP67 SCP-X Specifications

Descriptions	Catalog Number	
	SCP 100S24X–CP1	SCP 102D24X–C02
	SCP 100S24X–DVN1	SCP 102D24X–D02
Input		
Nominal Voltage	Any voltage from 100 to 240 Vac Input	
–AC Range	85 - 264 Vac Universal Input	
–DC Range	100 - 353 Vdc	
Nominal Current ¹	1.6 A / 0.7 A	2.4 - 1.4 A / 2.4 - 0.7 A
–Inrush current max.	Typ. <30 A	
Power Factor Correction ²	0.95	
Frequency	50/60/400 Hz	
Output		
Power Back Immunity	35 V	
Overvoltage Protection	25-25.5 Vdc, autorecovery	
Nominal Voltage	24 Vdc	
Tolerance	< +/-2% overall	
– Line Regulation	< 0.5%	
– Load Regulation	< 0.5%	
– Time & Temp. Drift	< 1%	
Input Voltage Setting	24.5 V +/-1%	
Ripple ³	< 50 mVpp	
Total Nominal Current	3.8 A	7.6 A Total (3.8 A max. per pair)
Holdup Time	> 50 ms (Full load, 100 Vac Input @ T _{amb} = +25°C) to 95% output voltage	
General		
Emissions ⁴	EN61000-6-1, EN61000-6-2, EN55024, EN 55035, EN61000-6-3, EN61000-6-4, EN55011- Class B, EN55032 – Class B, EN61000-3-2, EN61000-3-3, EN61204-3, EN61326-1, SEMIF47 Sag Immunity	
Immunity ⁴	EN61000-6-1, EN61000-6-2, EN55024, IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8, IEC61000-4-11, SEMI F47 Sag Immunity	
Temperature	Storage: -40 °C to +85 °C, Operation: -40 °C to +60 °C full power with linear derating to half power from +60 °C to +70 °C. No forced air required. Operation up to 100% load permissible with sideways or front-side-up mounting orientation.	Storage: -40 °C to +85 °C, Operation: -25 °C to +60 °C full power with linear derating to half power from +60 °C to +70 °C. No forced air required. Operation up to 100% load permissible with sideways or front-side-up mounting orientation.
Humidity	Up to 100% RH with condensation	
Altitude	0 to 3,000 m (0 to 10,000 ft.)	
Vibration	1 g non-operating swept sine over 10–500 Hz (IEC 60068-2-6). Non-operating random vibration test: 1.87 g over 10–500 Hz (IEC 60068-2-64). Operating random vibration test: 0.15 g over 5–100 Hz (IEC 60068-2-64)	
Shock	Non-operating: 30 g peak, 18 ms half-sine pulse (IEC 60068-2-27). Operating: 4 g peak, 22 ms half-sine pulse (IEC 60068-2-27)	
Warranty	5 Year Limited Warranty	
MTBF	>800,000 hours according to Telcordia/Bellcore SR-332 Issue 1, (Vin 120 Vac, Tamb = +40 °C)	>800,000 hr. according to Telcordia/Bellcore SR-332 Issue 3, (Vin 120 Vac, ambient temp. = +40 °C)
General Protection/Safety	Protected against continuous short-circuit, continuous overload, and continuous open circuit. Ingress Protection IP66/IP67 (IEC60529). Safety extra low voltage circuits: SELV (EN60950-1).	Protected against continuous short-circuit, continuous overload, continuous open circuit. Ingress Protection IP67 (IEC60529). Safety extra low voltage circuits: SELV (EN60950-1).
Status Indicators – Visual	DC OK LED	
Installation		
Fusing –Input	Internally fused, fuses not replaceable	
–Output	Electronically current limited to meet Class 2	
Mounting	Chassis mounted using integral mounting tabs. Recommended Screw Size: M4 x 0.7. Tightening Torque: 1N·m	
Connections	An accessible disconnect device shall be installed external to the equipment. Input: 3-PIN IP67 molded plug (quick disconnect). Output: 4-PIN IP67 molded receptacle (quick disconnect). Use UL 758 wire rated min. 24 V, VW-1/FT-1, max. 3.05 m.	
Case	IP66/67 versatile ingress protection	
Min. Required Free Space	0.39 in. (10 mm) all sides but base	1 in. (25 mm) all sides but base
H x W x D – in (mm)	4.73 x 7.00 x 1.80 (120.1 x 177.8 x 45.7)	4.73 x 7.00 x 3.27 (120.1 x 177.8 x 83.0)
Weight – lbs (kg)	2.2 (1.0)	3.3 (1.5)

1. Input current ratings are specified with low input, line conditions, worst case efficiency values and power factor.

2. Power Factor Correction at 50/60 Hz only.

3. Ripple/noise is stated as typical AC values when measured with a 20 MHz bandwidth scope and 50 Ohm termination.

4. Emissions and immunity are met by individual power supply modules.

IP67 SCP-X Specifications

Descriptions	Catalog Number
	SCP 240S24X-CP1
Input	
Nominal Voltage	24 Vdc
–AC Range	100 - 240 Vac $\pm 10\%$
–DC Range	100 - 340 Vdc
Frequency	50 - 60 Hz
Nominal Current ¹	3.0 A
–Inrush current max.	≤ 10 A
Efficiency (Losses ²)	93.7%
Power Factor Correction	Active PFC > 0.98 at +25 °C
Output	
Initial Voltage Setting	24.5 Vdc $\pm 1\%$
Tolerance	$< \pm 3\%$ overall (combination Line, load, time, sample-sample and ambient temperature range)
Ripple ³	< 50 mVpp
Periodic and Random Deviation (PARD)	100 mVpp max
Nominal Current (Rated Power at 60 °C)	10 A (240 W)
Turn-on Time	< 1 s after AC is applied to input at full resistive load ($T_{amb} = +25$ °C), < 1.5 ms with capacitive load 7000 μ F
Holdup Time	> 20 ms (Full load, 100 Vac Input @ $T_{amb} = +25$ °C) to 95% output voltage
Voltage Fall Time	< 150 ms from 95% to 10% rated voltage @ full load $T_{amb} = +25$ °C)
Protection	
Short Circuit	Output turns off and goes on hiccup mode. Auto-recovery.
Peak Current ⁴	$1.5 \times$ Nominal Current for > 4 seconds minimum while holding voltage > 20 Vdc
Over Current	PowerBoost™
Back EMF Immunity	< 35 V no damage, auto recovery
Over Voltage	> 30.5 but < 33 Vdc, auto-recovery
Over Temperature	Output shutdown, auto-recovery
Environmental Data	
Electromagnetic Emissions/Immunity	EN61000-6-1, EN61000-6-2, EN 55035, EN61000-6-3, EN61000-6-4, EN55011 - Class B, EN55032 – Class B, EN61000-3-2, EN61000-3-3, EN61326-1, SEMI F47 Sag Immunity
Temperature ⁵	Storage: -40 °C to +85 °C. Operation: -40 °C to +60 °C full power with linear derating to half power from +60 °C to +70 °C. Convection cooling; no forced air required. Can be mounted in any orientation.
Humidity	Up to 100% RH with condensation
Altitude	0 to 3,000 m (0 to 10,000 ft.)
Vibration	1 g non-operating swept sine over 10–500 Hz (IEC 60068-2-6). Non-operating random vibration test: 1.87 g over 10–500 Hz (IEC 60068-2-64). Operating random vibration test: 0.15 g over 5–100 Hz (IEC 60068-2-64)
Shock	Non-operating: 30 g peak, 18 ms half-sine pulse (IEC 60068-2-27). Operating: 4 g peak, 22 ms half-sine pulse (IEC 60068-2-27)
Warranty	5 Year Limited Warranty
MTBF	$> 800,000$ hr. according to Telcordia/Bellcore SR-332 Issue 3, (Vin 120 Vac, ambient temp. = +40 °C)
General Protection/Safety	Protected against continuous short-circuit, continuous overload, continuous open circuit, over temp and over voltage.
Status Indicators – Visual	Green LED
Installation	
Fusing –Input	Internally fused, fuses not replaceable. Input branch fuse or circuit breaker should be provided by customer.
–Output	Outputs are capable of providing high currents for short periods of time for inductive load startup or switching. Fusing may be required for wire/loads if 2x Nominal O/P current rating cannot be tolerated. Continuous current overload allows for reliable fuse tripping.
Mounting	Chassis mounted using integral mounting tabs. Recommended Screw Size: M6 x 1.0. Tightening Torque: 15N-m
Connections	An accessible disconnect device shall be installed external to the equipment. Input (Bottom Left Located): 3-PIN IP67 molded plug (quick disconnect). Output (Bottom Right Located): 5-PIN L-coded M12 IP67 molded receptacle (quick disconnect). DC-OK (Bottom Middle Located): 4-PIN A-coded M12 IP67 molded plug (quick disconnect). Use UL 758 wire rated min. 24 V, VW-1/FT-1, max. 3.05 m.
Accessories Included	Cap for DC OK connector
Physical Dimension, H x W x D – in (mm)	5.5 x 9.6 x 2.3 (139.5 x 245.0 x 59.2)
Mounting Dimension, H x W – in (mm)	4.0 x 9.0 (100.0 x 225.0)

1. Input current ratings are conservatively specified with low AC input, worst case efficiency values and power factor.
2. Losses are heat dissipation in Watts at full load, nominal AC input line.
3. Ripple/noise is stated as typical AC values when measured with a 20 MHz, bandwidth scope and 50 Ohm resistor.
4. Peak current is calculated at nominal voltage levels.
5. Contact tech support for operation at -40 °C.