Stratus Power Max

Installation Instructions

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STRATUS POWER MAX

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The most recent version of this document and other Stratus Power Max documentation can be found at the Appareo Dealer Portal at dealerportal.appareo.com or stratusbyappareo.com/resources.

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Record of Revision

Revision Number	Change Description	Revision Date	Inserted By
1.0	Initial release	July 15, 2024	AAL
1.1	Updated breaker amperage	October 6, 2025	AAL

Related Documentation

Document Number	Title
Appareo 600845-000033	Stratus Power Max Maintenance Manual
FAA AC 43.13-1B	Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair
FAA AC 43.13-2B	Acceptable Methods, Techniques, and Practices - Aircraft Alterations
FAA TSO-C71	Airborne Static (“DC to DC”) Electrical Power Converter (For Air Carrier Aircraft)
RTCA DO-160G	Environmental Conditions and Test Procedures for Airborne Equipment

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1. About Stratus Power Max

1.1. Overview

Stratus Power Max is a dual 30W USB charging hub used to power and charge electronic devices in the cockpit. Stratus Power Max has two USB-C charging ports.

1.2. TSO compliance

Stratus Power Max is compliant with the following Technical Standard Order:

Reference/Issue	Title
FAA TSO-C71	Airborne Static (“DC to DC”) Electrical Power Converter (For Air Carrier Aircraft)

Table 1: TSO compliance

1.3. TSO deviations

TSO	Section	Deviation
TSO-C71	Subpart B	Environmental qualification testing was performed to DO-160G, not DO-60.

Table 2: TSO deviations

1.4. Environmental qualifications

Stratus Power Max is tested to DO-160G. The Stratus Power Max Environmental Qualification form is found in Appendix A of this document.

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1.5. Equipment specifications

Characteristic	Specification
Width	1.85 inches (46.95 mm)
Height	1.85 inches (46.95 mm)
Depth*	0.96 inches (24.35 mm)
Stratus Power Max Unit Weight	0.16 lbs. (.07 kg)
Operational Temperature Range	-20°C to +55°C
Input Voltage Range	10 to 32 VDC
Nominal Current Draw	<25mA at 14V and 28V with no USB connections 2.5A at 28V at full output load on both ports 4.8A at 14V at full output load on both ports
Power Input	0.70W max with no USB connections 70W max at full output load on both ports
Output Voltage Range	5.0 VDC +/- 0.25V 9.0 VDC +/- 0.45V 15 VDC +/- 0.75V
Max Current Output	3.0A at 5V output 3.0A at 9V output 2.0A at 15V output
Power Output	60W

*Excludes mating connector and bend radius

Table 3: Equipment specifications

1.6. Required tools

The following tools are needed for installation of Stratus Power Max.

Tool	Part Number	Used For
1 ¼ inch drill bit	--	Drilling hole in instrument panel
Multimeter	--	Measuring output power and polarity

Table 4: Required tools

1.7. Supplied hardware

Item	Appareo Part Number	Quantity
Stratus Power Max Assembly	153510-000259	1
Power Harness	353050-000119	1
Stratus Power Max Panel Cover	353070-000597	1
Screw	356060-000100	2

Table 5: Supplied hardware

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1.8. Unpacking/inspection requirements

When unpacking Stratus Power Max, visually inspect for any damage to the unit or missing components. If damage or missing parts are present, contact Appareo.

1.9. Limitations for installation

This article meets the minimum performance and quality control standards required by a technical standard order (TSO). If you are installing this article on or in a specific type or class of aircraft, you must obtain separate approval for installation.

Installations should provide adequate airflow to the back side of the unit. Mounting to a metal panel is preferred for improved thermal performance.

1.10. Circuit protective device marking

Ensure that the circuit protective device marking is in accordance with AC 43.13-2B, Chapter 2, Section 207, Sub-Section f., Paragraph (1).

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2. Mounting Stratus Power Max

NOTE: Stratus Power Max is only compatible with a panel thickness of .040” to .125”.

1. Disconnect aircraft power.

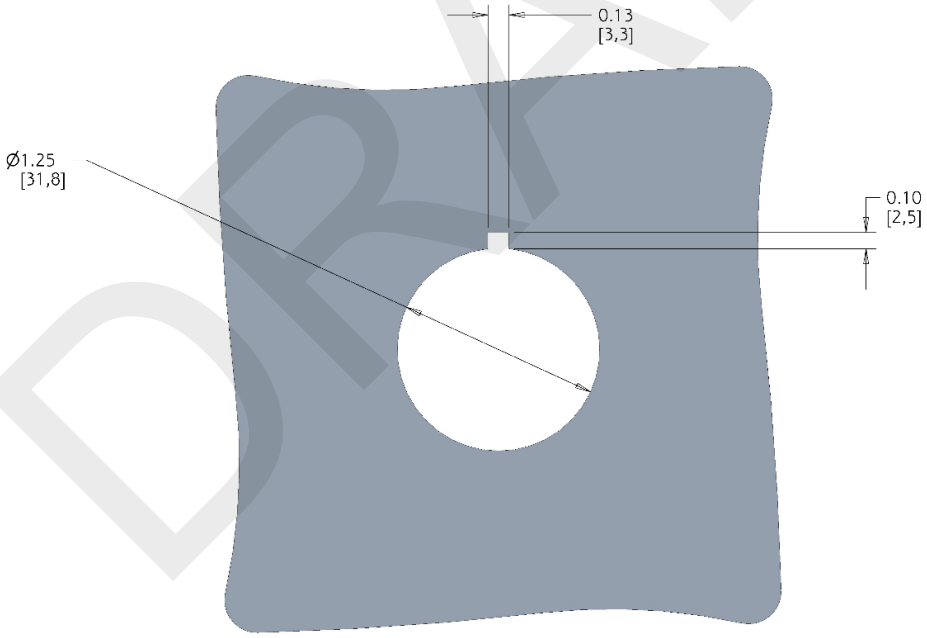
2. Locate an area in the panel to mount Stratus Power Max. The location must provide adequate clearance in the front and back of the unit based on the dimensions given in Table 3.

   Installations should provide adequate airflow to the back side of the unit. Mounting to a metal panel is preferred for improved thermal performance.

   ATTENTION: Process may result in metal shavings. Ensure that they do not fall behind the aircraft panel.

3. Drill out a circle in the mounting location with a 1 ¼ inch drill bit using the measurements in Figure 1.

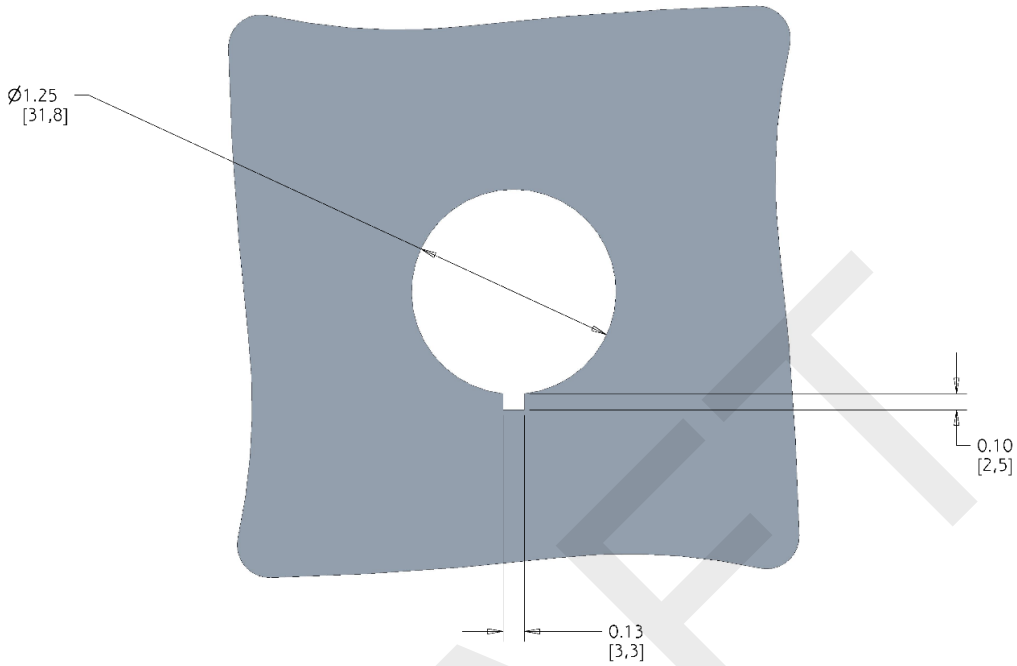
4. Cut the notch in the top OR bottom of the hole.



Mounting location with notch at top (measurements in inches, [mm])

(additional mounting orientation on next page)

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Mounting location with notch at bottom (measurements in inches, [mm])

Figure 1: Mounting location cutout

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5. Place the Stratus Power Max unit behind the panel and align the front of the unit with the notched hole.

   NOTE: The unit can be rotated to accommodate a notch at the bottom of the hole.

6. Place the panel cover over the front of the unit and secure with screws.

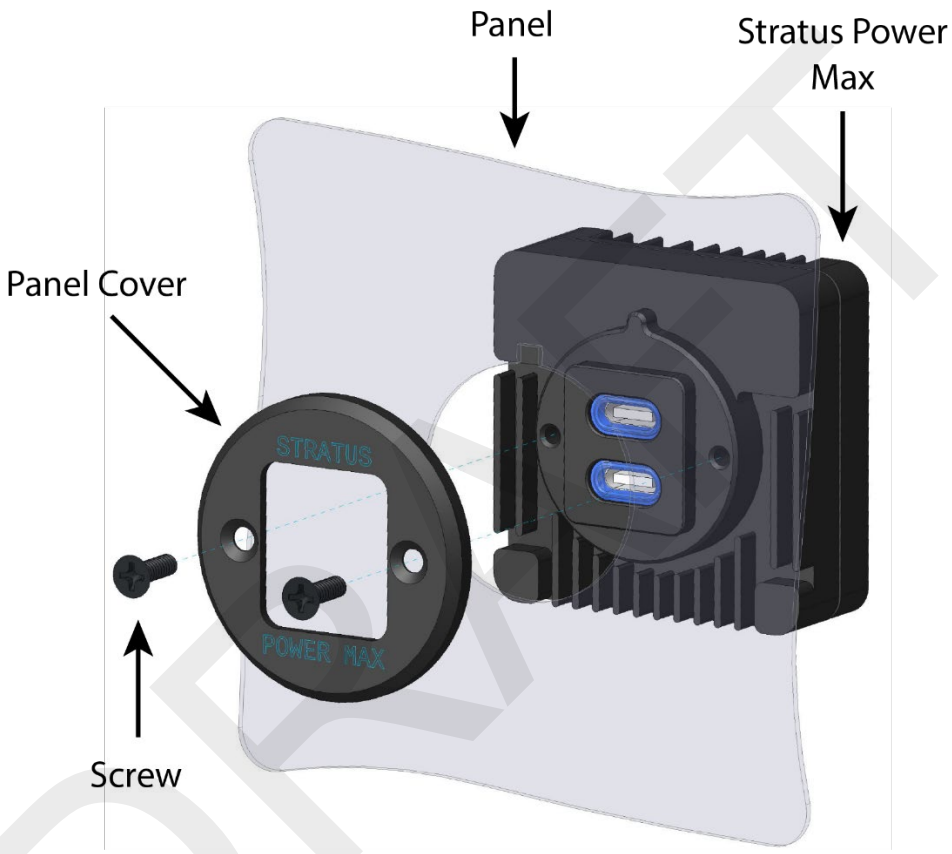


Figure 2: Installing Stratus Power Max

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3. Wiring Stratus Power Max

The installer must supply a circuit protective device for use with Stratus Power Max. Use a 5A breaker for 28V aircraft and a 7.5A breaker for 14V aircraft.

NOTE: If installing multiple Stratus Power Max units, each device must have its own circuit protective device.

1. Wire Stratus Power Max using the provided wiring harness. Provide a service loop.

   NOTE: If more wire length is needed, the installer must supply 20-gauge wiring and install it in accordance with FAA AC 43.13-1B and AC 43.13-2B. Wire length and routing will vary by installation.

2. Verify input power and polarity.

   a. Connect aircraft power and ensure that the breaker is pushed in.

   b. On the power harness, place the negative probe of a multimeter on Pin 2 and the positive probe on Pin 1.

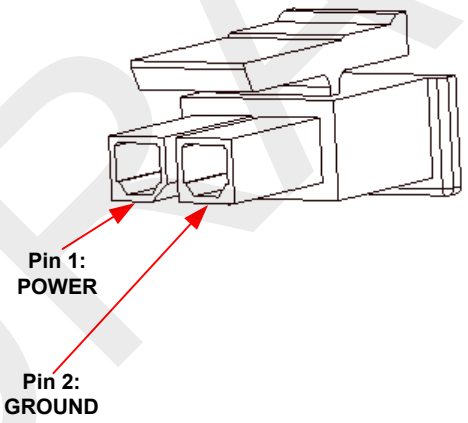


Figure 3: Harness connector

Pin #	Pin Name	Description
1	Power	10-32 VDC
2	Ground	--

Table 6: Pin assignments

   c. Measure the voltage across the two wires using a multimeter. The voltage reading should be equal to your aircraft power.

   d. Disconnect aircraft power.

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3. Push the power receptacle into **one** of the two headers on the back or side of Stratus Power Max, depending on which one is best for your installation location.

   CAUTION: When installing or removing the connectors from the Stratus Power header, use caution to avoid pulling out the input power port.

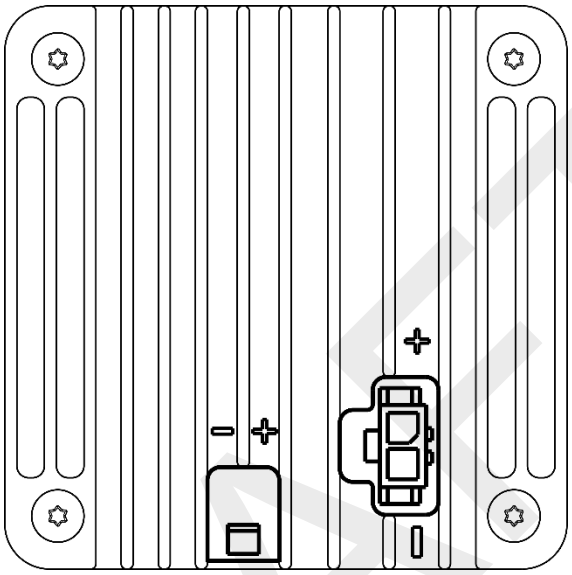


Figure 4: Header options

4. Connect aircraft power and ensure that the breaker is pushed in.
5. Connect a device to a USB port and verify that it charges.

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4. Troubleshooting

Problem	Troubleshooting Steps
Stratus Power Max is not powering a device.	• Verify that the circuit protective device is functioning correctly. • Verify that the polarity on the power connector is correct.

Technical Assistance

For support, please contact Appareo at support@appareo.com.

By mail:

1830 NDSU Research Circle North
Fargo, ND 58102
United States of America

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Appendix A

Nomenclature: Stratus Power Max

Part number: 153510-000259

TSO number: TSO-C71

Manufacturer: Appareo Systems

Address: 1830 NDSU Research Circle North, Fargo, ND 58102, USA

Conditions	DO-160G Section	Description of tests conducted
Temperature and Altitude	4.0	
Short-Time Operating Low Temperature	4.5.1	Equipment tested to Category F1.
Operating Low Temperature	4.5.2	Equipment tested to Category F1.
Short-Time Operating High Temperature	4.5.3	Equipment tested to Category F1.
Operating High Temperature	4.5.4	Equipment tested to Category F1.
In-Flight Loss of Cooling	4.5.5	Equipment identified as Category X, no test performed.
Altitude	4.6.1	Equipment tested to Category F1.
Decompression	4.6.2	Equipment identified as Category X, no test performed.
Overpressure	4.6.3	Equipment identified as Category X, no test performed.
Temperature Variation	5.0	Equipment tested to Category C.
Humidity	6.0	Equipment tested to Category A.
Operational Shocks and Crash Safety	7.0	
Operational Shocks	7.2	Equipment tested to Category B. 11ms duration.
Crash Safety	7.3	Equipment tested to Category B. Aircraft type: 5R
Vibration	8.0	
Fixed Wing Aircraft Standard Vibration	8.5	Equipment tested to Category S. Curve M.
Sine-on-Random for Category U	8.8.2	Equipment tested to Category U. Curve G.

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Explosive Atmosphere	9.0	Equipment identified as Category X, no test performed.
Waterproofness	10.0	Equipment identified as Category X, no test performed.
Fluids Susceptibility	11.0	Equipment identified as Category X, no test performed.
Sand and Dust	12.0	Equipment identified as Category X, no test performed.
Fungus Resistance	13.0	Equipment identified as Category X, no test performed.
Salt Fog	14.0	Equipment identified as Category X, no test performed.
Magnetic Effect	15.0	Equipment tested to Category Z.
Power Input	16.0	
Normal Operating Conditions (dc)	16.6.1	Equipment tested to Category BXX.
Voltage (average value dc)	16.6.1.1	Equipment tested to Category BXX.
Abnormal Operating Conditions (dc)	16.6.2	Equipment tested to Category BXX.
Voltage Spike	17.0	Equipment tested to Category B.
Audio Frequency Conducted Susceptibility	18.0	Equipment tested to Category B.
Induced Signal Susceptibility	19.0	Equipment identified as Category X, no test performed.
Radio Frequency Susceptibility	20.0	Equipment identified as Category X, no test performed.
Emission of Radio Frequency Energy	21.0	
Conducted RF Emissions	21.4	Equipment tested to Category B.
Radiated RF Emissions	21.5	Equipment tested to Category B.
Lightning Induced Transient Susceptibility	22.0	Equipment identified as Category X, no test performed.
Lightning Direct Effects	23.0	Equipment identified as Category X, no test performed.
Icing	24.0	Equipment identified as Category X, no test performed.
Electrostatic Discharge	25.0	Equipment tested to Category A.
Fire, Flammability	26.0	Equipment identified as Category X, no test performed.

Table 7: DO-160G tests performed

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