

# Branson™ Polaris Power Supplies

## Overview

Branson Polaris P2100 and P2200 power supplies offer unmatched performance, control and configurability for quality and reliable welds in every application. The Polaris P2100 and P2200 provide two different power supply options for the Polaris pneumatic actuators. The P2200 includes all the same features as the P2100, but with additional control options including amplitude stepping with external amplitude control and pressure stepping.

The power supplies include the most advanced Branson weld modes and settings, including energy, distance, peak power, time modes and ground detect mode. The enhanced Polaris power supplies will enable increased throughput and less machine downtime. They integrate seamlessly into your automated manufacturing environment with a small footprint, flexible connectivity, and remote-control options. Combine the power supply with a Polaris actuator to meet the requirements of your application, while helping your business reduce its time to market and improve the manufacturing process.

## Differentiators

- **Versatile:** Operates with Polaris Core or Advanced actuator.
- **Automation Adaptability:** Integrates into manufacturing environments as benchtop, hub mount, or fully automated with remote communication and control.
- **Configurable:** Choose from recommended packages or a la carte add-ons to upgrade features on your welder based off your industry and application.
- **Continuous Refinement:** In-field software and hardware upgrades available to adapt welder to your changing requirements.
- **True Digital Autotune with Memory (AT/M):** Built with best-in-class pneumatic components to keep your welder running.
- **Line / Load Regulation:** Corrects for variations due to power line fluctuations and part variability through Branson's closed loop amplitude and frequency control at 0.1 Hz resolution. This best-in-class control drives better precision, improves weld performance, and decreases overloads.
- **Total Amplitude Control:** Utilizing Branson's digital power supply technology, you have complete control of amplitude throughout the weld cycle: programmable starting ramp, digital setting of weld amplitude, and energy braking.
- **Programmable Starting Ramp:** Adjustable starting ramps from 10 milliseconds to 1.0 second to accommodate starting characteristics of a wide range of horns. This feature makes it easier to start more difficult horns. When utilizing smaller horns, you can minimize the starting ram, reducing cycle times.
- **Energy Braking:** A controlled stopping of the ultrasonic stack. This feature eliminates the traditional "ring down" of the stack creating a more consistent energy input into the parts. Small horns can actually be stopped faster, increasing throughput in high-speed automation.
- **System Protection Monitor (SPM):** Five levels of power supply protection are provided: 1. Phasing, 2. Over voltage, 3. Over current, 4. Over temperature, 5. Power.



For more information:  
[www.Emerson.com/Branson](http://www.Emerson.com/Branson)

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## Technical Specifications

|                            | 20:1.25                   | 20:2.5                   | 20:4.0                   | 30:1.5                   | 40:0.8                   |
|----------------------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Output Power</b>        | 1250 watts                | 2500 watts               | 4000 watts               | 1500 watts               | 800 watts                |
| <b>Input Power</b>         | 200-240 V AC 50 / 60Hz 1Ø | 200-240V AC 50 / 60Hz 1Ø | 200-240V AC 50 / 60Hz 1Ø | 200-240V AC 50 / 60Hz 1Ø | 200-240V AC 50 / 60Hz 1Ø |
| <b>Max. Current</b>        | 7 amps max.               | 14 amps max.             | 25 amps max.             | 10 amps max.             | 5 amps max.              |
| <b>Frequency</b>           | 20 kHz                    | 20 kHz                   | 20 kHz                   | 30 kHz                   | 40 kHz                   |
| <b>Ambient Temp. Range</b> | 41-104° F (5-40° C)       |                          |                          |                          |                          |

## Features

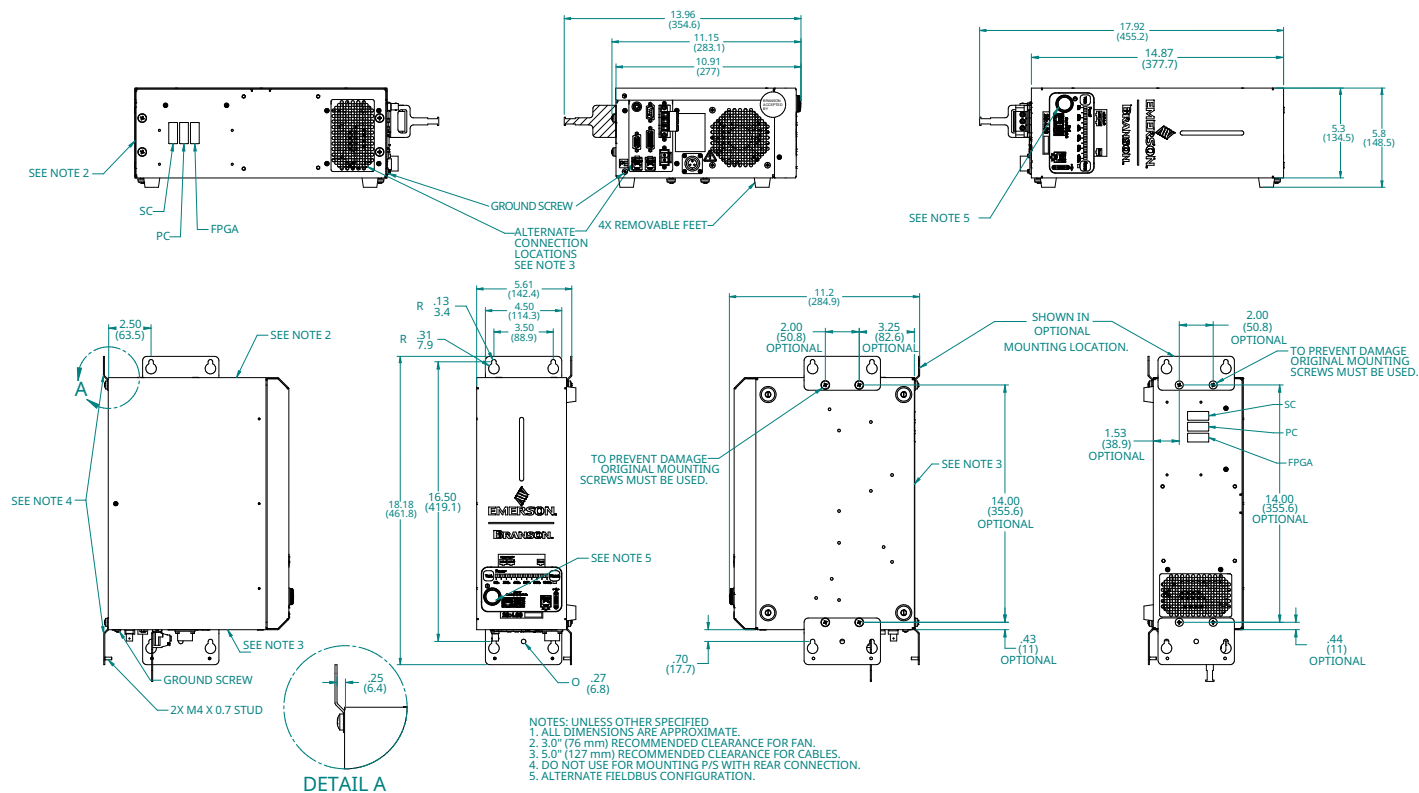
|                                            |                                                                                                                                                                                                   |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Connectivity</b>                        | USB 3.0 Type C (Accessories),<br>User IO 26 pin (Analog & Digital),<br>E-Stop and Two hand Palm Button 15 pin D-Sub (2 rows),<br>OPC UA,<br>Industrial Ethernet (EtherNet/IP & Profinet),<br>RJ45 |
| <b>Time to Start</b>                       | < 10 seconds                                                                                                                                                                                      |
| <b>Display</b>                             | 10" touchscreen, multi-color LCD or remote PC HMI                                                                                                                                                 |
| <b>Language</b>                            | Multilingual                                                                                                                                                                                      |
| <b>NIST Calibration</b>                    | Weld Time, Hold Time, Power, Amplitude, Frequency Pressure, Distance & Force                                                                                                                      |
| <b>Pre-triggering</b>                      | Auto, Distance & Time                                                                                                                                                                             |
| <b>Mounting Options</b>                    | Bottom or Rear                                                                                                                                                                                    |
| <b>Weld Modes</b>                          | Time, Energy, Power, Ground Detect, Absolute Distance* & Collapse Distance*                                                                                                                       |
| <b>Power Supply Dimensions – W x L x H</b> | 135 mm x 301 mm x 381 mm                                                                                                                                                                          |
| <b>Power Supply Weight</b>                 | 22.8 lbs / 10.3 kg                                                                                                                                                                                |
| <b>Amplitude Adjustment</b>                | 10-100%                                                                                                                                                                                           |

\*Must use Advanced Actuator for this functionality.

| Polaris Power Supply Comparison       |       |       |                                        |       |       |
|---------------------------------------|-------|-------|----------------------------------------|-------|-------|
|                                       | P2100 | P2200 |                                        | P2100 | P2200 |
| <b>Protection Against Overload</b>    | ✓     | ✓     | <b>Built-In Cycle Counters</b>         | ✓     | ✓     |
| <b>Protection Against Overheating</b> | ✓     | ✓     | <b>Energy Braking</b>                  | ✓     | ✓     |
| <b>Weld Graphing</b>                  | ✓     | ✓     | <b>Auto Seek</b>                       | ✓     | ✓     |
| <b>Alarm Management</b>               | ✓     | ✓     | <b>Line/Load Regulation</b>            | ✓     | ✓     |
| <b>Suspect &amp; Reject Limits</b>    | ✓     | ✓     | <b>System Protection Monitor</b>       | ✓     | ✓     |
| <b>Digital Amplitude Control</b>      | ✓     | ✓     | <b>Distance &amp; Force Readings*</b>  | ✓     | ✓     |
| <b>Variable Dynamic Triggering</b>    | ✓     | ✓     | <b>Amplitude Stepping</b>              | X     | ✓     |
| <b>Password Protection</b>            | ✓     | ✓     | <b>Pressure Stepping*</b>              | X     | ✓     |
|                                       |       |       | <b>External Weld Amplitude Control</b> | X     | ✓     |

\* Must use Advanced Actuator for this functionality.

Dimensions



Configurable Options

| System Selection |                                                                                                      |
|------------------|------------------------------------------------------------------------------------------------------|
| Power Supply     | P2100                                                                                                |
|                  | P2200                                                                                                |
| Actuator         | Core                                                                                                 |
|                  | Advanced                                                                                             |
| Column           | Round                                                                                                |
|                  | Square                                                                                               |
| Base             | Hub                                                                                                  |
|                  | Standard Base                                                                                        |
| Power Level      | 1) 20 kHz, 1.25 kW<br>2) 20 kHz, 2.5 kW<br>3) 20 kHz, 4.0 kW<br>4) 30kHz, 1.5 kW<br>5) 40kHz, 0.8 kW |
| Cylinder Size    | 1) 40 mm<br>2) 50 mm<br>3) 63 mm<br>4) 80 mm                                                         |

## Packages & Add-Ons

|                                                      |                                                                                                                                                                                                                                                                 | Essential Package | Pristine Package | Nexus Package | Single Add-On |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|---------------|---------------|
| Hardware Add-Ons                                     | Description                                                                                                                                                                                                                                                     |                   |                  |               |               |
| Work Light                                           | Adjustable worklight for benchtop applications                                                                                                                                                                                                                  | ✓                 |                  |               | ✓             |
| Barcode Scanner                                      | Mounted Imager                                                                                                                                                                                                                                                  | ✓                 |                  |               | ✓             |
|                                                      | Handheld Imager                                                                                                                                                                                                                                                 |                   |                  |               |               |
| Branson Leveling Kit                                 | Ensures part and tooling is level in benchtop applications                                                                                                                                                                                                      |                   |                  |               | ✓             |
| Stainless Steel Bearing                              | Ideal for food or medical applications to eliminate risk of grease contamination                                                                                                                                                                                |                   | ✓                |               |               |
| Stainless Steel Covers                               | Ideal for food or medical applications for thorough cleaning and disinfection                                                                                                                                                                                   |                   | ✓                |               |               |
| Software Add-Ons                                     |                                                                                                                                                                                                                                                                 |                   |                  |               |               |
| Event Logs / Audit Trail                             | Records all changes made to the system configuration and validated weld presets along with a time stamp and user                                                                                                                                                |                   | ✓                | ✓             | ✓             |
| Storage Capacity                                     | *Standard: 100k Weld Results, 100 Alarms, 100 Weld Graphs, 16 Recipes                                                                                                                                                                                           | Advanced          | Elite            | Elite         | ✓             |
|                                                      | Advanced: 500k Weld Results, 500 Alarms, 500 Weld Graphs, 50 Recipes                                                                                                                                                                                            |                   |                  |               |               |
|                                                      | Elite: 1M Weld Results, 1000 Alarms, 1000 Weld Graphs, 1000 Recipes                                                                                                                                                                                             |                   |                  |               |               |
| Batch Control                                        | Program number of welds to run in a batch                                                                                                                                                                                                                       | ✓                 | ✓                | ✓             | ✓             |
| LDAP (Lightweight Directory Access Protocol) Support | Communicate with and access information stored in a LDAP directory service                                                                                                                                                                                      |                   | ✓                | ✓             | ✓             |
| User Access Level                                    | *Standard: Two user access levels including Operator & Executive                                                                                                                                                                                                |                   | Advanced         | Advanced      | ✓             |
|                                                      | Advanced: Four user access levels including Operator, Technician, Supervisor & Executive                                                                                                                                                                        |                   |                  |               |               |
| Barcode Scanner Capability                           | Ability to record Part ID and recall weld presets                                                                                                                                                                                                               | ✓                 | ✓                | ✓             | ✓             |
| User I/O Diagnostics                                 | Advanced and Basic I/O Functions that allow user to perform certain actions using digital and analog inputs and outputs. Examples of some functions are part present, external amplitude control, horn scan, horn seek, and automatic pneumatic tooling control |                   |                  | ✓             | ✓             |
| Industrial Ethernet                                  | EtherNet/IP                                                                                                                                                                                                                                                     |                   |                  | ✓             | ✓             |
|                                                      | Profinet                                                                                                                                                                                                                                                        |                   |                  |               |               |
| HMI Type                                             | Local HMI: adjustable 10" display to adjust settings and view weld performance                                                                                                                                                                                  |                   |                  | PC HMI        | ✓             |
|                                                      | PC HMI: Identical format and function to local HMI. Adjust settings and view weld performance on PC Laptop. Communicate with up to four welders                                                                                                                 |                   |                  |               |               |

\* Included in every system purchase.