

## Inputs and Outputs

### Q. How many analog inputs are on a 590+?

- A. The 590+ has five analog inputs, four configurable and one dedicated, rated for  $\pm 10$ VDC, 1mA. All analog inputs have 12-bit resolution, (plus sign bit), approximately 2.5mV/resolution. The inputs are scanned approximately every 10 milli-seconds. The dedicated input connects directly to the SPEED LOOP or CURRENT LOOP (Analog Input 2 (A3)) and is scanned every 3 milli-seconds.

### Q. How many analog outputs are on a 590+?

- A. The 590+ has three analog outputs, two configurable and one dedicated, rated for  $\pm 10$ VDC, 5mA. The dedicated output connects directly to the CURRENT LOOP. The outputs are scanned approximately every 10 milli-seconds. The analog outputs have 11-bit resolution (plus sign bit).

### Q. How many digital inputs are on a 590+?

- A. The 590+ has nine digital inputs, six configurable and three dedicated, rated at +24VDC, 100mA. The inputs are sampled approximately every 10 milli-seconds. The three dedicated inputs are connected to the Coast Stop (B9), Program Stop (B8), and Start (C3).

### Q. How many digital outputs are on a 590+?

- A. The 590+ has three digital outputs, all three are configurable, rated at +24VDC, 100mA (30VDC max).

Note: The digital outputs are sourcing.

## Specifications

### Q. What are the reference power supplies available to terminal connections on the 590+?

- A. The 590+ has  $\pm 10$  VDC, +24 VDC supplies available to terminal connections.

### Q. What is the current overload rating for the 590+ drive?

- A. The 590+ has an overload rating of 200% for 10 seconds and 150% for 30 seconds.

### Q. What are the minimum and maximum 3-phase input voltage ratings?

- A. The 590+ voltage rating is 220-500VAC ( $\pm 10\%$ ) for the 15 amp through 675 amp rated drive. The 590+ voltage rating is 380-690VAC ( $\pm 5\%$ ) for the 850 amp through the 2400 amp rated drive.

### Q. What is the operating temperature for the 590+?

- A. The 590+ temperature rating is 0°C to 45°C (32°F-113°F) for the 15 amp through 675 amp rated drive. The 590+ temperature rating is 0°C to 40°C (32°F - 104°F) for the 850 amp through the 2400 amp rated drive.

Note: The drive has to be derated linearly 1% per degree centigrade from 45°C (113°F) up to a maximum of 55°C (131°F).

### Q. What is the maximum operating altitude for the 590+?

- A. The maximum drive operating altitude is 5000m (1640 ft).

Note: The drive has to be derated linearly 1% per 200 meters above 500m to a MAXIMUM of 5000m (16400 ft).

### Q. What safety standards do the 590+ meet?

- A. The 590+ meets the CE, UL, and c-UL standards.

If you have questions, please call the Product Support Group at (704) 588-3246.

## General Information

**Q. How can the 590+ be configured?**

A. The 590+ can be configured using the 4-button keypad or DSELite software.

**Q. How can I receive the DSELite software?**

A. Visit <http://www.ssddrives.com/usa> then go to the *Resource Center / Software Downloads*.

**Q. What options can be added to the 590+?**

A. Speed Feedback, Communications, Remote mounting kit for the keypad, Dynamic Brake Contactor, Control transformer, and Blower Motor Starter are options for the 590+.

**Q. What are the types of Speed Feedback for the 590+?**

A. The Speed feedback options are Encoder, Analog Tachometer and Armature Voltage.

**Q. What are the Communication options for the 590+?**

A. The 590+ has Communication Techboxes for Link, Profibus, DeviceNet, ControlNet, CanOpen, LonWorks, Ethernet IP, Ethernet Modbus TCP, ModbusPlus and Serial (Modbus RTU/EI Bisynch)

**Q. Is the keypad detachable during operation?**

A. Only if the drive is being controlled through the remote terminal connections.

**Q. What are the differences between the 590 and 590+?**

Only the frame 1 & 2 590+'s has an AC input contactor.

The thermistor input is isolated on all 590+'s.

The keypad is detachable on all 590+ drives.

3-phase and auxiliary voltage connections are located at the bottom of the 590+.

The 590+ frame 1 & 2 has been repackaged for a smaller footprint.

Digital output capacity has been increased to 100ma.

The frame 1 590+ has no external field connections for field weakening.

Dynamic Brake Contactor, Control transformer are options on the 590+.

Note: On frame 1 & 2 the isolated thermistor input is located on the fuse board. On frame 3 and bigger the thermistor input is on the control door.

**Q. What are the communication settings for the 590+ for the P3 Port?**

A. The baud rate is 9600. The communication mode is (EIASCII).

**Q. Can you download a DSELite file into the drive when the drive is Running?**

A. No, but you can EXTRACT data from the drive, using DSE Lite while the drive is running..

**Q. Can I upgrade my existing 590 to a 590+?**

A. Yes, the control door would be the main component to upgrade. The control door part number is 590PXD/0010/UK/0.

Note: Using the chart below, verify the Power Supply Board modification level is at least or higher by referencing the label on the Power Supply Board.

Part Number	Modification Level
AH385851	14
AH385621	12
AH466001	4



\*\*This is the modification level.

**Note: Any drive with an AH385128Uxxx can not be upgraded to add a 590+ control door.**

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## Troubleshooting

**Q. The 590+ is enabled, but the main contactor doesn't close. Why?**

A. Verify minimum wiring connections. Are B8 and B9 connected to 24VDC?

**Q. How can the drive configuration be reset to factory defaults ?**

A. Hold the Up and Down arrows buttons on power up of the drive. Release the arrow buttons when the display reads "calibrating". The second method is to install a default template from the software DSELite.

**Q. The drive faults to "over-voltage" after the drive is enabled. Why?**

A. There is an "open" in the armature circuit. Verify no open in the armature circuit between the drive and motor using a voltmeter.

**Q. The drive faults to "3-phase fail" after the drive is enabled. Why?**

A. The three-phase voltage isn't present at the input of the drive. Verify the 3-phase voltage at terminal L1,L2,and L3 and check all fuses.

**Q. The drive faults to "speed feedback", Why?**

A. The tachometer or encoder may be bad. Switch the drive speed feedback to armature voltage, and then verify normal operation.

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