CONTACTRON Speed Starter

Connect, set, start.

FAQs

Power and motor connection FAQs

1) **What are the input and output options?**
   There are two input options – 120-240 V AC single phase, and 240-480 V AC 3 phase. All outputs are three phase with voltages from 0 to V(in).

2) **Can the CSS be used with a single-phase motor?**
   No. The CSS is only suitable for use with 3-phase asynchronous induction motors.

3) **What is the maximum motor size in terms of horsepower and amperage that is supported by CSS?**
   Presently, the CSS family supports a maximum of 2 HP motors. For 1 phase-in, 3 phase-out @ 230 V AC variants, there is a maximum motor current of 7.5A. For 3 phase-in, 3 phase-out @ 480 V AC variants, there is a maximum motor current of 3.9A.

4) **Will there be larger sizes available in the future?**
   Pending the market adoption rate of the speed starter concept, larger sizes are tentatively planned.

5) **Can the CSS boost the output voltage relative to the input voltage?**
   No. The CSS can pass through the same voltage level, and it can step down voltage levels, but it cannot step up voltage levels. This is consistent with other low-cost drive options available today, including the Eaton DE1 speed drive.

6) **What is the output frequency range?**
   CSS can support output frequencies from from 0 to 500Hz.

7) **Is the carrier frequency fixed or variable?**
   The carrier frequency can be fixed, with user-settable frequencies of 4kHz, 8kHz, 16kHz, or it can be automatically varied to match load conditions using the Auto setting.

8) **Can the CSS ramp up a motor that is connected to a load?**
   Yes, unlike a soft starter, CSS can provide a ramp up function while the motor is delivering torque to the load.

9) **Can the CSS be used to reverse motors?**
   Yes. When the user is configuring the operating speed for each speed setting, it is also possible to select left or right rotation options.

10) **Does the CSS provide overload protection to the motor?**
    Yes. The trip curve roughly follows the characteristics of IEC Class 10, but it is dependent on motor frequency in addition to motor current. Note that short circuit protection must still be provided by external fuses or circuit breakers.

11) **What is the SCCR rating of CSS devices?**
    When used in combination with Class CC, Class J, or Class T fuses or suitable UL 489 breakers, CSS is rated up to 65kA SCCR, according to UL.

12) **Is there EMC filtering available?**
    There are options within the CSS portfolio for integrated EMC filtering of the load. Line reactors are not included with CSS and are not available as an accessory.

13) **Are there provisions for shield wire terminations?**
    All CSS devices feature a basic ground connection terminal to bond the metal components of the housings and an integrated shroud to protect control lines from electrical noise. An optional shroud for motor feeder lines is also available, providing a convenient way to both terminate the cable shield and support the motor cable connections to the CSS device.

Device Control FAQs

1) **How many operating speeds are there?**
   There are two operating speeds available, selectable via digital input.

2) **Is there an analog input to control the speed of the motor?**
   Presently, there is no analog input option. Speed 1 and Speed 2 are defined by the user during configuration and are activated using a digital input for each speed.

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3) **Are there any protocols or communications available?**
Presently, there are no protocols or communications available – all programming and control is done via the user interface and digital inputs found on the faceplate of the CSS.

4) **What I/O points are available in addition to the basic Speed 1, Speed 2, and STO terminals?**
The CSS provides a digital input for module reset, a solid-state output and relay output for error monitoring, a PTC input to monitor motor temperatures for thermal overload protection, and +24 V DC and 0 V DC source terminals for the control connections.

5) **How are the speed starters configured?**
Configuration of the speed starters is achieved through an intuitive operator interface that consists of a 5-digit display, a rotary knob, up and down arrows, and a Set/Reset button.

6) **Can faults and overloads be remotely reset?**
Yes, many faults and overload errors can be reset remotely using the Reset input terminal. Some faults will require a power-cycle of the module to reset.

7) **Are there additional options available to optimize motor operations beyond speed and ramp?**
Yes, these include options such as starting boost, voltage lift, slip compensation, and V/F waveform.

Safe Torque Off (STO) FAQs

1) **What is the safety rating of the Safe Torque Off (STO) functionality?**
When used with an appropriate safety relay and following proper design practices, all CSS variants can provide a 2-channel STO solution via simple input terminals up to SIL 3/PLe.

2) **Is the STO function capable of providing galvanic isolation?**
No, the STO functionality is limited to safe shutdown. If galvanic isolation is required, a suitable contactor will be required in combination with the CSS.

Environmental and installation FAQs

1) **What is the operating temperature range?**
The devices are rated to operate from -20°C to +60°C, with derating required depending on mounting position and the available air space around the devices. Detailed guidance on derating the devices can be found in the User Manual.

2) **How is the CSS cooled?**
Depending on the device type, the CSS may be cooled using only an integrated heat sink, or it may include a user-serviceable cooling fan.

3) **Are the cooling fans replaceable?**
Yes, modules equipped with cooling fans feature a tool-free replacement design.

4) **How is the CSS mounted?**
All CSS devices can be either DIN rail mounted using the integrated DIN foot, or they can be direct mounted to the panel using the integrated mounting tabs. Both parallel and perpendicular mounting are possible when direct mounting the devices.

5) **How many frame sizes are there?**
Presently, there are five frame sizes. They are described as Housings A1, A2, B1 with fan, B1 with heat sink, and B2. Motor current, input type, and EMC options dictate which size housing a particular speed starter will feature. Dimensions for each size can be found in the User Manual.

6) **Is the CSS eligible for the Limited Lifetime Warranty (LLW) program?**
Yes! To qualify, the CSS must be used in conjunction with the appropriate surge protection, and the customer must be registered per the terms and conditions of the program.