



# onsemi ECS640A Development Kit User Manual

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## onsemi ECS640A Development Kit



## Product Information

The STR-ECS640A-GEVK is a development kit for the ECS640A motor control system. It is designed to provide a quick start for users and includes the necessary firmware flashed to the ECS640A part. For more information and technical documentation, please visit the official onsemi website.

## Box Content

- 01 STR-ECS640A-GEVB v4.5 Unit
  - Embedded “Trapezoidal” Sensorless Motor Control Algorithm Firmware flashed to ECS640A Part
- 01 USB Cable
- ECS640A Development Kit – Quick Start Printout (this document)

## SAFETY PRECAUTIONS

It is mandatory to read the following precautions before manipulating the STR-ECS640A-GEVB unit.

- When connecting an oscilloscope probe to EVB unit the probe's ground needs to be isolated. Failure to do so may result in personal injury or death.
- STR-ECS640A-GEVB unit contains DC bus capacitors which take time to discharge after removal of the main supply. Before touching the EVB, wait ten minutes for C3 and C5 capacitors to discharge to safe voltage levels. Failure to do so may result in personal injury or death.
- Only personnel familiar with the drive and associated machinery should plan or implement the installation, start-up and subsequent maintenance of the system. Failure to comply may result in personal injury and/or equipment damage.
- The surfaces of the heat sink may become hot, which may cause injury.
- STR-ECS640A-GEVB unit contains parts and assemblies sensitive to Electrostatic Discharge (ESD). ESD control precautions are required when installing, testing, servicing or repairing this unit's parts or assemblies. ESD control procedures not followed may lead to component damage. If you are not familiar with electrostatic control procedures, refer to applicable ESD protection handbooks and guidelines.
- STR-ECS640A-GEVB incorrectly applied or installed, can result in component damage or reduction in product lifetime. Wiring or application errors such as under sizing the motor, supplying an incorrect or inadequate AC supply or excessive ambient temperatures may result in system malfunction.
- Remove and lock out power from STR-ECS640A-GEVB unit before you disconnect or reconnect wires or perform service. Wait ten minutes after removing power to discharge C3 and C5 bus capacitors. Do not attempt to service the drive until the bus capacitors have discharged to zero. Failure to do so may result in personal injury or death.
- Voltage doubler configuration is the default STR-ECS640A-GEVB unit configuration and can be used only with 120Vrms AC input. The use of voltage doubler configuration at 230Vrms AC input may result in personal injury or death.

Thanks for your interest in onsemi STR-ECS640A-GEVK development platform. Please follow the instructions below and get access to latest ECS640A Interface GUI application and evaluation kit documentation available at [onsemi.com](https://www.onsemi.com) website (Visit <https://www.onsemi.com/products/motor-control/ecospin-motor-controllers/ecs640a#technical-documentation> for additional information).

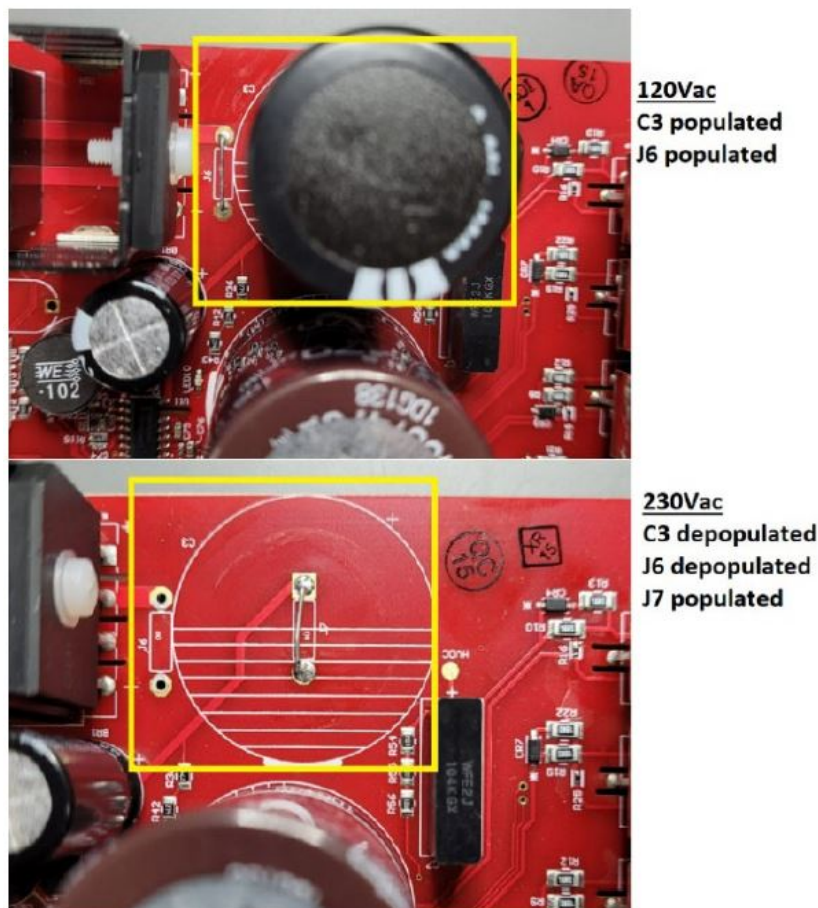
**To set up the STR-ECS640A-GEVB unit for 230Vac supply, follow these steps:**

1. If the unit is being powered with 120Vac, you may skip to step 3.
2. For 230Vac AC mains supply, make the following hardware configuration changes:
  - Remove the C3 (680 mF / 250 V capacitor).
  - Add the J7 jumper as indicated in the picture.
  - Remove the J6 jumper.

## **STR-ECS640A-GEVK**

1. STR-ECS640A-GEVB unit is set up for 120Vac AC mains supply. The EVB unit will be permanently damaged if connected to a 230Vac AC mains supply. Please follow the instructions below to set up the EVB unit for 230Vac supply. If the unit is being powered with 120Vac you may skip to step 3.
2. The full wave rectification topology needed for 230Vac AC mains supply requires  
**STR-ECS640A-GEVB hardware configuration change by following the steps below:**

- Remove C3 (680 F / 250 V capacitor)
- Add J7 jumper as indicated in picture
- Remove J6 jumper



**Figure 1.**

3. Download and read “ECS640A Development Platform – Trapezoidal Quick Start” (UM70090/D) documentation available at onsemi website for setting up a BLDC motor using ECS640A development platform.

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## Documents / Resources

	<p><a href="#">onsemi ECS640A Development Kit</a> [pdf] User Manual ECS640A Development Kit, ECS640A, Development Kit</p>
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## References

-  [Intelligent Power and Sensing Technologies | onsemi](#)

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Manuals+.