AM3359 Industrial Communications Engine for Industrial Automation
The Industrial Automation Quick Start Guide for the AM3359 Industrial Communications Engine (ICE) is comprised of the following steps:

**Hardware setup**
- Connect network cable between the PC and EtherCAT® port.
- Connect 24V to the board.
- Power up EVM (after the Software setup).

**Software setup**
- Install TwinCAT (one-month evaluation is available for free download from [www.beckhoff.de/tcatweb/twincat_download_e.aspx](http://www.beckhoff.de/tcatweb/twincat_download_e.aspx). Select PLC mode for installation and check the I/O drivers box.
- Copy sdk\examples\ethercat\esl\TiEtherCATLib.xml to <Drive>:\TwinCAT\Io\EtherCAT folder.
- Start TwinCAT system manager.
- Go to Options > Show Real Time Ethernet Compatible Devices and install the RT Ethernet Adapter connected to the ICE.
- Choose “Yes” in response for “Scan for boxes”.
- Box n (TIESC-001) will be detected automatically.
- Choose “Yes” in response for “Activate Free Run”.
- Now select Device1 (EtherCAT) and go to Actions > Select/Reset TwinCAT to Config Mode or use shortcut Shift-F4.
- A dialog will pop up asking Load I/O Devices. Select Yes.
- The next dialog asks for configuration to Activate Free Run. Select Yes. This will put TI ESC into OP mode.
- Now the user can control digital output LEDs using TwinCAT. Select Box n (TIESC-001) > RxPDO > 32Bit Output. The LEDs are controlled by the least significant byte on the 32-bit output. Open Online tab, and click the Write button to control the LEDs.
- Additional information is available at [www.ti.com/am335x_twincat](http://www.ti.com/am335x_twincat).

**Setup for EtherCAT Operation**
Quick start instructions are provided below. For detailed instructions and troubleshooting, please refer to [www.ti.com/am335x_twincat](http://www.ti.com/am335x_twincat).

1. Connect the network cable between EtherCAT ports and the PC with TwinCAT installation.
2. Power ICE board with 24V power supply. Once software installation on the PC with TwinCat has been completed, power up the board.
3. Observe the LEDs for a pattern to confirm EtherCAT application has started.
4. Start TwinCat for the first time you need to define which Ethernet port will be used as the EtherCAT port.
5. Select the ethernet port from the list of compatible devices, and press Install. This will install a Beckhoff EtherCAT driver. Once installed, the Ethernet port will show up as above.
6. Right click on I/O devices and select Scan Device; Press OK in the next dialog to start scanning for EtherCAT devices.
Once an EtherCat compatible device has been detected on this Ethernet port, the following dialog shows up. Note that there is a tick mark next to the adapter to which the ICE is connected. Press OK, and confirm to start “Scan for boxes”.

Select 32-bit output from RxPDO node.

The TI device will be listed “Box n (TIESC-001)”. Press Yes to activate Free Run.

Expand the box to see Process Data Inputs (PDI) and Outputs (PDO).

Select online tab on the right side panel and press Write. Enter the value in hexadecimal format, where each bit in LSB represents an

Changing the LED value will set/clear the appropriate LED.

Get Started

Please visit www.ti.com/am3359ice2. Here you’ll find instructions to begin programming the AM3359 Industrial Communications Engine, detailed information and resources.

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
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