**maxim
integrated™**

MAXREFDES37# IO-Link Servo Driver
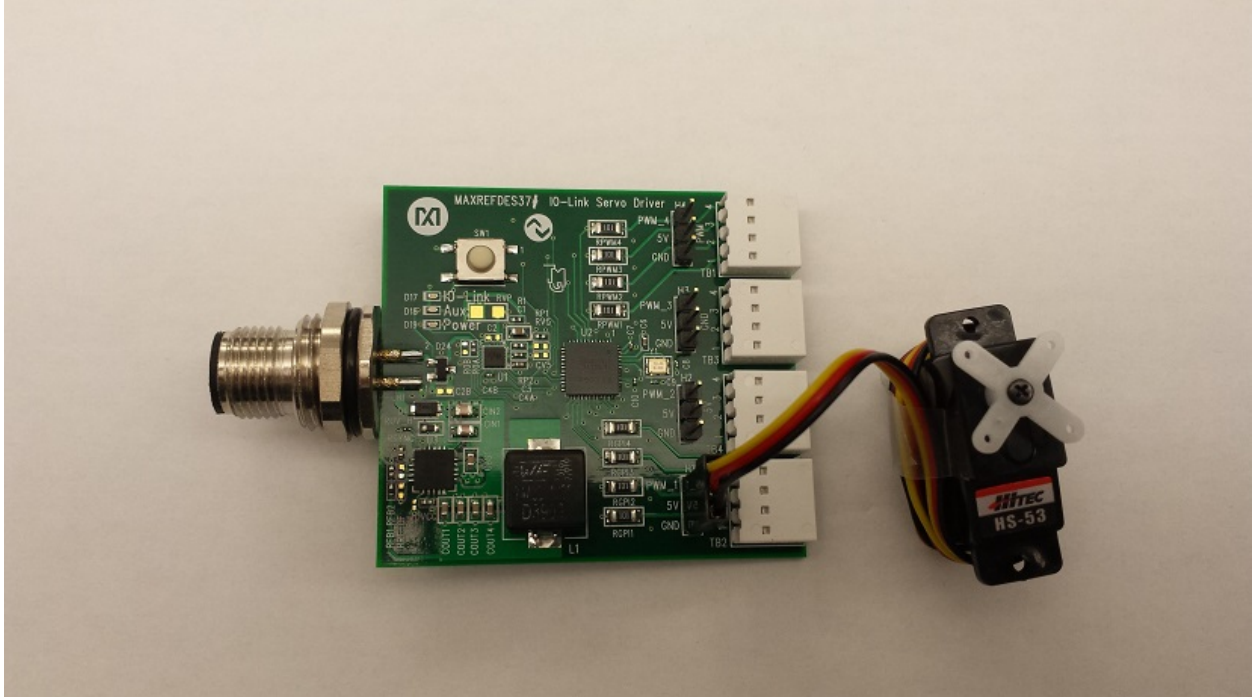# Quick Start Guide

Rev 0; 4/15
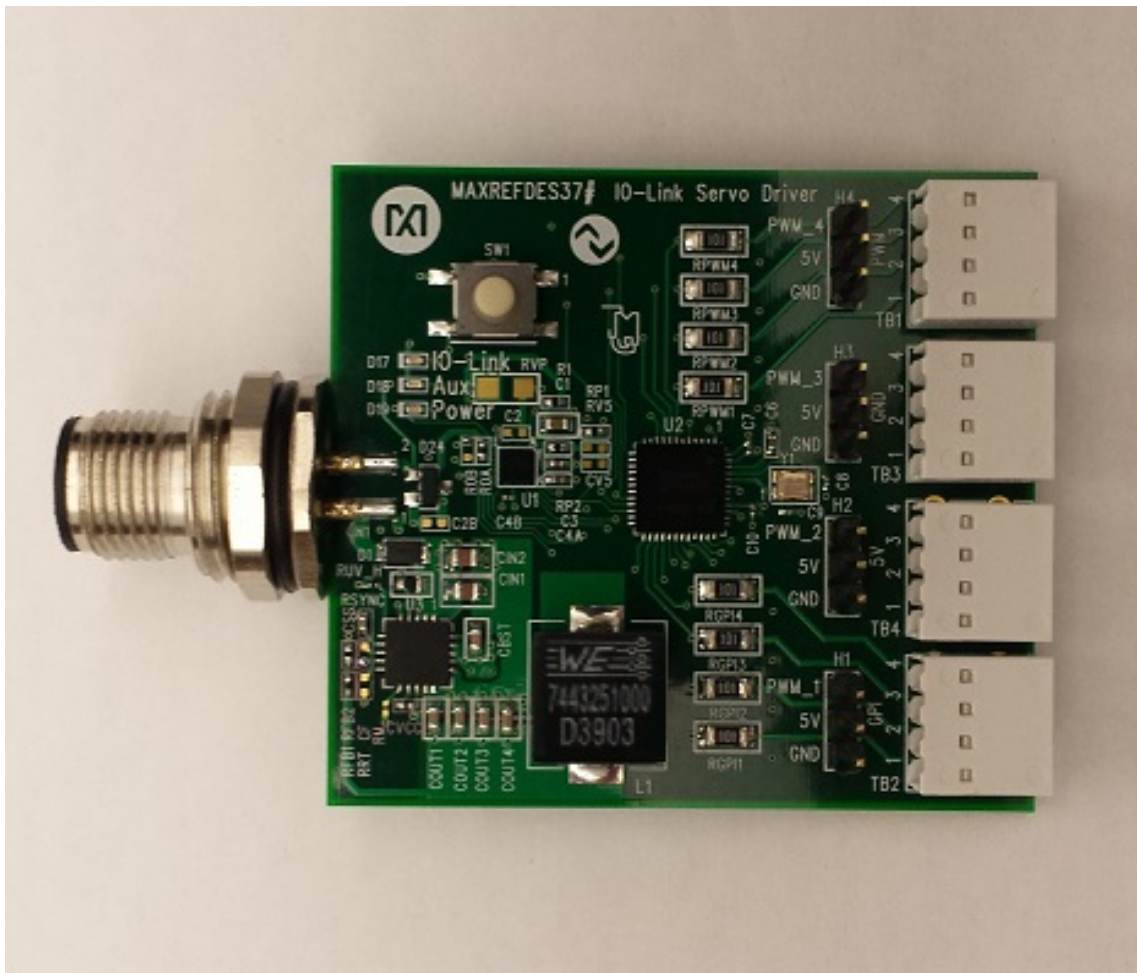
Table of Contents

1. Required Equipment

- PC with Windows® 7 or Windows 8 (**Verify with TEConcept that your version of Windows is supported before purchasing their software license. See Section 4 Software License Keys of the MAXREFDES79# IO-Link Master Quick Start Guide.**)
- MAXREFDES37# (Box Contents)
    - MAXREFDES37# board
    - Hitec HS-53 servo motor
- MAXREFDES79# (Box Contents)
    - MAXREFDES79# 4-Port IO-Link® Master
    - AC-to-DC 24V/1A output power converter
    - USA-to-Euro power adapter
    - Two Black IO-Link cables (1 meter)
    - Micro-USB cable (2 meters)
- Necessary downloadable software includes:
    - TEConcept IO-Link Control Tool (CT) Software (see note)
    - STM32F4 VCP Driver (see note)

Note: Download files from the Design Resources tab at:
www.maximintegrated.com\MAXREFDES37

www.maximintegrated.com\MAXREFDES79

Figure 1. MAXREFDES37# box contents.

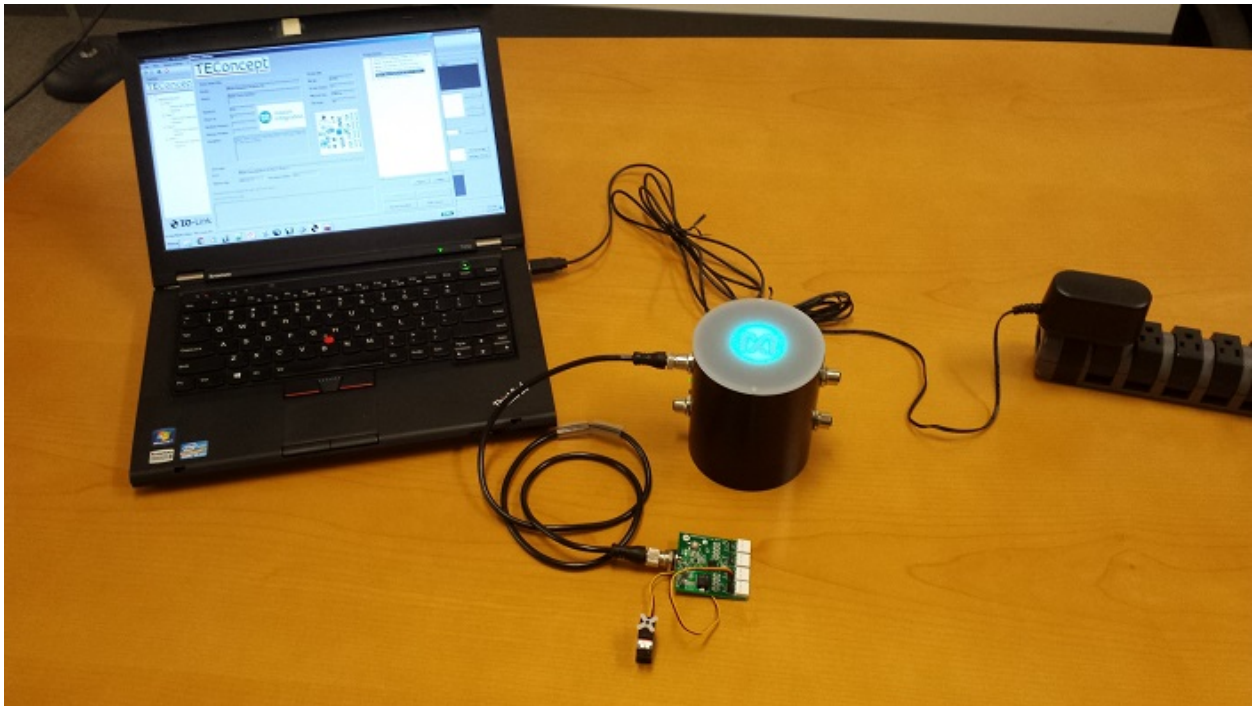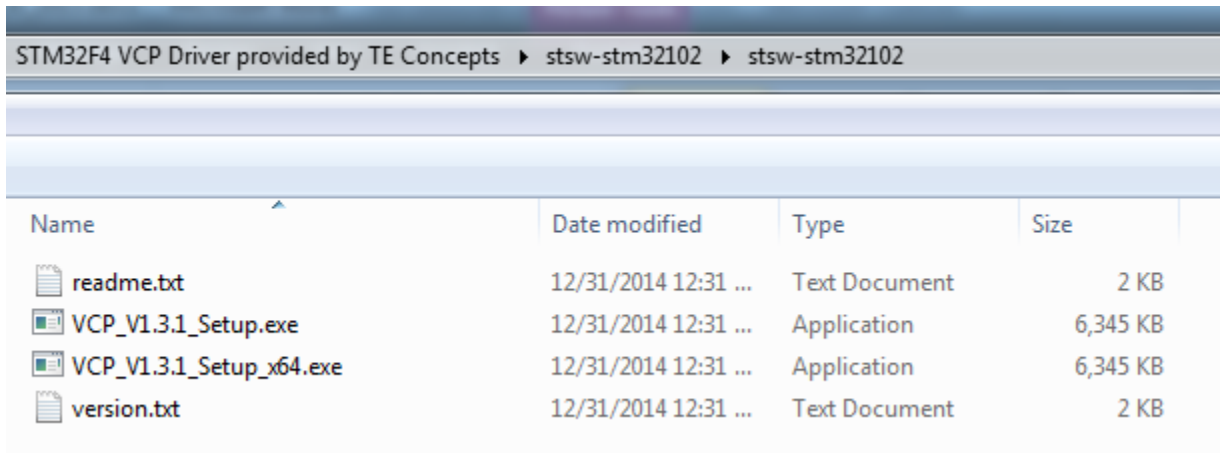**Figure 2. MAXREFDES79# box contents.**

Figure 3. MAXREFDES37# system connected to MAXREFDES79#.

2. Overview

1. Install the **TEConcept CT** software (**TC_Installer.msi**).

2. Install the **STM32F4 VCP** driver.

3. Connect the Micro-USB cable from the PC to the MAXREFDES79#.

4. Connect the AC-to-DC 24V DC power converter.

5. Connect the MAXREFDES37# to Port 1 of the MAXREFDES79# IO-Link master.

6. Connect the Hitec HS-53 servo motor to header H1 (PWM1) on the MAXREFDES37#.

7. Run the **TEConcept CT** software and connect to the MAXREFDES79#.

8. Load in the IODD file for your sensor or actuator.

9. Press the **IO-Link** button to connect to sensor or actuator.

10. Read and write to sensor or actuator parameters.

3. Procedure

1. Download the **TEConcept CT** software and **STM32F4 VCP** driver from the **Design Resources** tab at **www.maximintegrated.com/MAXREFDES79**.

2. Install the **TEConcept CT** software (**TC_Installer.msi**).

3. Install the appropriate **STM32F4 VCP** driver depending on the version of Windows operating system (32-bit or 64-bit) as shown in Figure 4.

STM32F4 VCP Driver provided by TE Concepts ▸ stsw-stm32102 ▸ stsw-stm32102

| Name	Date modified	Type	Size
readme.txt	12/31/2014 12:31 ...	Text Document	2 KB
VCP_V1.3.1_Setup.exe	12/31/2014 12:31 ...	Application	6,345 KB
VCP_V1.3.1_Setup_x64.exe	12/31/2014 12:31 ...	Application	6,345 KB
version.txt	12/31/2014 12:31 ...	Text Document	2 KB

Figure 4. STM32F4 VCP Driver for 32-bit and 64-bit Windows 7/Windows 8.

4. Connect the Micro-USB cable from the PC to the MAXREFDES79# as shown in Figure 5.

**Figure 5. Connect the Micro-USB cable from underneath the MAXREFDES79# and then connect it to the PC.**

6

5. Ensure that switch SW1 is in the "Down" or "In" position as shown in Figure 6.
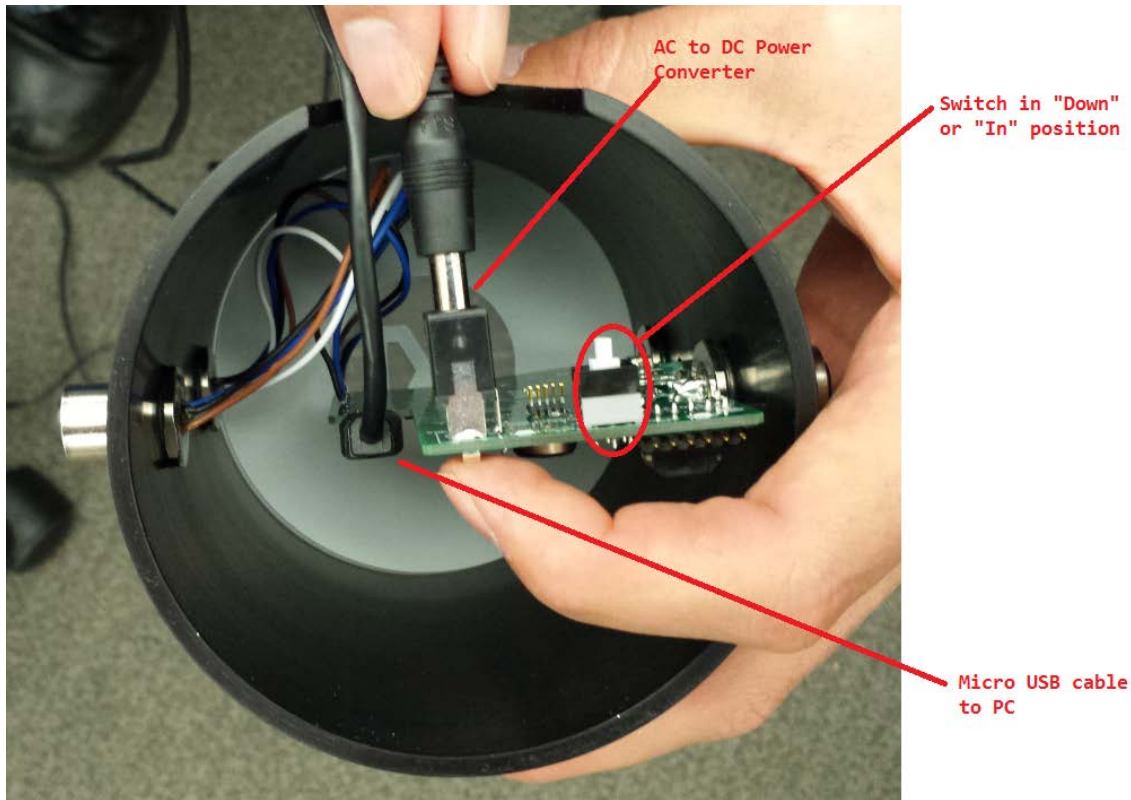
Figure 6. Verify the SW1 position and connect the AC-to-DC 24V DC power converter.

6. Connect the AC-to-DC 24V DC power converter as shown in Figure 6.

7. Connect the MAXREFDES37# to Port 1 of the MAXREFDES79# IO-Link master. Port 1 is the top M12 female connector on the LED side of the IO-Link master.

8. Connect the Hitec HS-53 servo motor to header H1 on the MAXREFDES37# as shown in Figure 1.

9. Open Windows **Device Manager** and verify the connected COM port number connected as **STMicroelectronics Virtual COM Port (COMx)** shown in Figure 7.
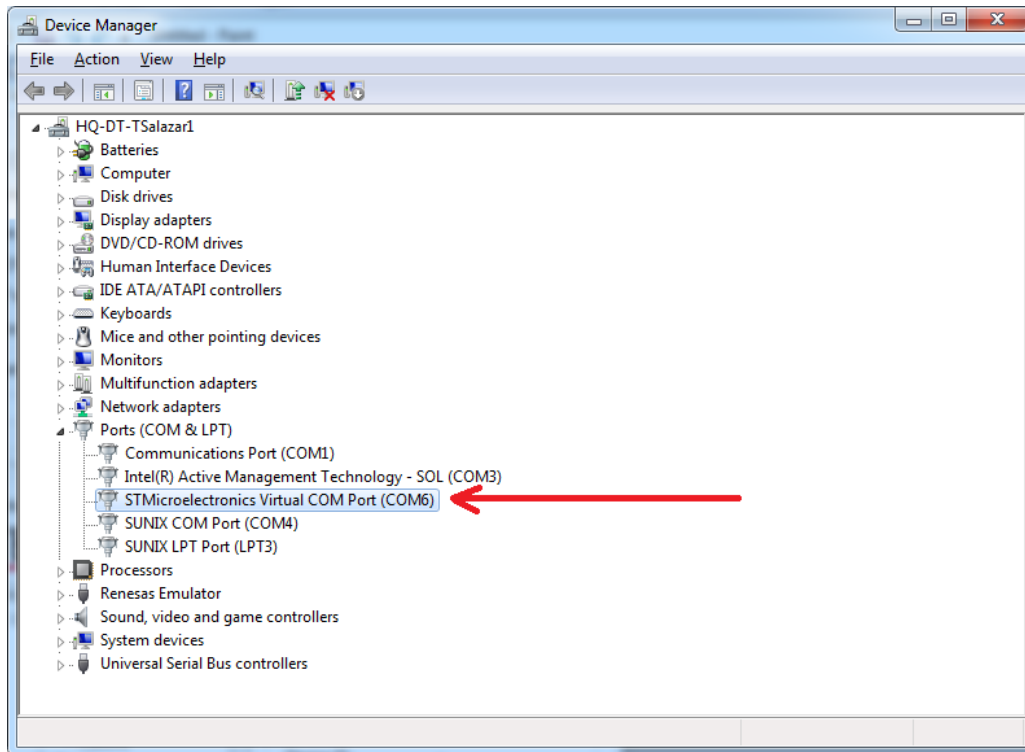
Figure 7. Verify COM port connected as "STMicroelectronics Virtual COM Port (COMx)." It may be a different COM port number on your PC.

10. Run the **TEConcept CT** software as shown in <u>Figure 8</u>. Press the **connection settings** icon, which is a gray gear. (COM port may be different on your PC.) Press the **Connect** button and it will show a flashing green COM connection label at the bottom of the GUI once connected.
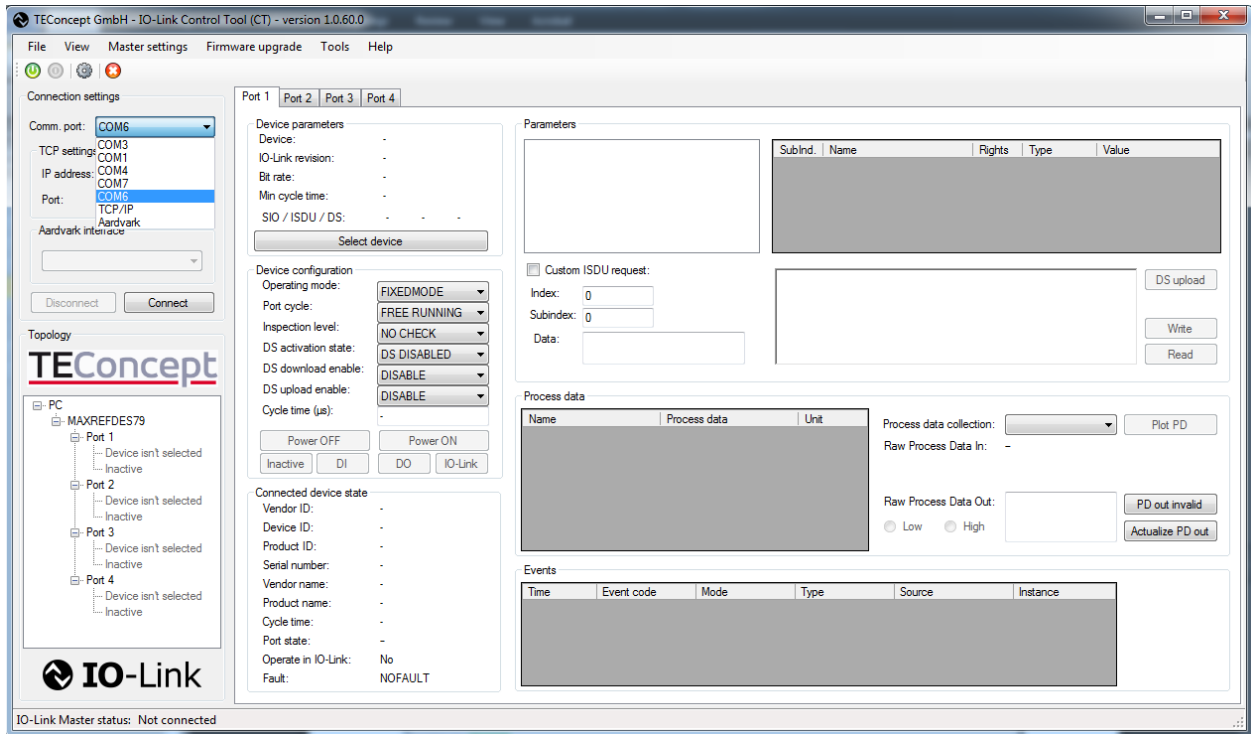
Figure 8. TEConcept IO-Link CT Software. Tested with version 1.0.60.0.

11. Load in the IODD file for the MAXREFDES37#. First, press the **Select device** button. In the **Device selector** window, press the **Import** button and select the sensor's ***1.1.xml** IODD file. Highlight the IODD file in the **IO-Link Devices** box and press the **Select device** button. See Figure 9 and Figure 10.
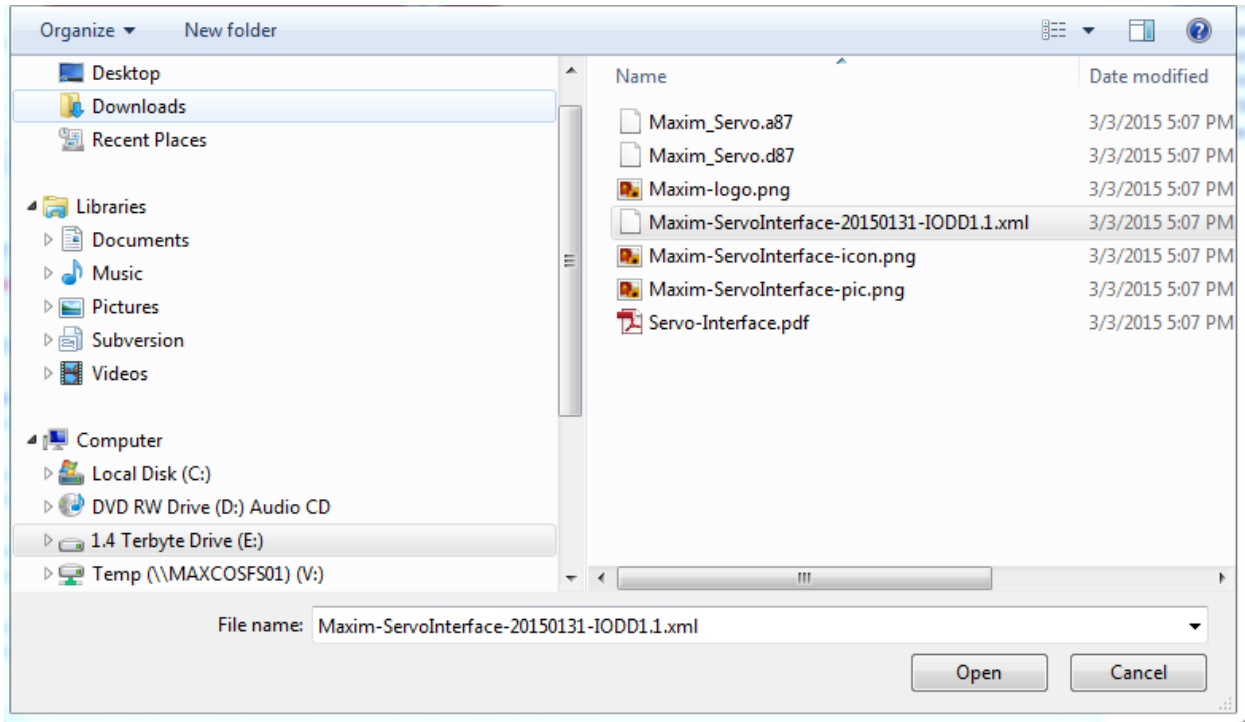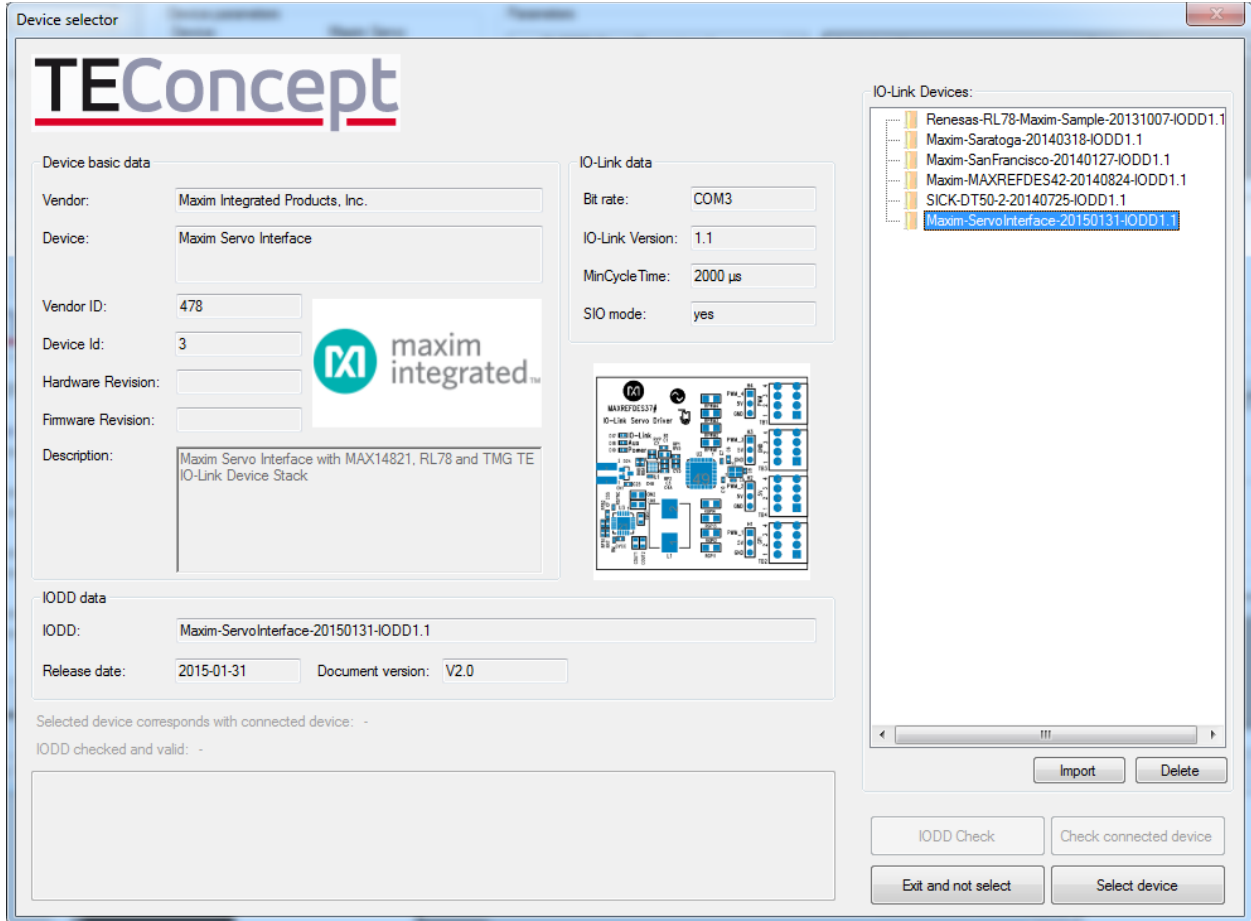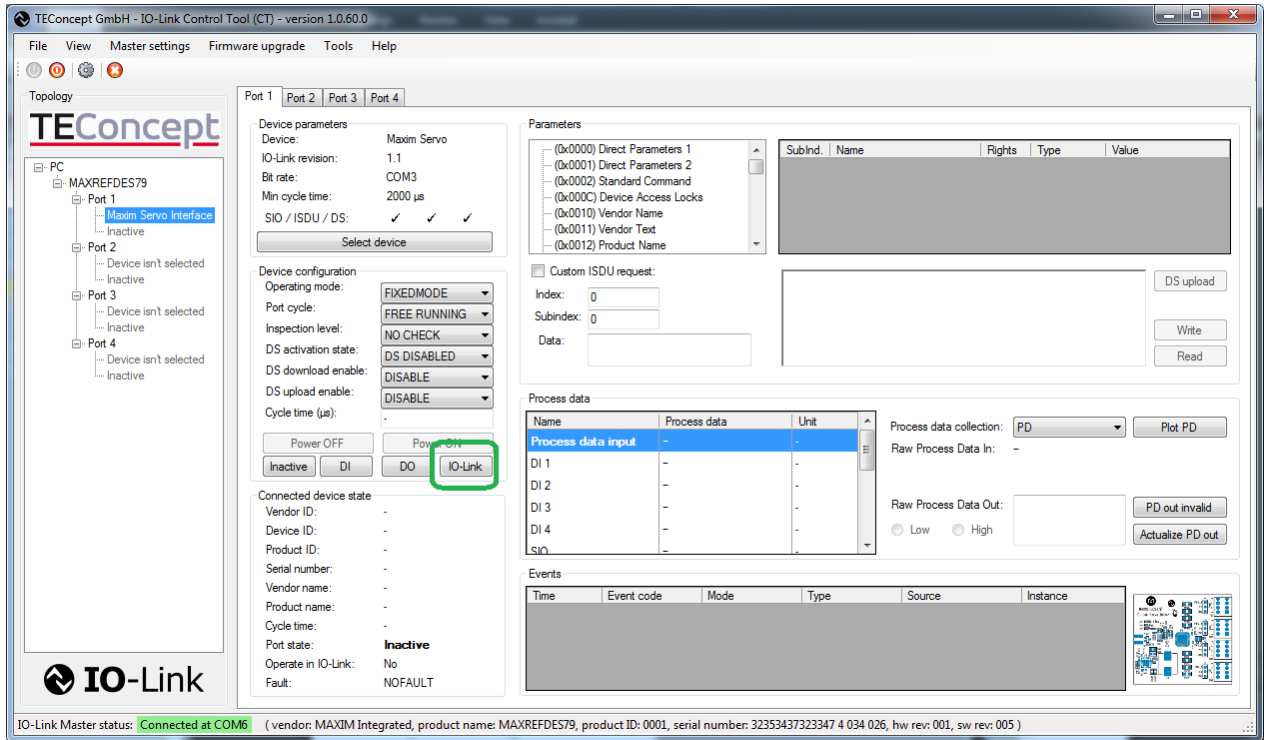

**Figure 9. Sensor IODD file (*1.1.xml).**

Figure 10. Press the Select device button when imported IODD files are highlighted.

12. The **IO-Link** button becomes active once the IODD file is assigned to a port and the MAXREFDES79# is connected to the PC. Press the **IO-Link** button once it becomes active as shown in .

Figure 11. IO-Link button becomes active once an IODD is assigned to a port and the MAXREFDES79# is connected to the PC.

13. Manually move the servo motor to the 0-degree position by typing **-100** into the **Servo 1 Process data** scroll box as shown in Figure 12. Next, press the **Actualize PD out** button to send the value to the MAXREFDES37#. Next, manually move the servo motor to the 90-degree position by typing **100** into the **Servo 1 Process data** scroll box (first time was -100, this time is 100). Then press the **Actualize PD out** button again to send the value to the MAXREFDES37#.
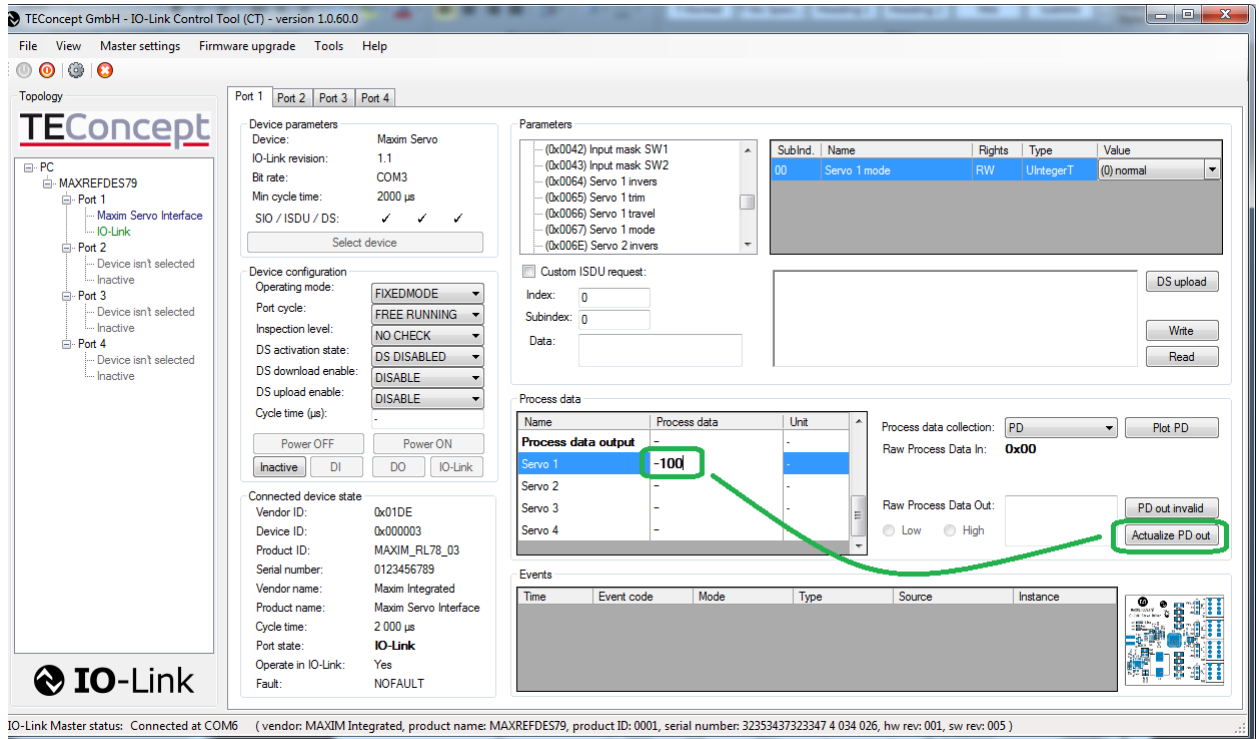
Figure 12. Manually changing Servo 1 position using process data output.

14. Select **(0x0067) Servo 1 mode** in the **Parameters** box and then use the drop-down menu to change the parameter value to **(1) triangle slow**. Lastly, press the **Write** button to send the value change to the MAXREFDES37# as shown Figure 13. Experiment with other Servo modes such as **(2) triangle fast**, **(3) rectangle**, **(4) sawtooth rising**, or **(5) sawtooth falling**.
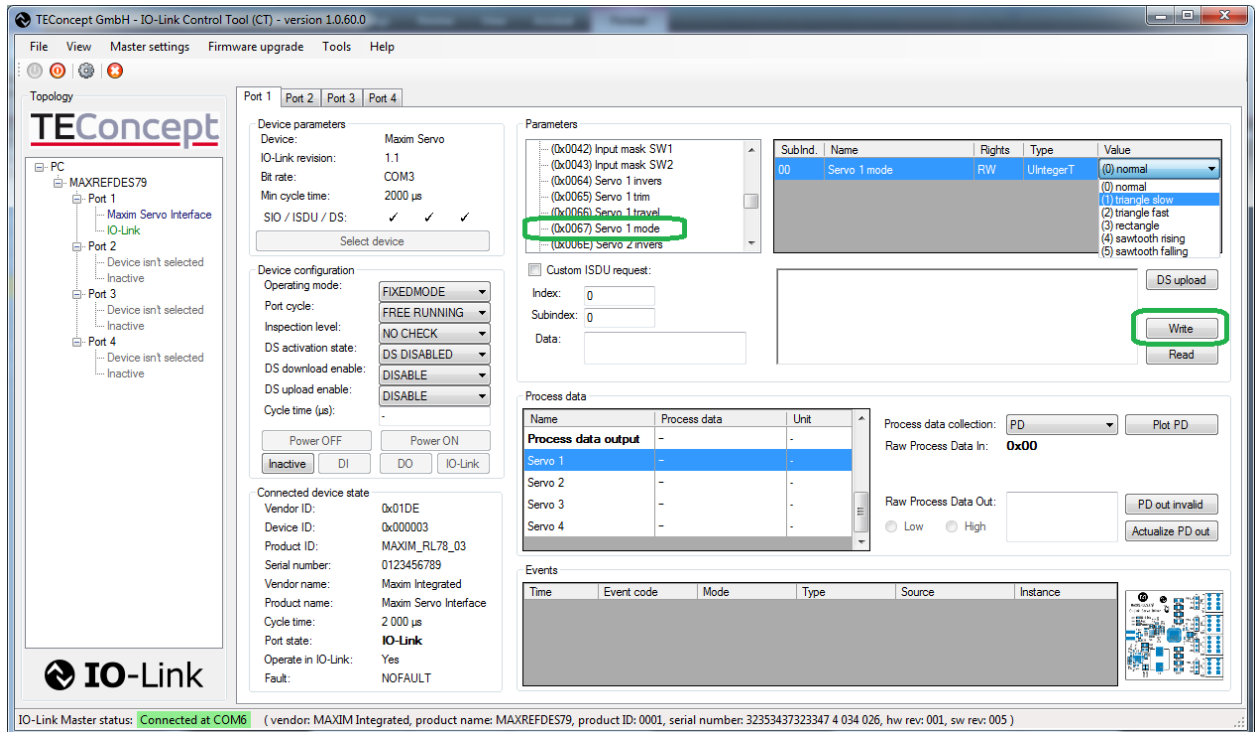

Figure 13. Changing Servo 1 mode to (1) triangle slow.

4. Trademarks

IO-Link is a registered trademark of ifm electronic GmbH.

Windows is a registered trademark and registered service mark of Microsoft Corp.

5. Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	4/15	Initial release	—