



# MAXREFDES79# IO-Link Master Quick Start Guide

*Rev 0; 3/15*



For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim Integrated's website at [www.maximintegrated.com](http://www.maximintegrated.com).

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## 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.**)
- MAXREFDES79# (Box Contents)
  - MAXREFDES79# 4-Port IO-Link® Master
  - AC-to-DC 24V/1A output power converter
  - USA-to-Euro power adapter
  - Two Black 1 meter 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)
- An IO-Link compliant sensor or actuator (MAXREFDES27# IO-Link proximity sensor was used in this document, but any IO-Link compliant sensor or actuator from any company can be used. Other Maxim options are MAXREFDES23#, MAXREFDES36#, MAXREFDES37#, or MAXREFDES42#.)

**Note: Download files from the Design Resources tab at:**  
[www.maximintegrated.com/MAXREFDES79](http://www.maximintegrated.com/MAXREFDES79).



**Figure 1. MAXREFDES79# box contents.**



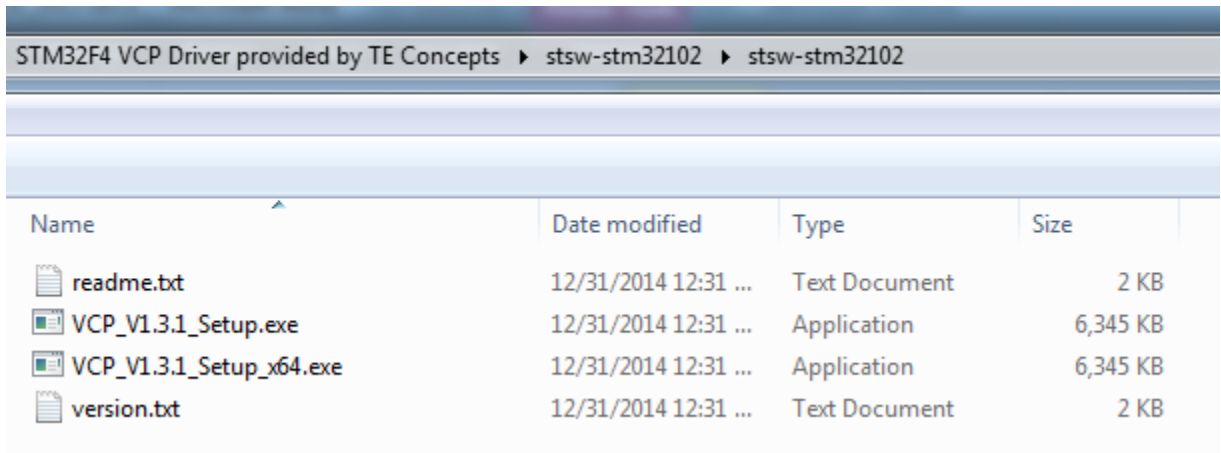
**Figure 2. MAXREFDES79# system connected and running.**

## 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 MAXREFDES27# to Port 1 of the MAXREFDES79# IO-Link master.
6. Run the **TEConcept CT** software and connect to the MAXREFDES79#.
7. Load in the IODD file for your sensor or actuator.
8. Press the **IO-Link** button to connect to sensor or actuator.
9. 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](http://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 3](#).



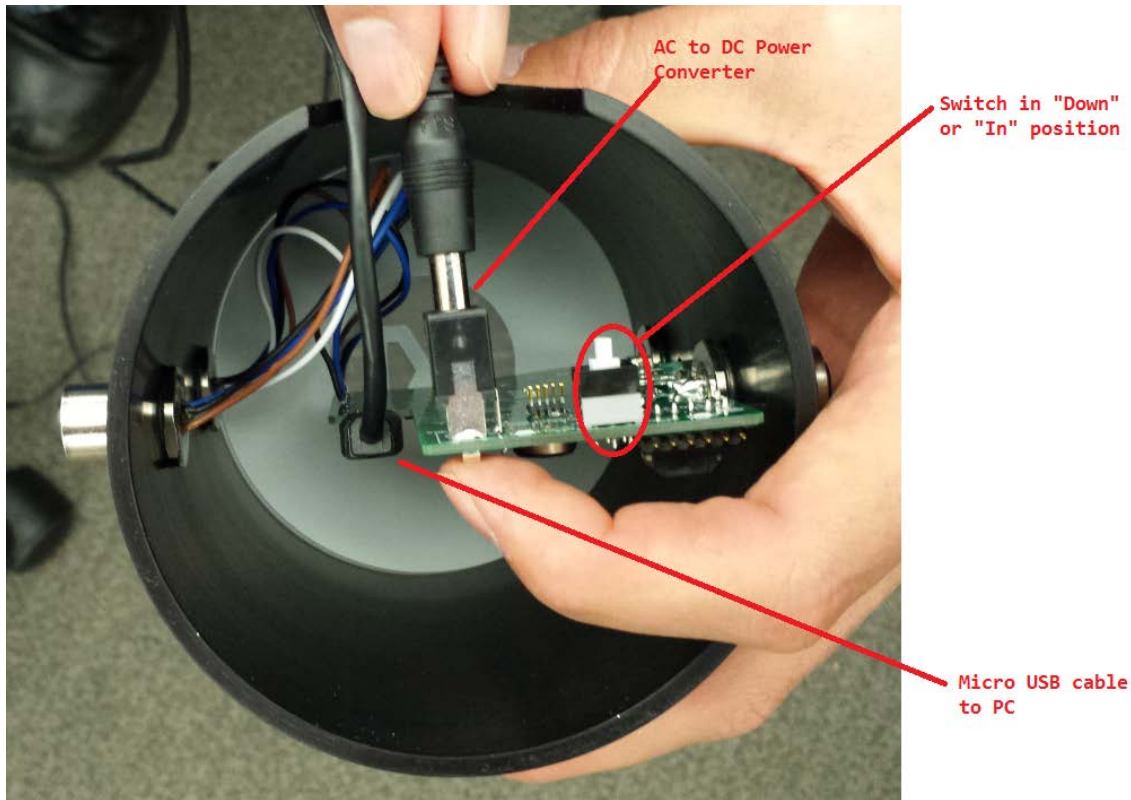
**Figure 3. STM32F4 VCP Driver for 32-bit and 64-bit Windows 7/Windows 8.**

4. Connect the Micro-USB cable from the PC to the MAXREFDES79# as shown in [Figure 4](#).



**Figure 4. Connect the Micro-USB cable from underneath the MAXREFDES79# and then connect it to the PC.**

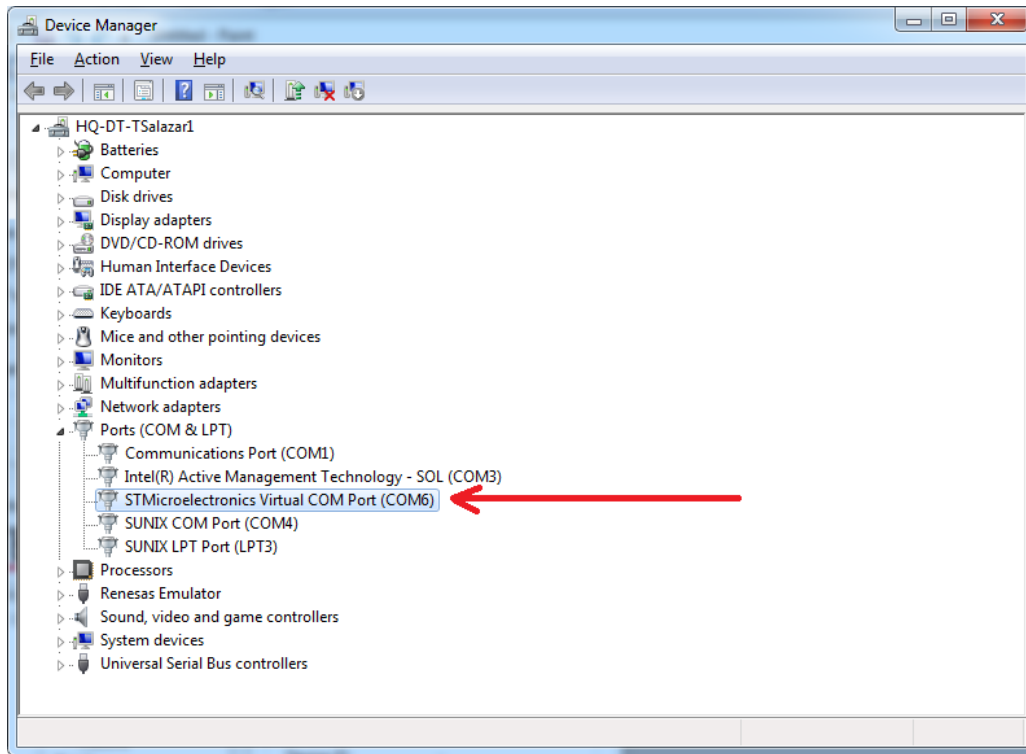
5. Ensure that switch SW1 is in the “Down” or “In” position as shown in [Figure 5](#).



**Figure 5. 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 5](#).
7. Connect the MAXREFDES27# 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.

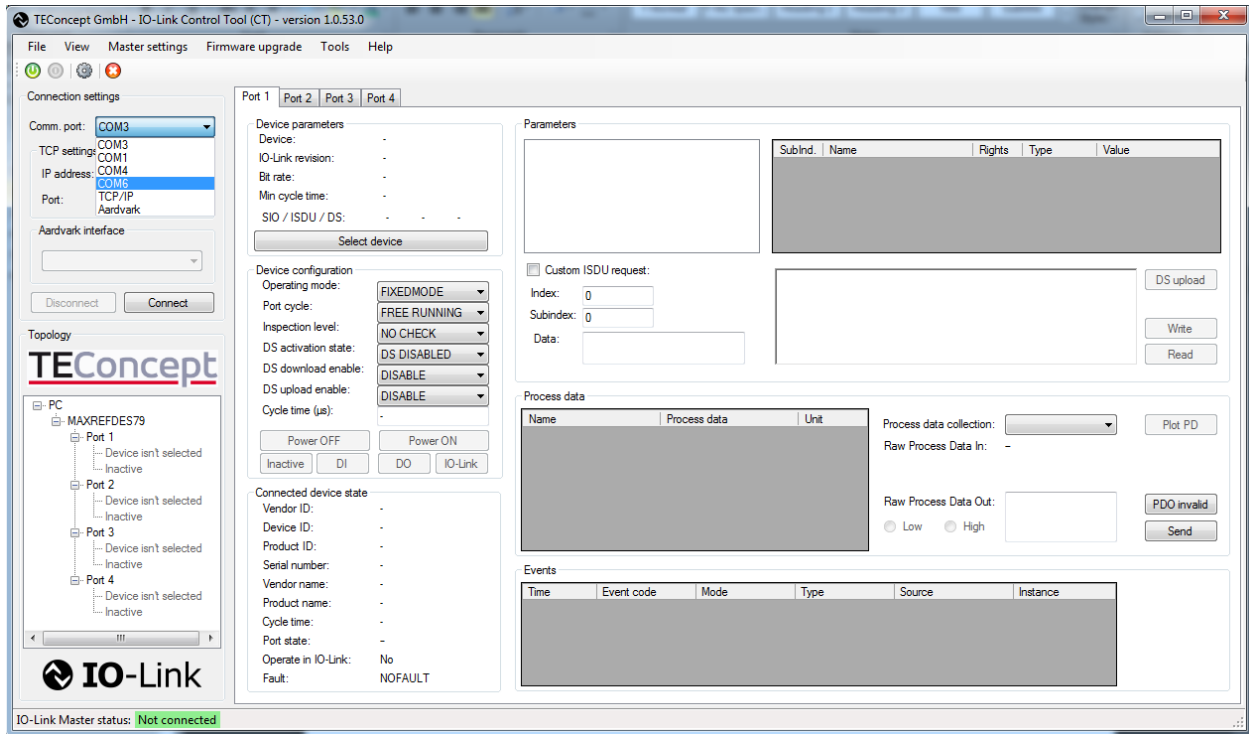
- Open Windows **Device Manager** and verify the connected COM port number connected as **STMicroelectronics Virtual COM Port (COMx)** shown in [Figure 6](#).



**Figure 6. Verify COM port connected as “STMicroelectronics Virtual COM Port (COMx).” It may be a different COM port number on your PC.**



9. Run the **TEConcept CT** software as shown in [Figure 7](#). 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 7. TEConcept IO-Link CT Software. Tested with version 1.0.53.0.**

10. Load in the IODD file for your sensor or actuator. In this case, we will show the MAXREFDES27# IO-Link proximity sensor not included. 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 8](#) and [Figure 9](#).

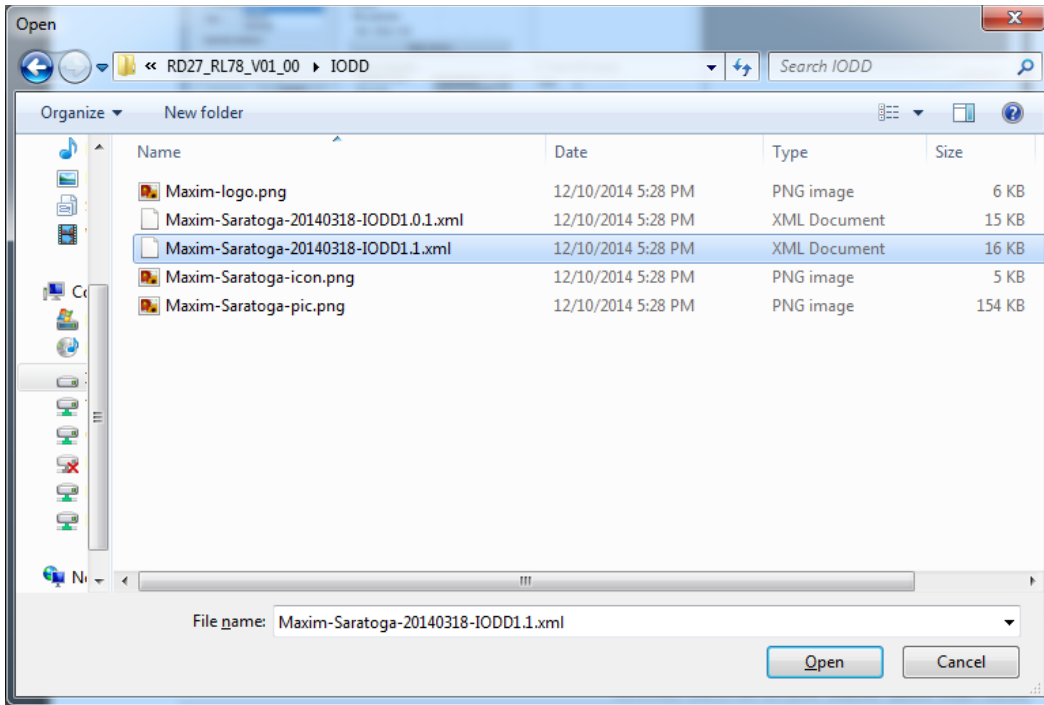


Figure 8. Sensor IODD file (\*1.1.xml).

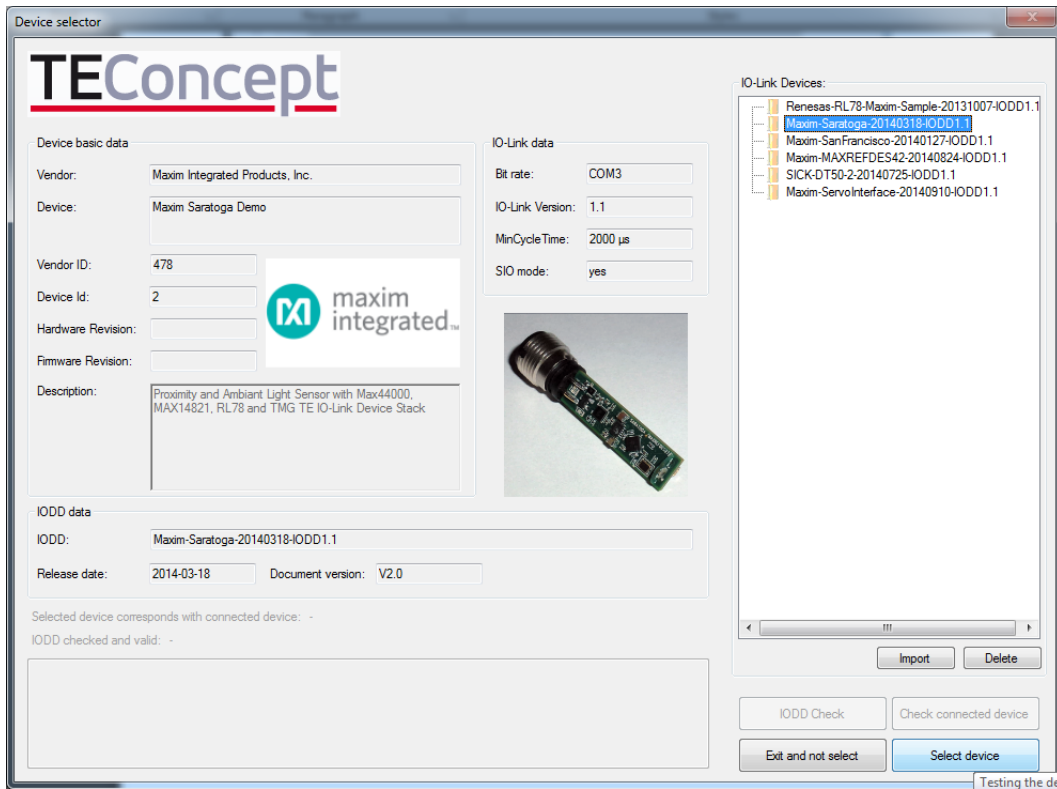
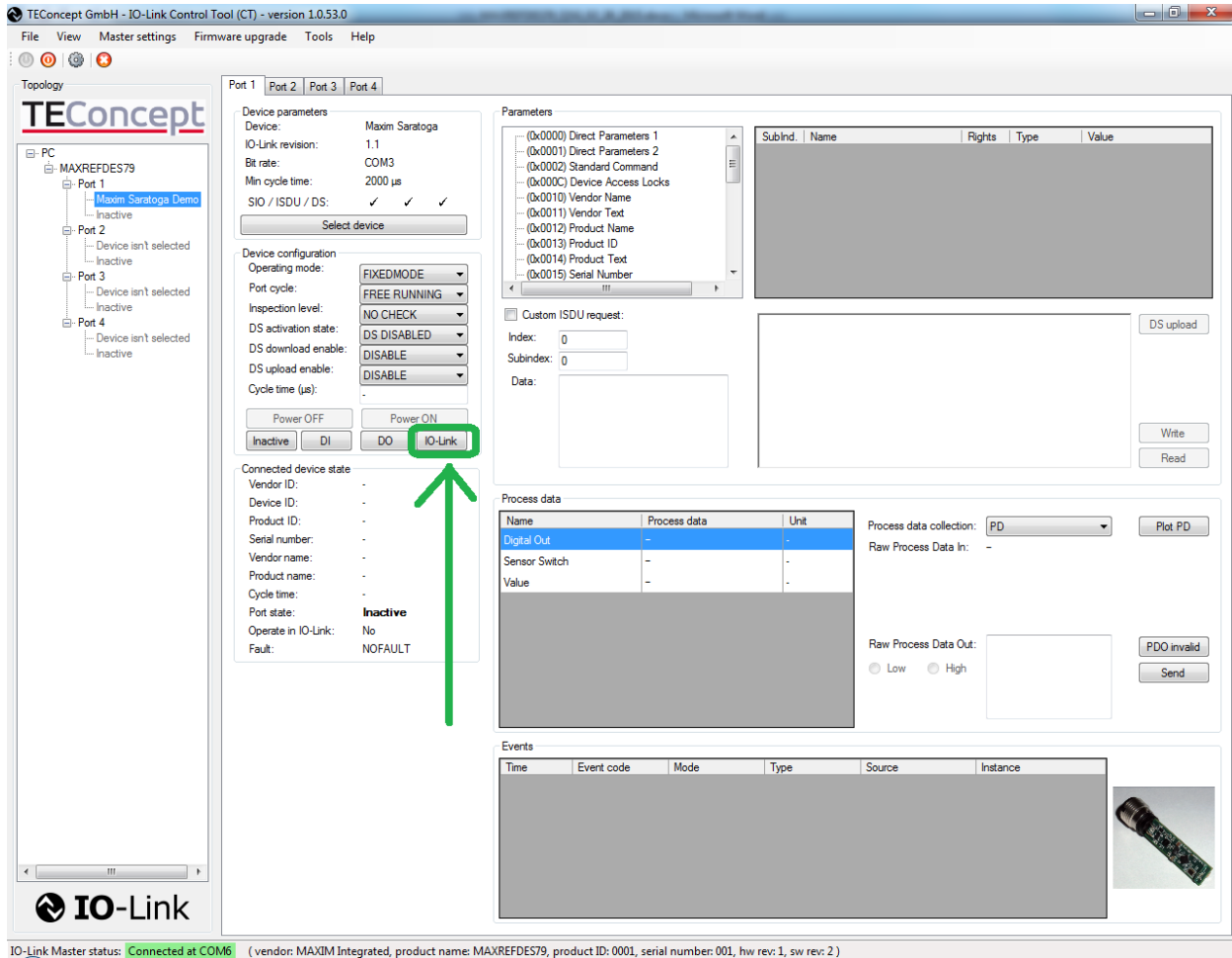


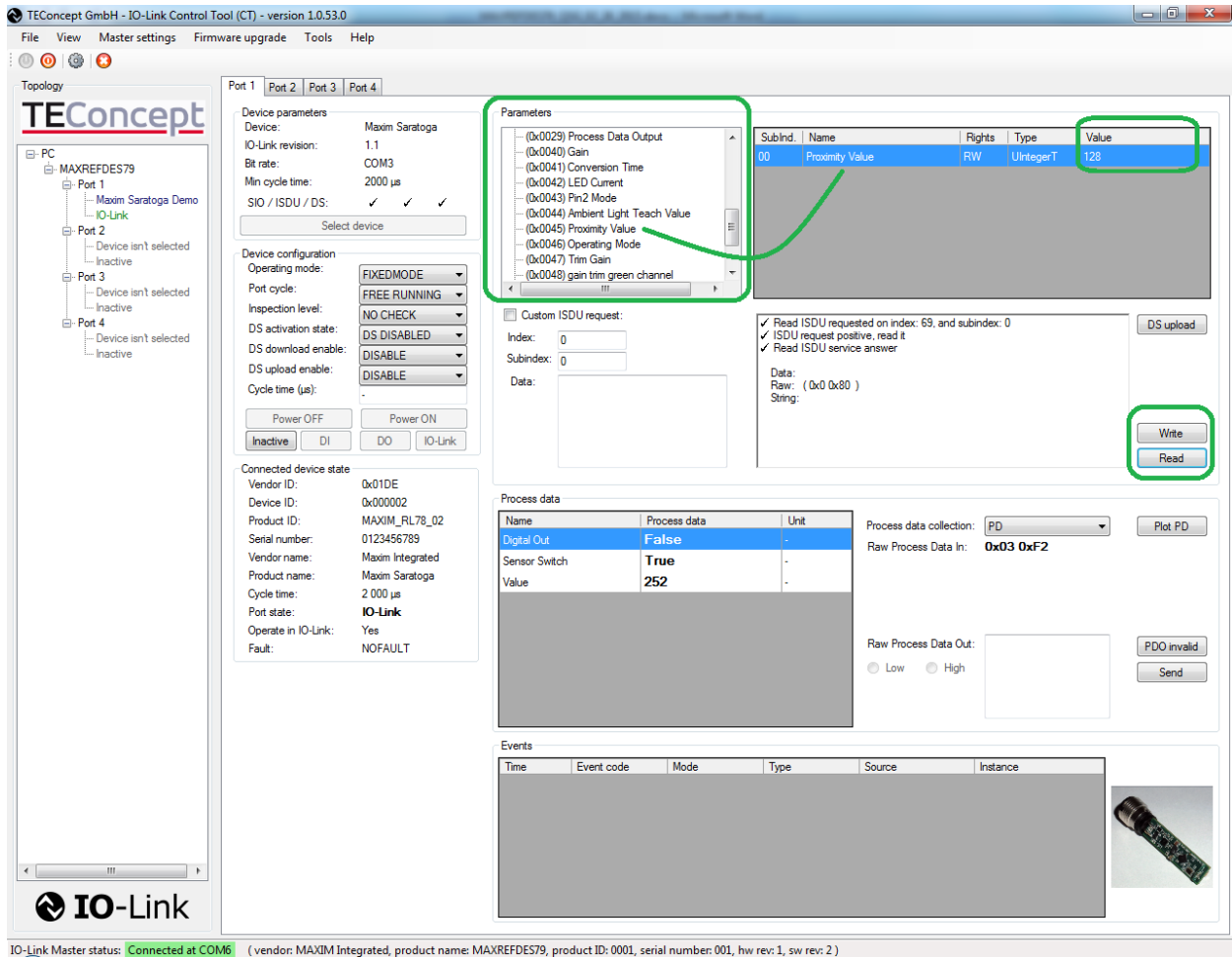
Figure 9. Press the Select device button when imported IODD files are highlighted.

11. 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 10](#).



**Figure 10. IO-Link button becomes active once an IODD is assigned to a port and the MAXREFDES79# is connected to the PC.**

12. Read and write to parameters by selecting a parameter in the **Parameters** box and then use the **Read** button to read the parameter. The value gets displayed in the **Value** field circled in [Figure 11](#). Also, when writing to a parameter, first edit the value in the **Value** field using the mouse/keyboard and then press the **Write** button. Verify by pressing the **Read** button. See [Figure 11](#).

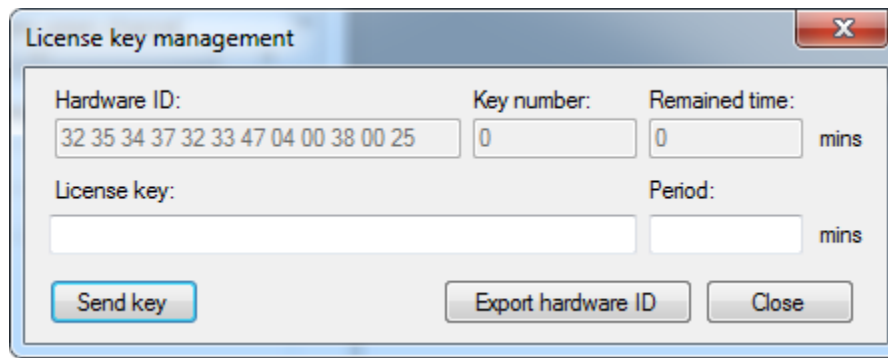


**Figure 11. Read and write to parameters by using the Read and Write buttons.**

#### 4. Software License Keys

The **TEConcept** IO-Link master stack ships with a finite time license displayed by the **TEConcept CT** software. The MAXREFDES79# ships with more than 9000 minutes of use time. When the time in the **Remained time** field goes to 0 minutes, the Master switches off all the IO-Link ports and shows the error message: **LICENSEFAULT**.

A new infinite time license can be easily purchased from TEConcept GmbH for less than a quarter of the price of the MAXREFDES79# by providing them a valid **Hardware ID** and **Key number**. Press the **Export hardware ID** button located in the **License key management** window. Provide the **hardwareID.txt** file when requesting the infinite time license from TEConcept GmbH. Contact info for TEConcept GmbH is provided below.



**Figure 12. License key management window.**

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<http://www.teconcept.de/Contact.php>

**Figure 13. TEConcept GmbH contact information.**

## **5. Trademarks**

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

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

**6. Revision History**

<b>REVISION NUMBER</b>	<b>REVISION DATE</b>	<b>DESCRIPTION</b>	<b>PAGES CHANGED</b>
0	3/15	Initial release	—

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