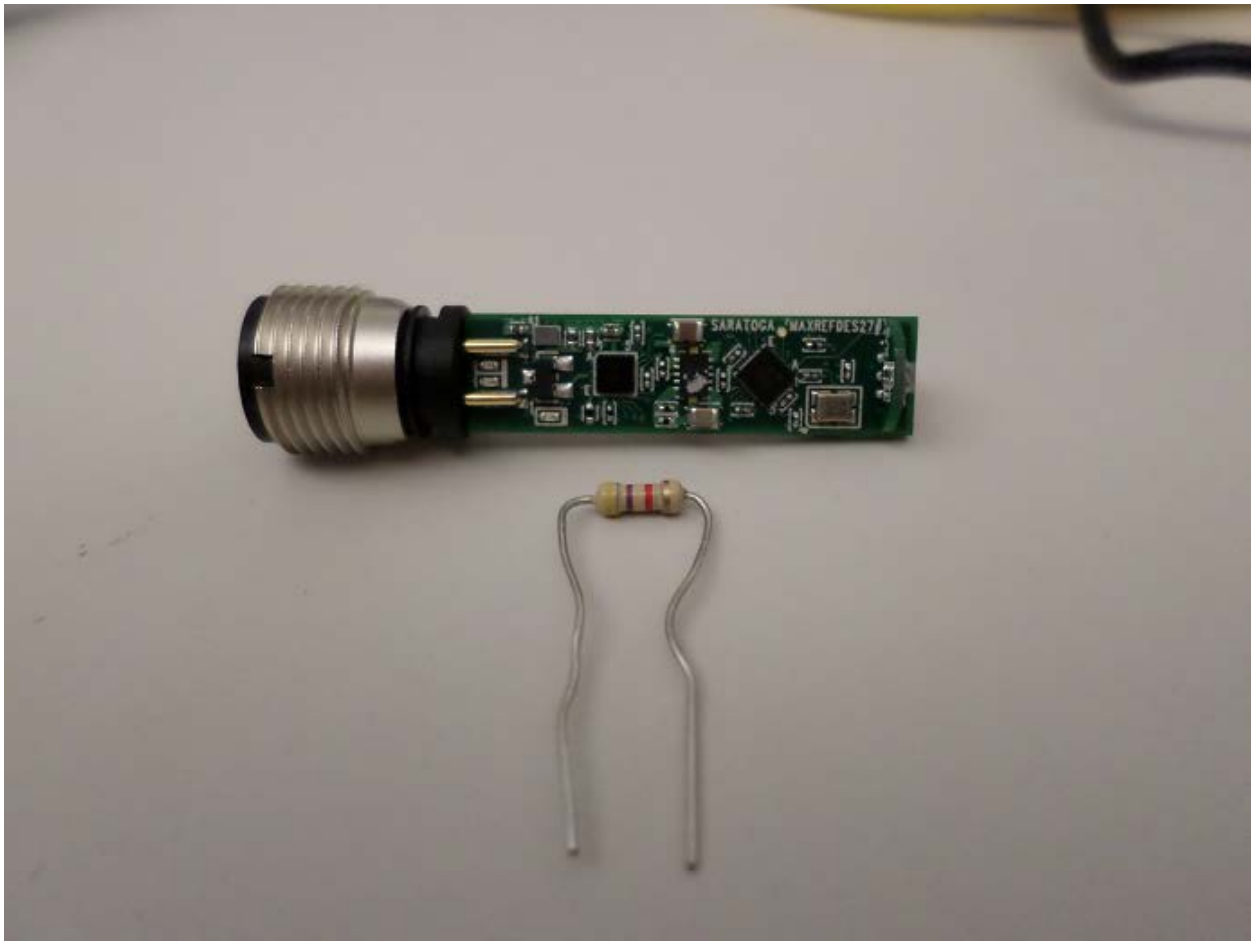
MAXREFDES27# IO-Link Proximity Sensor Quick Start Guide

Rev 0; 4/14



Maxim Integrated 160 Rio Robles, San Jose, CA 95134 USA 1-408-601-1000

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1. Required Equipment

- PC with Windows® 7 (*Verify with Balluff that your version of Windows is supported before purchasing their software.*)
- Saratoga (MAXREFDES27#) board
- One Balluff USB IO-Link® master (silver box) with corresponding USB and power cables (This must be purchased separately.)
- Balluff IO-Link Device Tool (tested with version 2.11.1 and comes with the Balluff USB IO-Link master)
- One IO-Link cable (yellow) (This must be purchased separately.)
- RD27_RL78_V01_XX.ZIP (Maxim-Saratoga-20140318-IODD1.0.1.xml), where XX = minor version

2. Overview

Below is a high-level overview of the steps required to quickly get the Saratoga design running by connecting it to the Balluff USB IO-Link master and Balluff software. Detailed instructions for each step are provided in the following pages. **The Saratoga (MAXREFDES27#) subsystem reference design will be referred to as Saratoga throughout this document.**

1) Connect the A-to-B Type USB cable from the PC and yellow IO-Link cable to the Balluff USB IO-Link master (silver box with part number BNI USB-901-000-A501) as shown in Figure 1.
2) Connect the MAXREFDES27# proximity sensor board to the other side of the yellow IO-Link cable. Make sure the green LED is lit as shown in Figure 2. The red and yellow LEDs do not need to be lit.
3) Download the latest “all design files” **RD27V01_XX.ZIP** file located at the Saratoga page.
4) Extract the **RD27V01_XX.ZIP** file to a directory on your PC.
5) Install the Balluff IO-Link Device Tool.
6) Add the Saratoga proximity sensor as a device into the Balluff IO-Link Device Tool.
7) Connect to the Saratoga by pressing the online connection button.

Figure 1. MAXREFDES27# Board Connected to a Balluff USB IO-Link Master

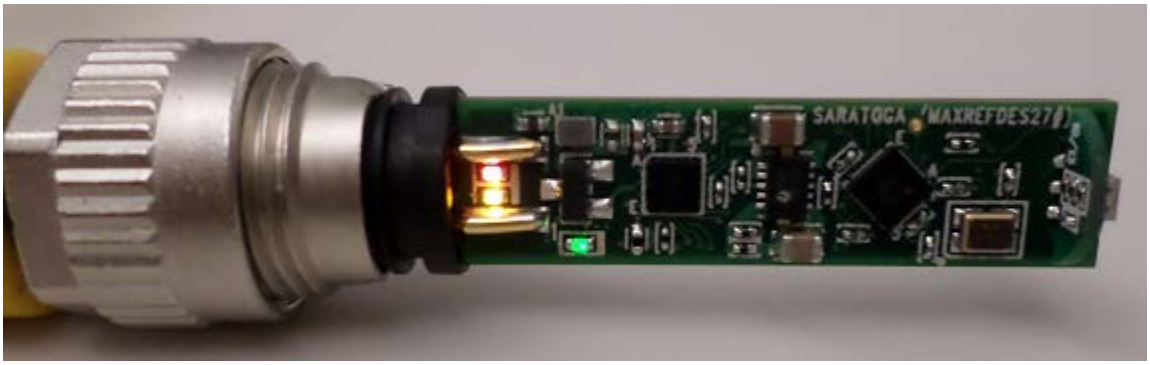


Figure 2. Green LED Is Lit

3. Included Files

The **RD27_RL78_V01_XX.ZIP** contains the corresponding IO-Link Device Descriptor (IODD) files. The IODD contains information on communication properties, device parameters, identification, process, and diagnostic data. It includes an XML file, an image of the device, an icon image, and the manufacturer's logo. The IODD structure is the same for all devices of all manufacturers, and is always represented in the same way by the IODD interpreter tools.

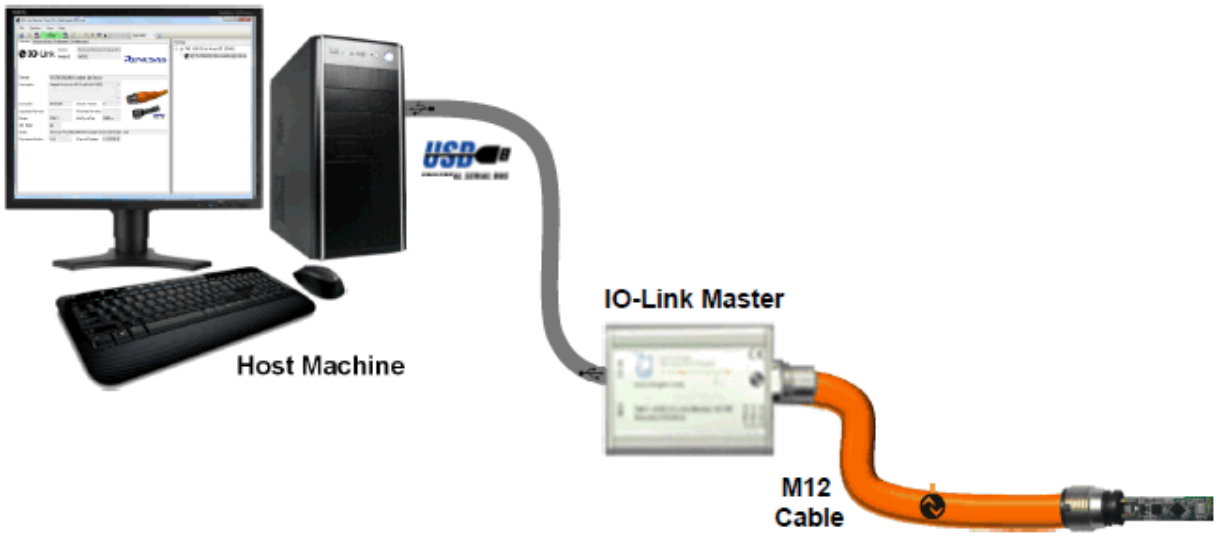


Figure 3. Block Diagram of System

4. Procedure

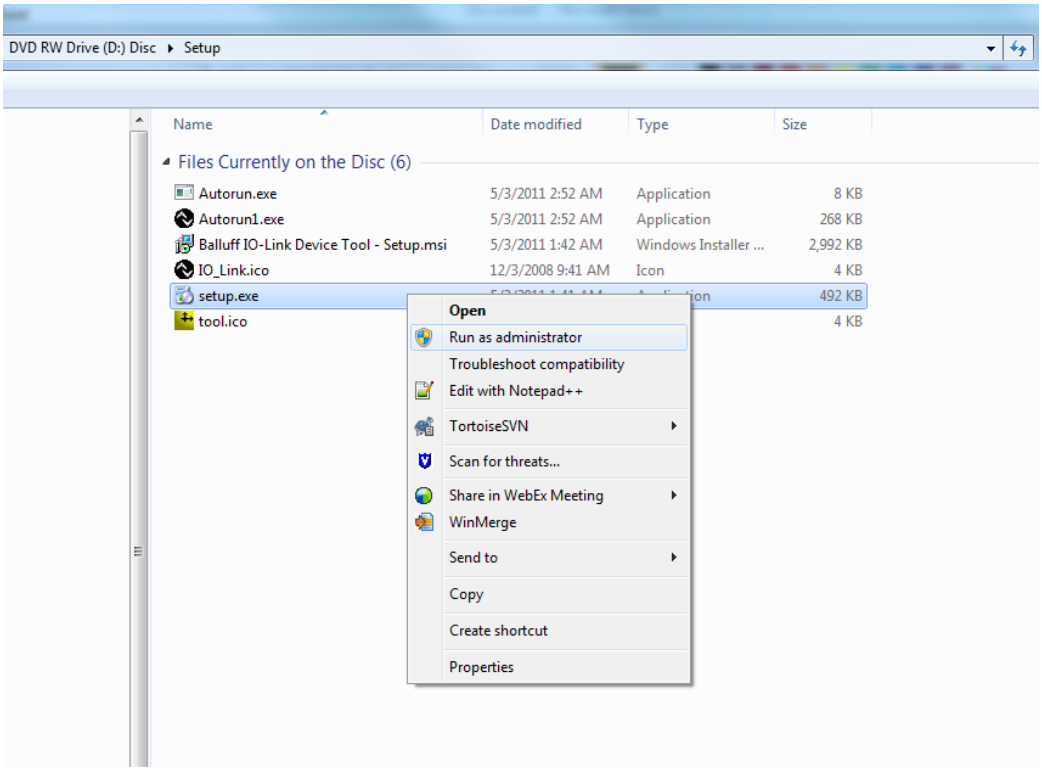
1. Connect the A-to-B Type USB cable from the PC and yellow IO-Link cable to the Balluff USB IO-Link master (silver box with part number BNI USB-901-000-A501) as shown in Figure 1.

2. Connect the MAXREFDES27# proximity sensor board to the other side of the yellow IO-Link cable. Make sure the green LED is lit as shown in Figure 2. The red and yellow LEDs do not need to be lit.

3. Download the latest "all design files" **RD27V01_XX.ZIP** file at **www.maximintegrated.com/AN5868.** All files available for download are available at the bottom of the page.

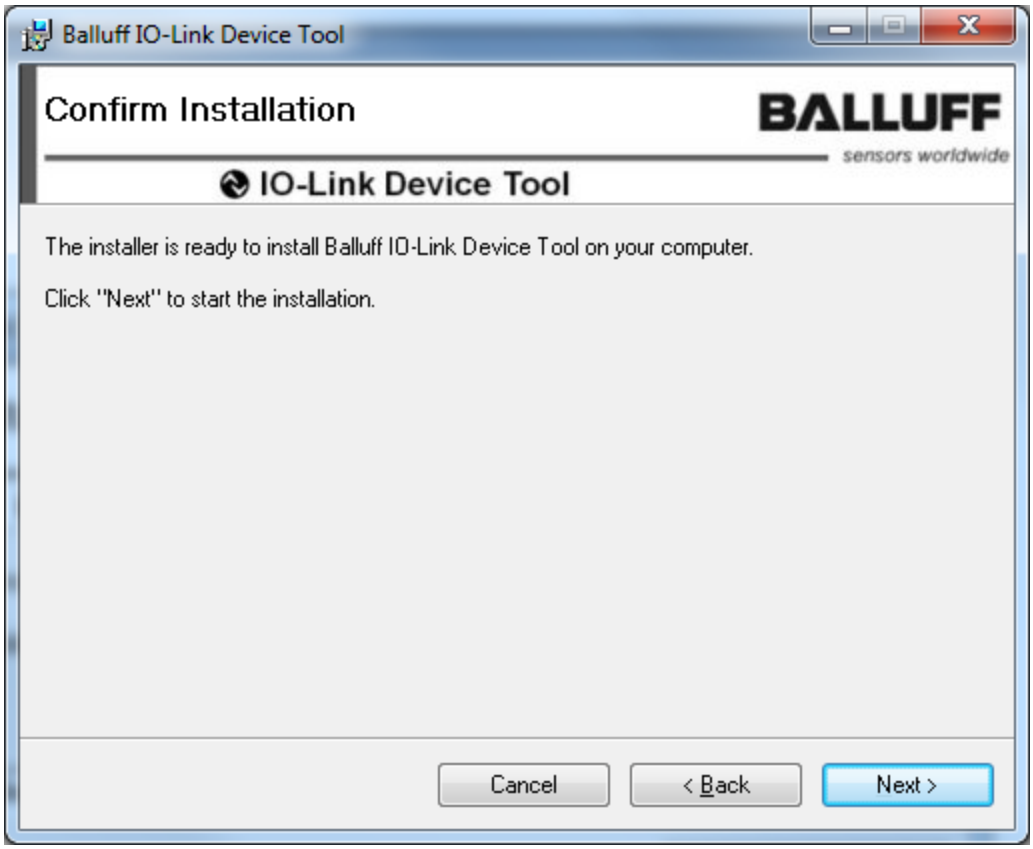
4. Extract the **RD27V01_XX.ZIP** file to a directory on your PC. The location is arbitrary but the maximum path length limitation in Windows (260 characters) should not be exceeded.

5. Install the Balluff IO-Link Device Tool. This tool comes with the purchase of the Balluff USB IO-Link master (silver box with part number BNI USB-901-000-A501). Run the **setup.exe** file using the **Run as administrator** mode.

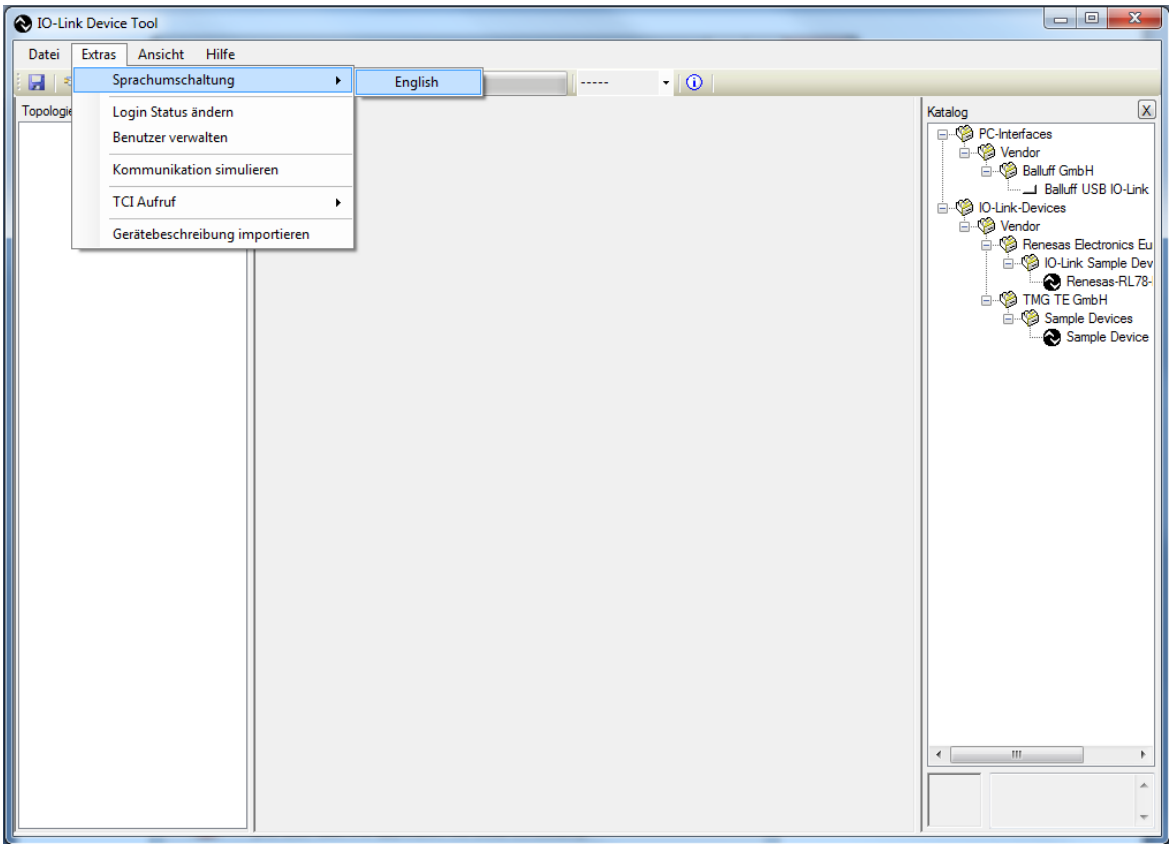


6. Choose the default installation folder and press the **Next** button.

7. Press the **Next** button.

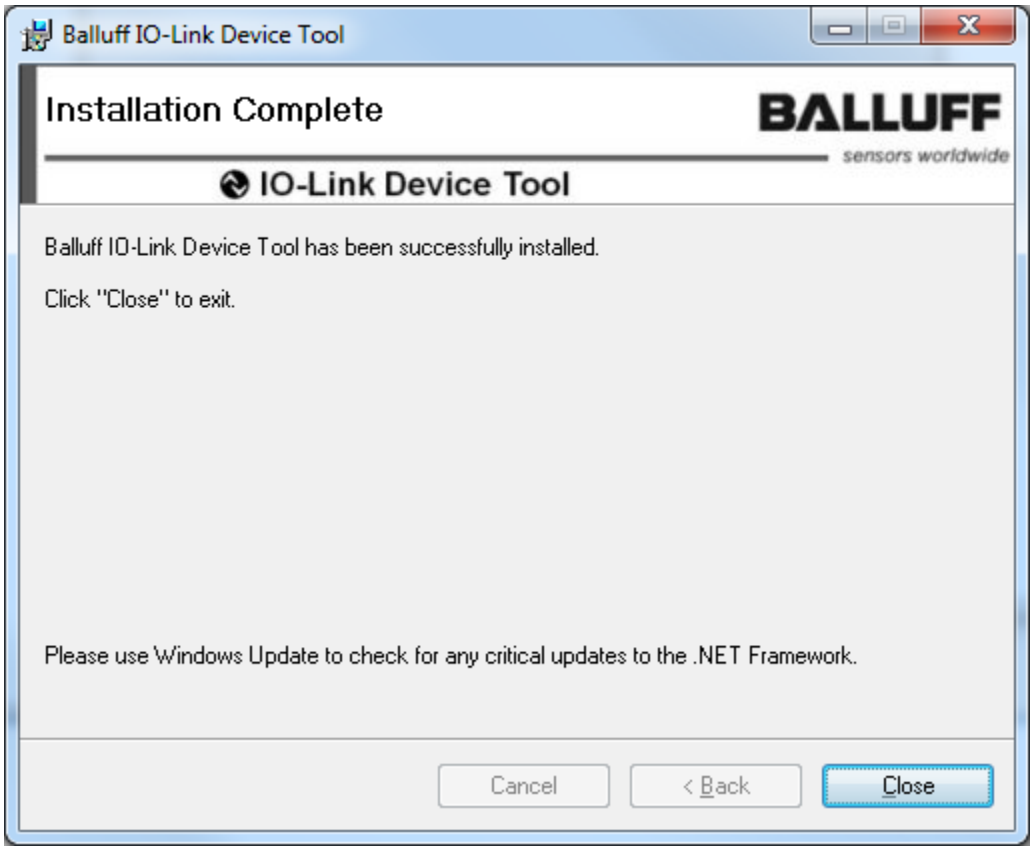


8. Change the language to English if applicable.



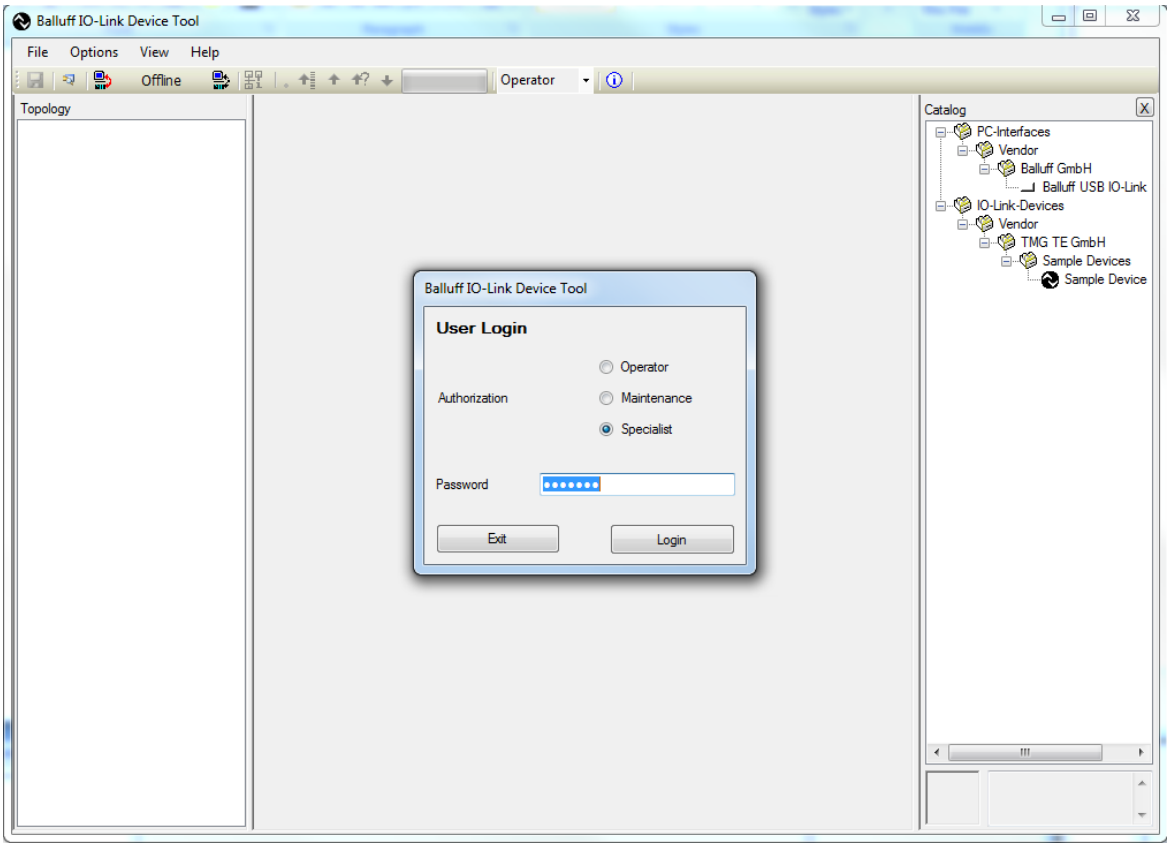
9. Close the program by clicking the **X** in the top right corner.

10. Press the **Close** button to complete the installation.

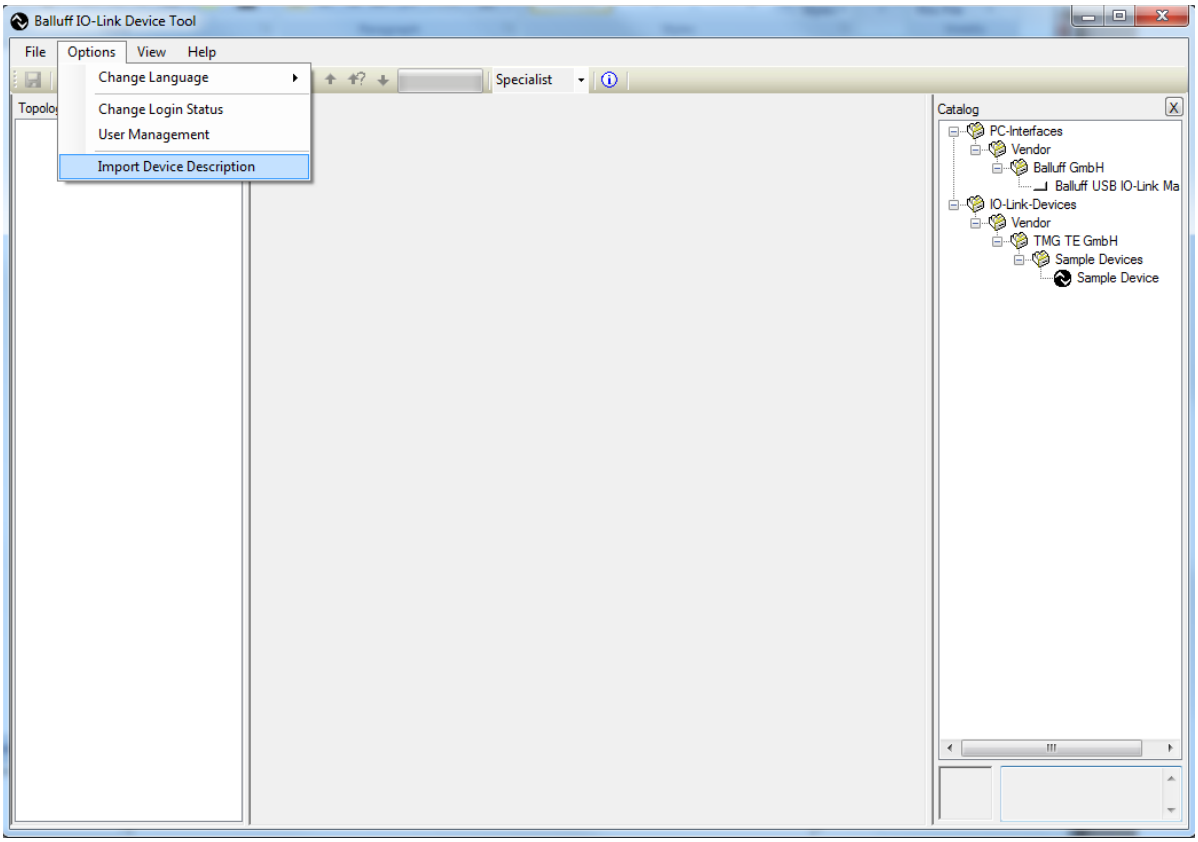


11. Verify the version of the IO-Link Device Tool. In this case, version 2.1.11 was used.

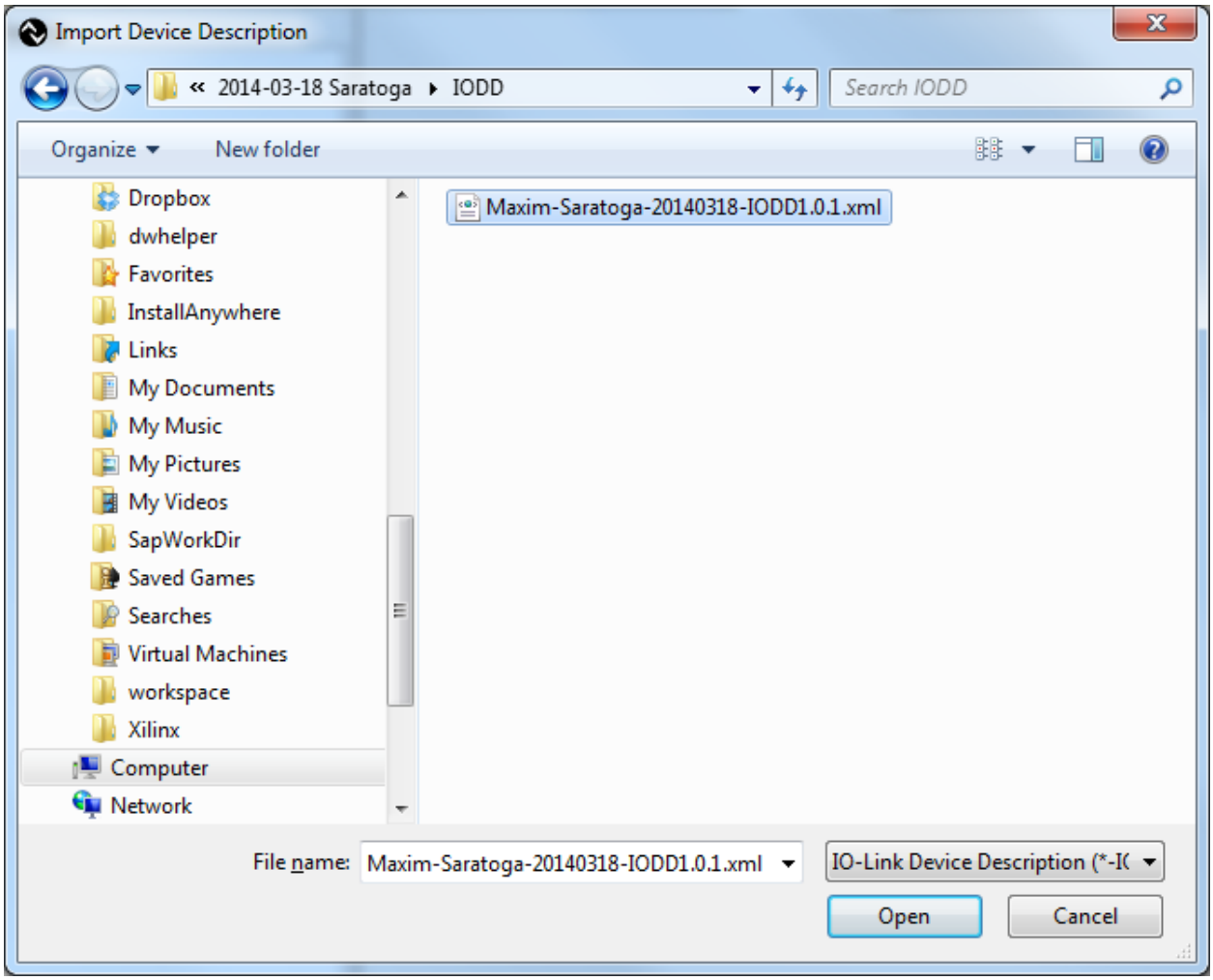
12. The **User Login** should be in **Specialist** mode. **Password** is **special**.



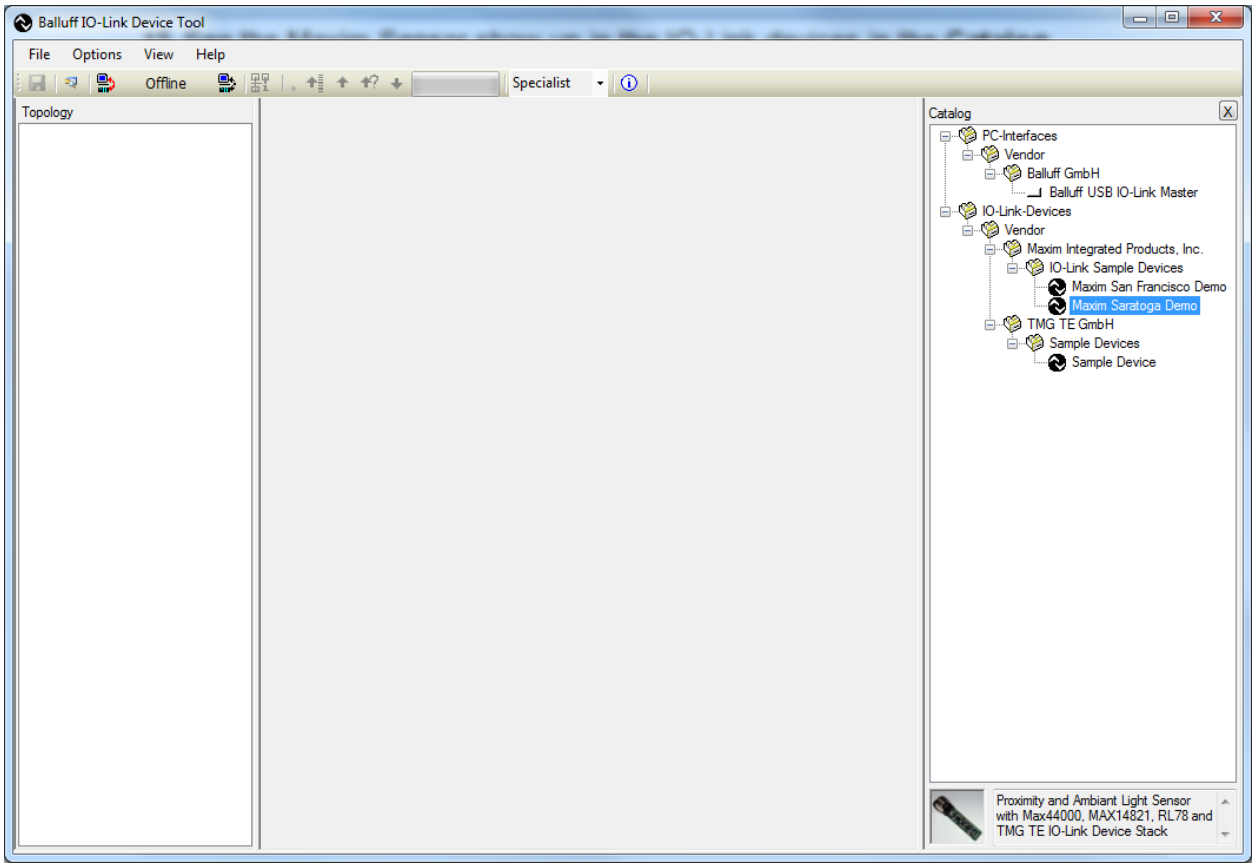
13. Import the IODD xml file for the Maxim sensor. In this case, the file is **Maxim-Saratoga-20140318-IODD1.0.1.xml** and can be located in the **RD27_RL78_V01_00.ZIP** file.



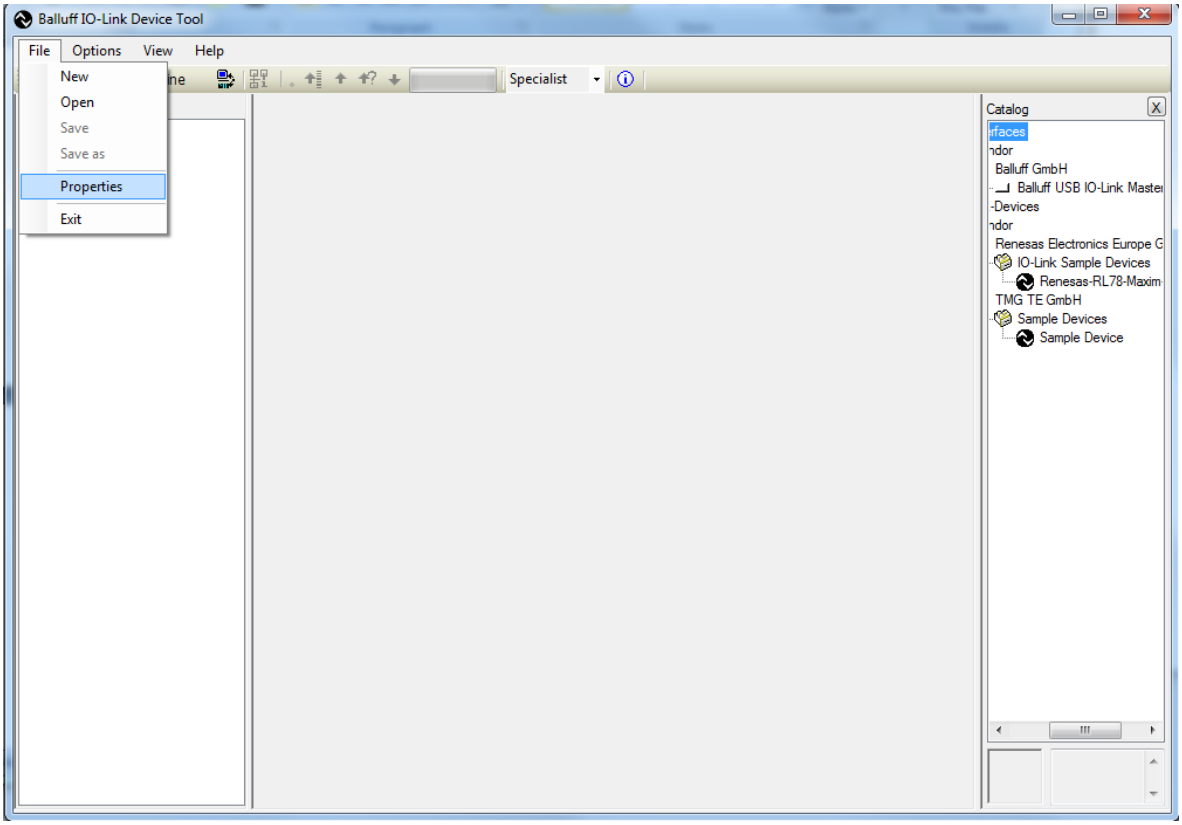
14. In this case, this is the IODD file shown below, but may be a different .xml file if a different Maxim sensor is used.



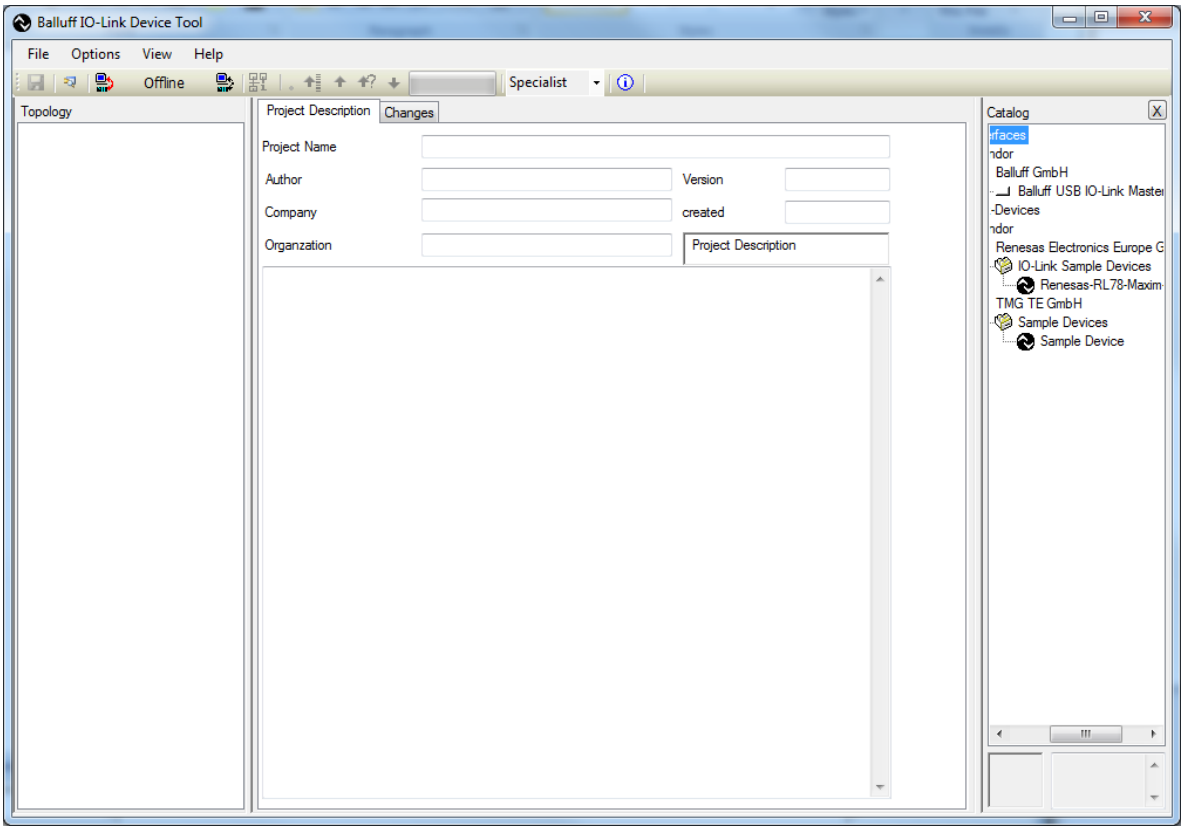
15. See the Maxim Sensor show up in the IO-Link devices in the **Catalog** window.



16. Select **File | Properties**.

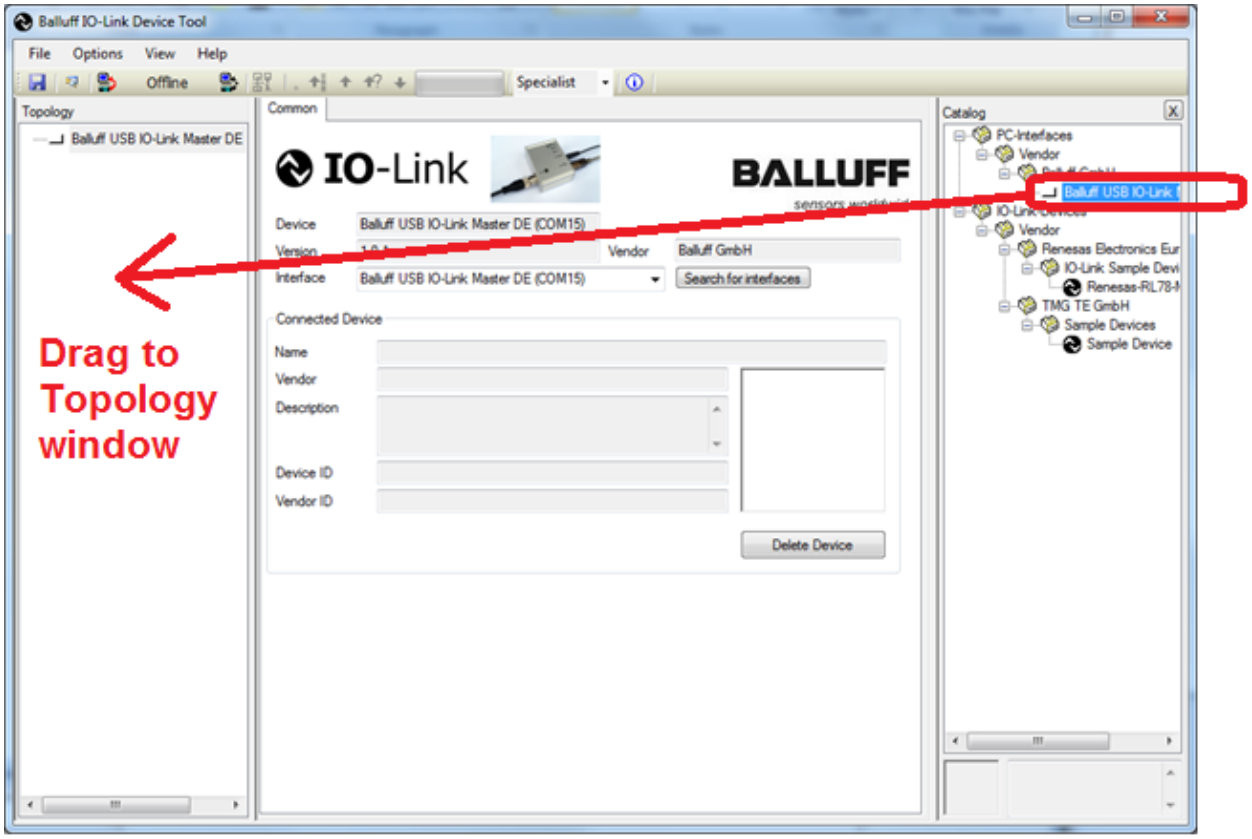


17. After **Properties** is selected, the screen looks like the below screenshot.

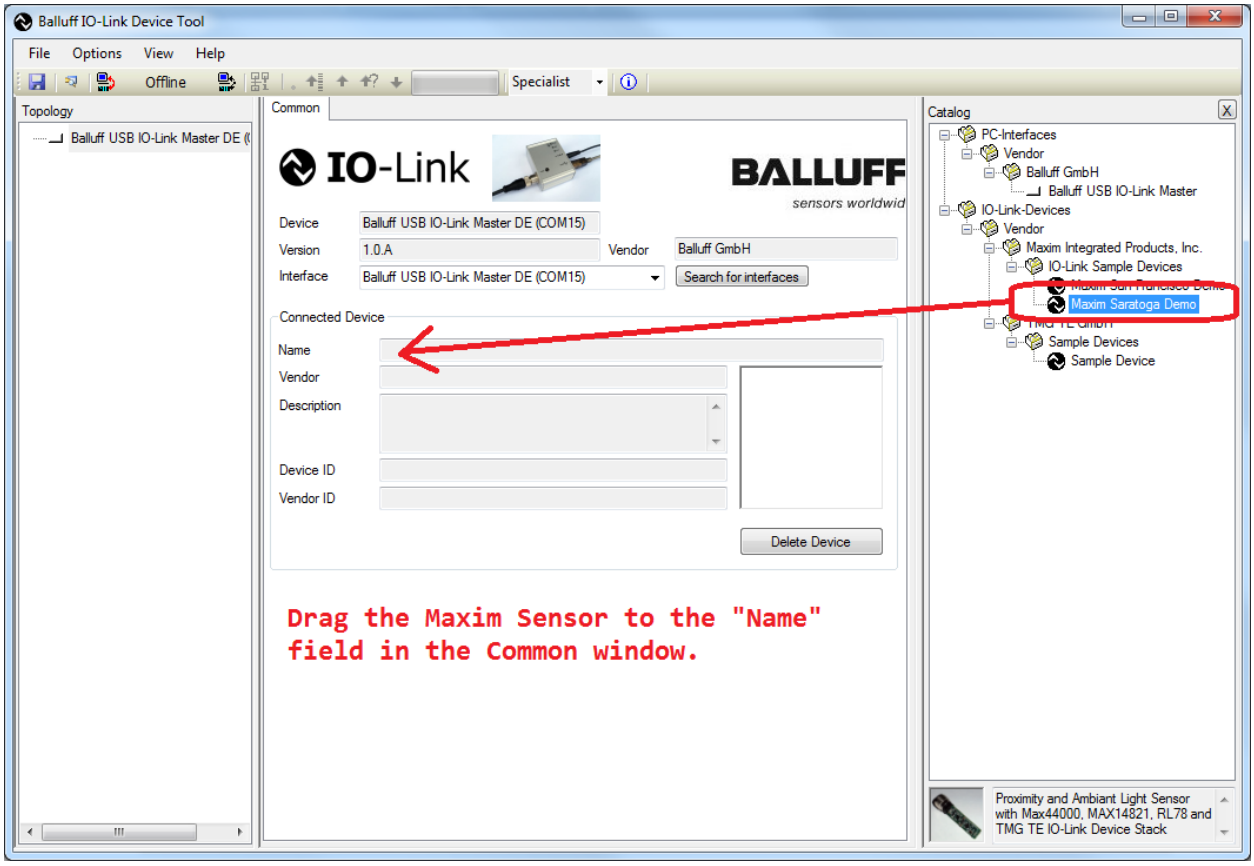


18. Verify that the USB cable is plugged into the silver USB IO-Link Master box.

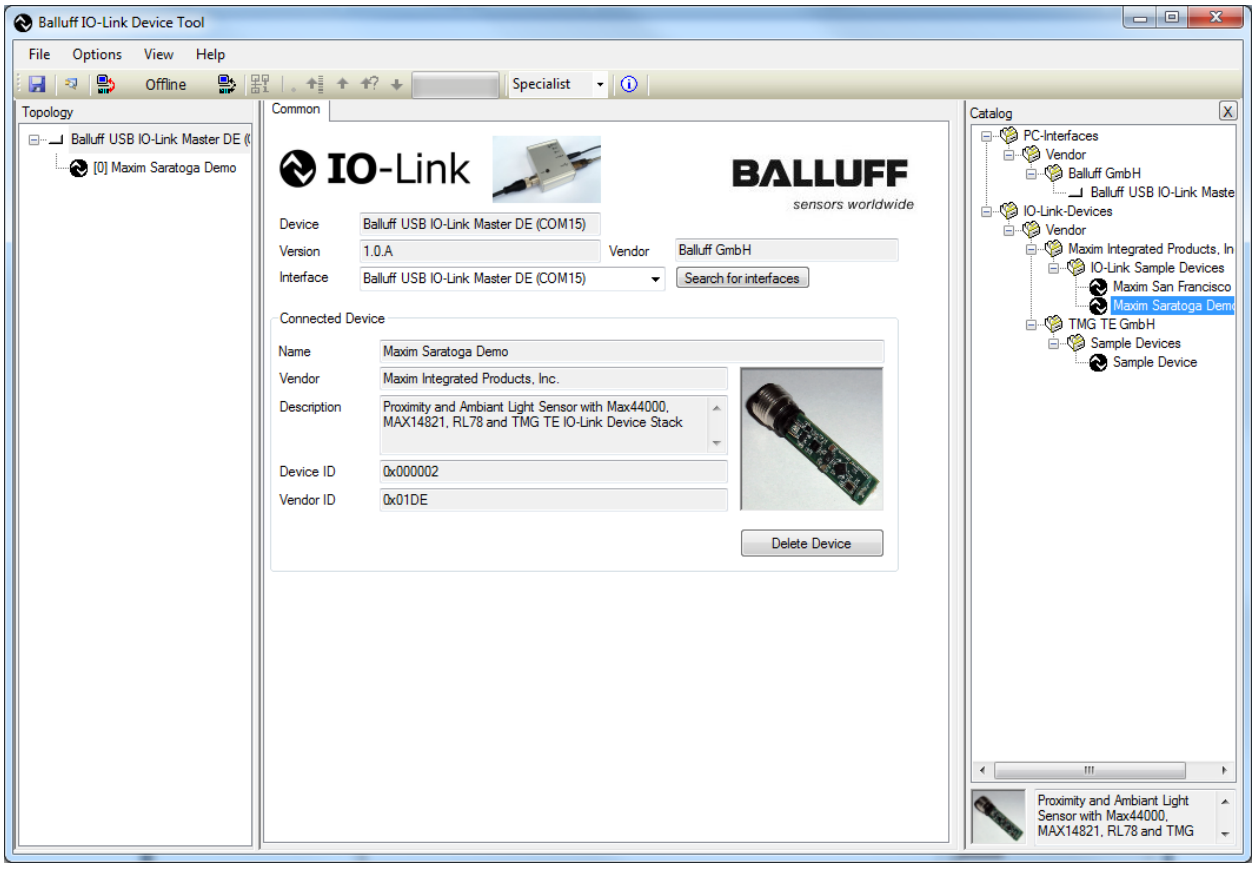
19. Drag the **Balluff USB IO-Link Master** to the **Topology** window.



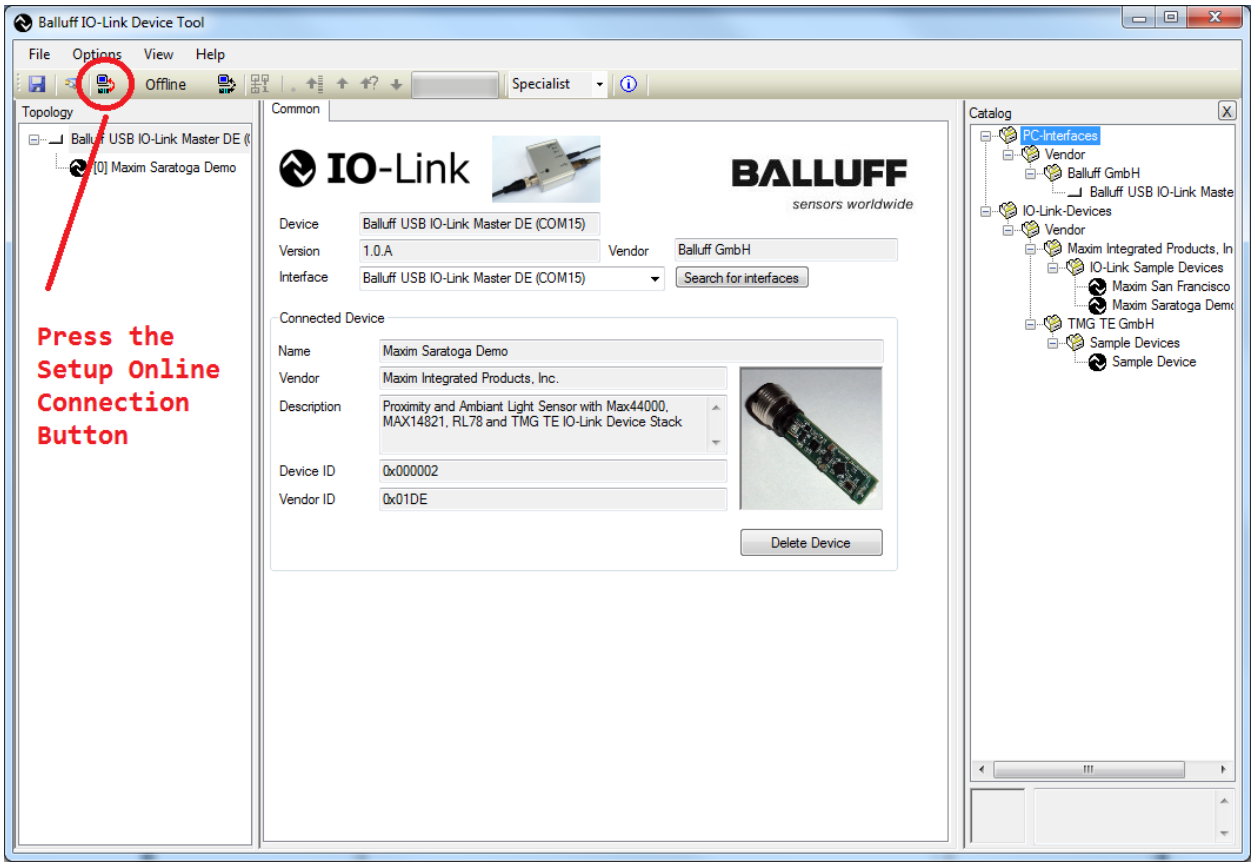
20. Drag the Maxim sensor to the **Name** field in the **Common** window.



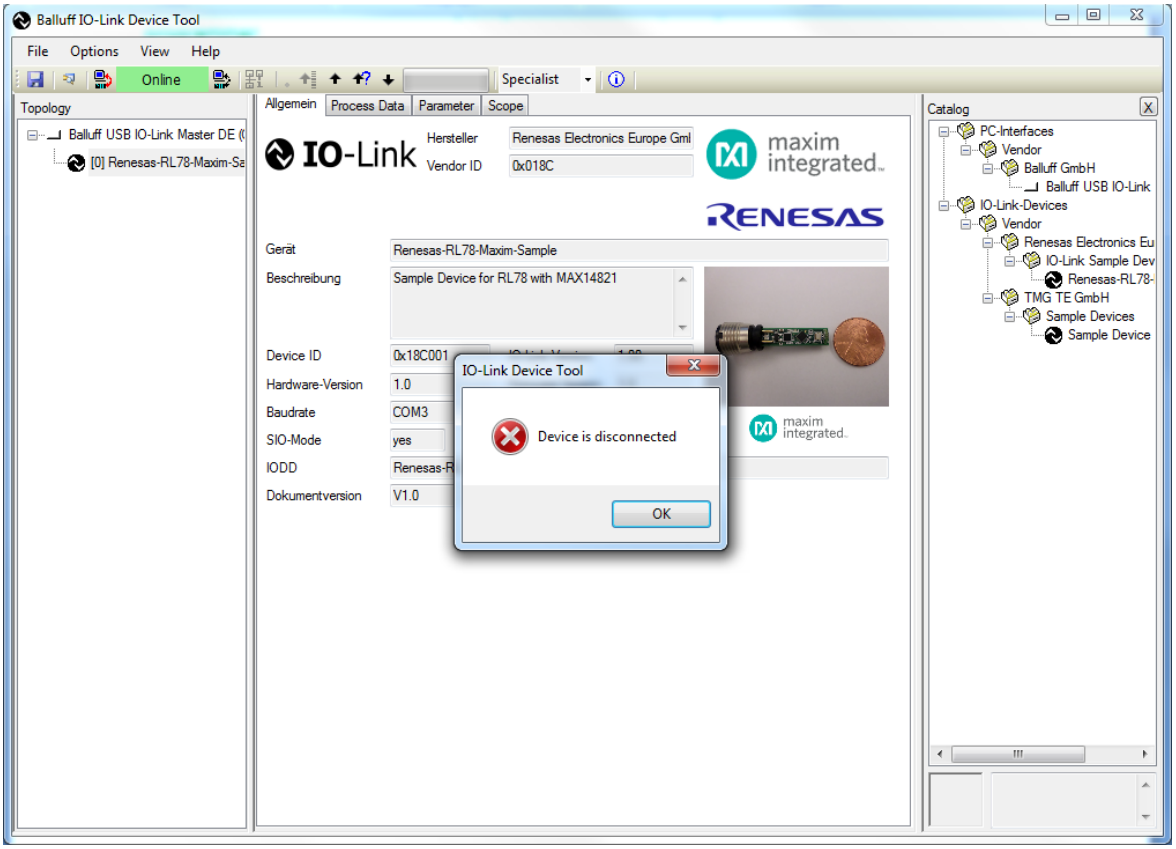
21. Verify a picture of the sensor shows up with the name **Maxim Saratoga Demo**.



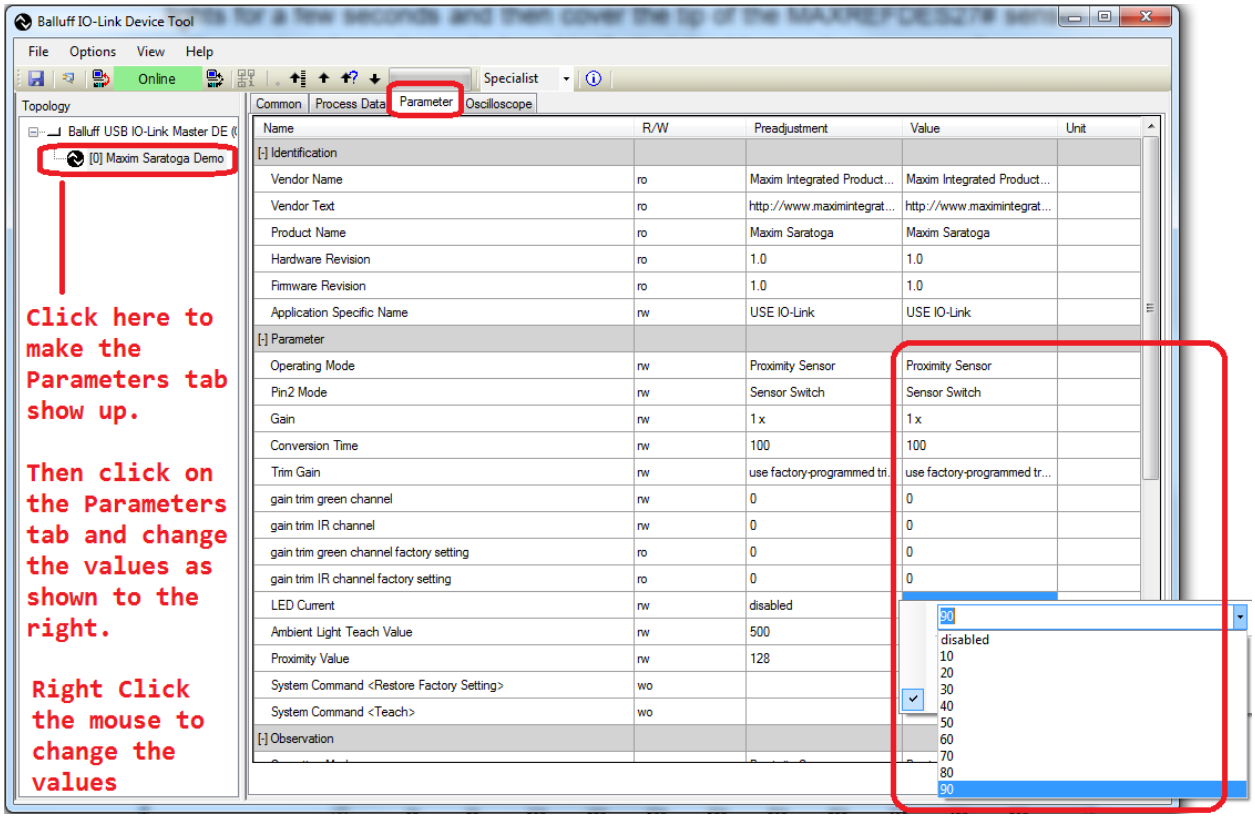
22. Press the **Connect** button on the Balluff IO-Link Device Tool software.



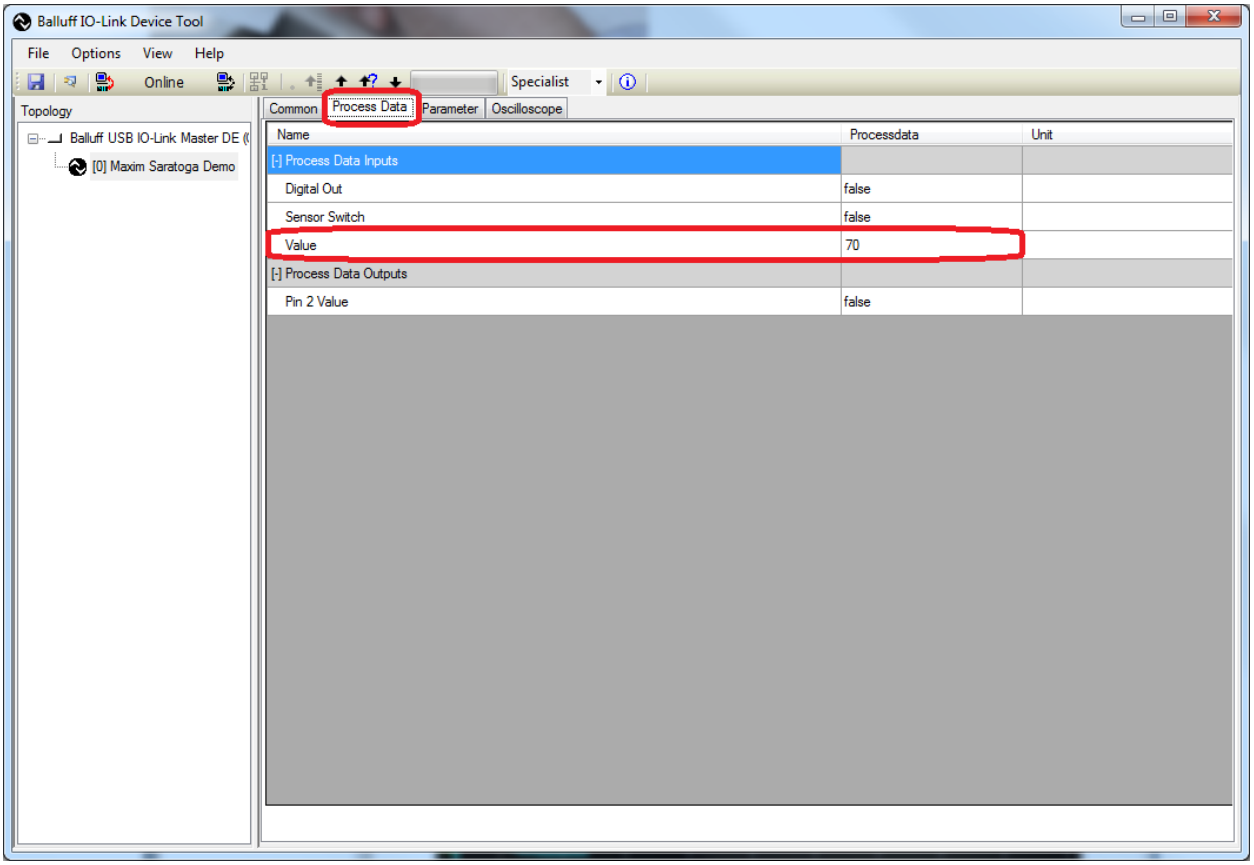
23. If your sensor has a problem or is unconnected, you will see the below figure.

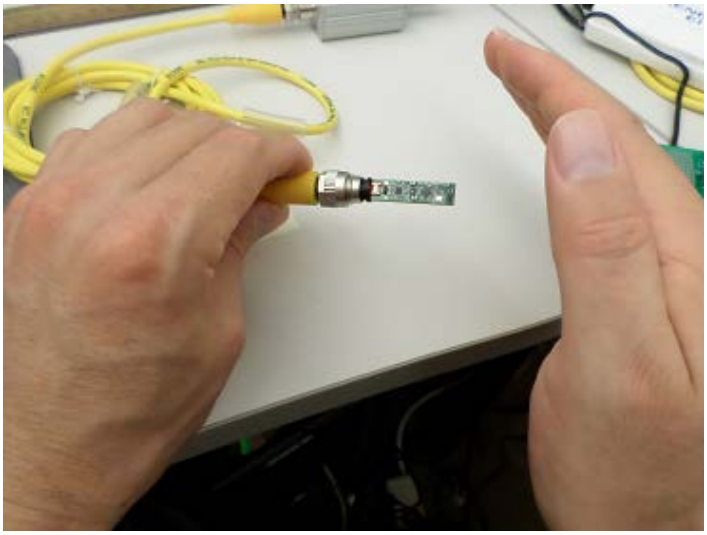


24. If you see the green **Online** indication on the software, the sensor has connected. Click on the Maxim sensor device icon to make the **Parameter** tab show up. Change the values as shown in the figure below by right-clicking with the mouse.

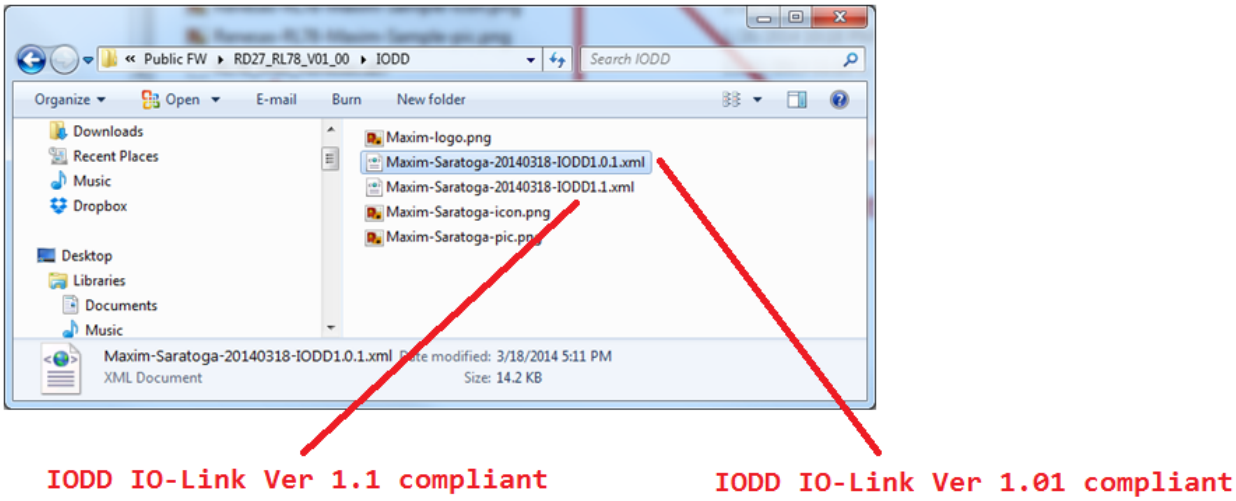


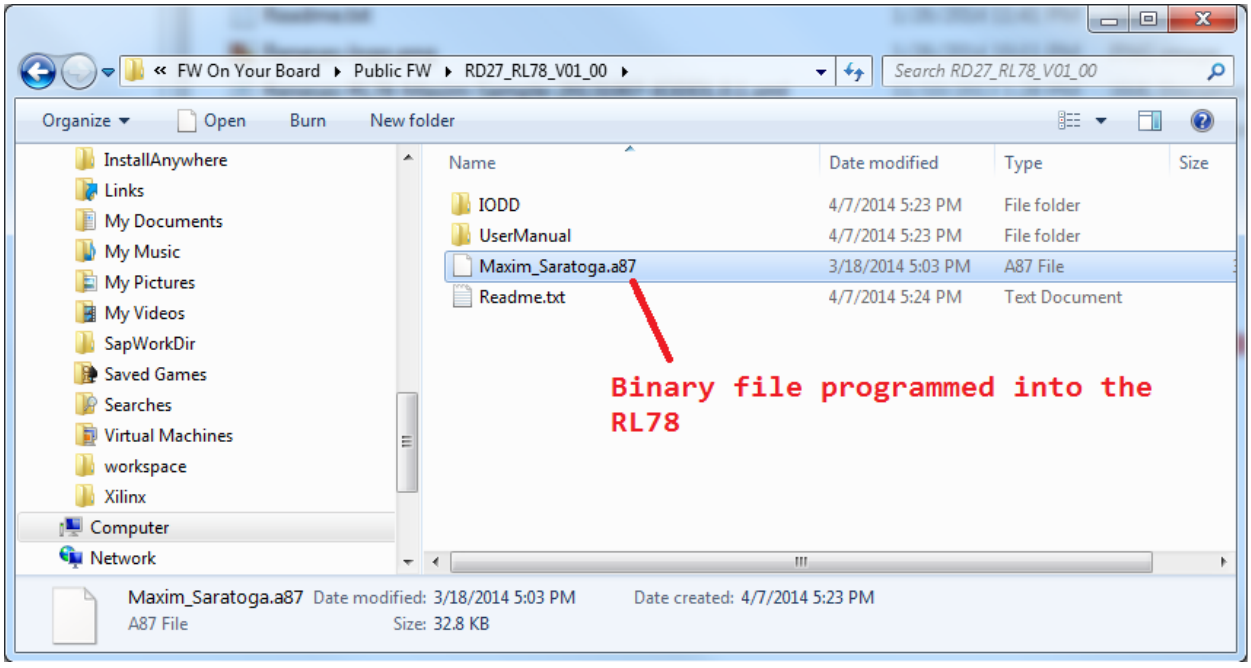
25. Click on the **Process Data** tab and vary your hand approximately 20mm to 150mm from the tip of the proximity sensor to see the changing value.





5. Appendix A: Project Structure and Key Filenames





6. Trademarks

IO-Link is a registered trademark of ifm electronic GmbH.
Windows is a registered trademark and registered service mark of Microsoft Corp.

7. Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	4/14	Initial release	—

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