



AWMF-0247
Developer Kit User Guide

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		Issue Date	12/02/25
		Revision	1.0
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Revision	Date	By	Description of Change
1.0	12/02/25	AMS	Initial version

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2 IMPORTANT READ THIS SECTION FIRST

2.1 Power Up Instructions

Prior to powering up the evaluation board it is critical that you review and carefully follow the procedure outlined in:

5 Power Up Procedure

Failure to follow this procedure can result in damage to the device

2.2 Supported Devices

The control software supports the AWMF0247 beamformer IC.

3 SOFTWARE INSTALLATION

In order to control the evaluation board, two software installation steps are required. The first step is to install the necessary support software for the FTDI USB-SPI controller as described in 3.1. The second step is to install the Qorvo software specific to the evaluation board to provide the control user interface, as described in 3.3.

3.1 FTDI USB-SPI Installation

This section describes the software installation process for the FTDI USB-SPI controller. The software should be downloaded via the link provided in the AWMF0247-PK070 Quick Start Guide. The user should follow the installation steps detailed in Figure 1 to Figure 7. Note the USB-SPI controller should be connected to an available USB port upon successful installation of the driver software.

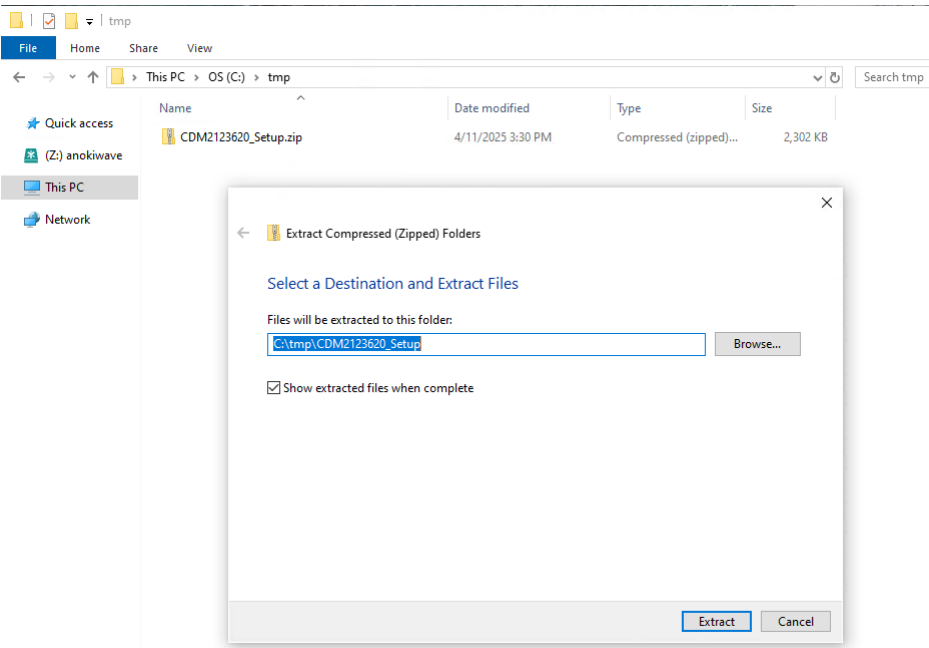


Figure 1: Copy CDM2123620_Setup.zip to a temporary folder. Double click to extract the files

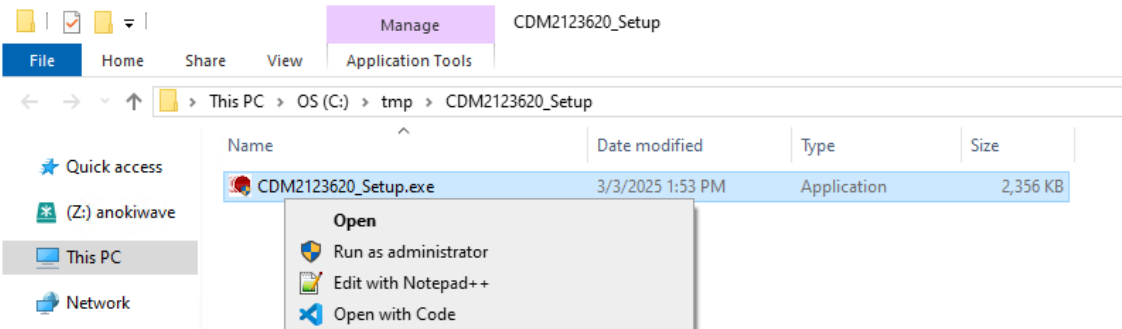


Figure 2: Right-click CDM2123620_Setup and Run As Administrator

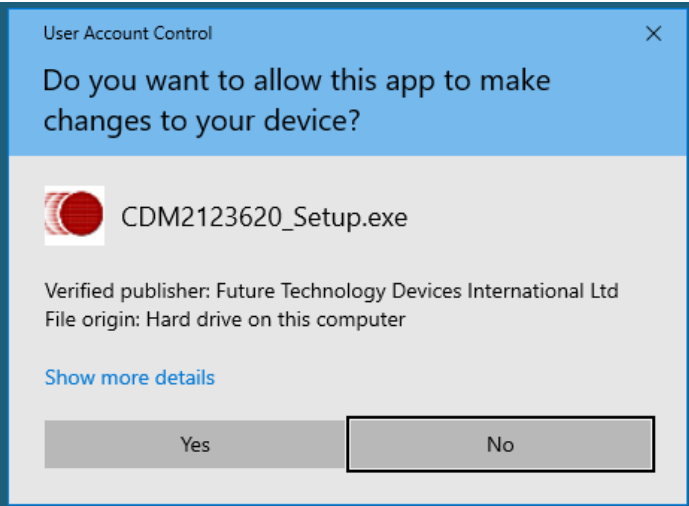


Figure 3: Select Yes to continue installation

Device Driver Installation Wizard

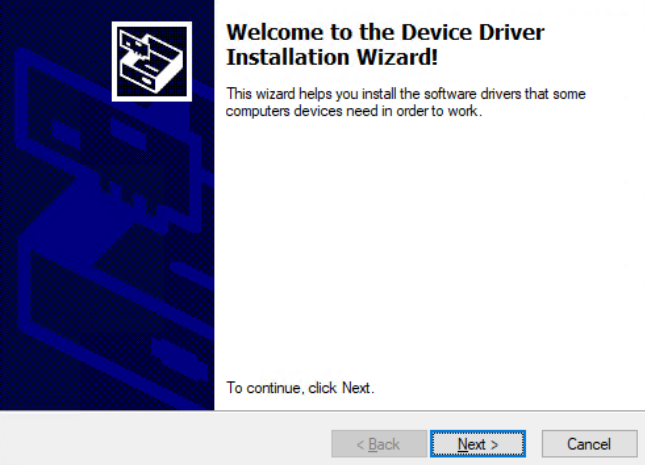


Figure 5: Select Next

Device Driver Installation Wizard

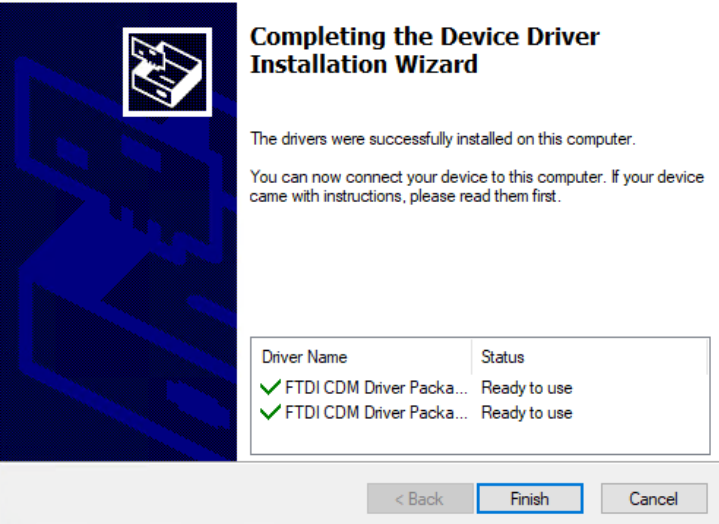


Figure 7: Select Finish

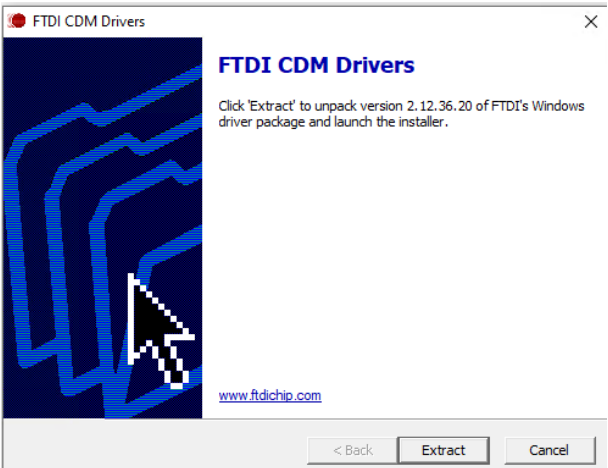


Figure 4: Select Extract

Device Driver Installation Wizard

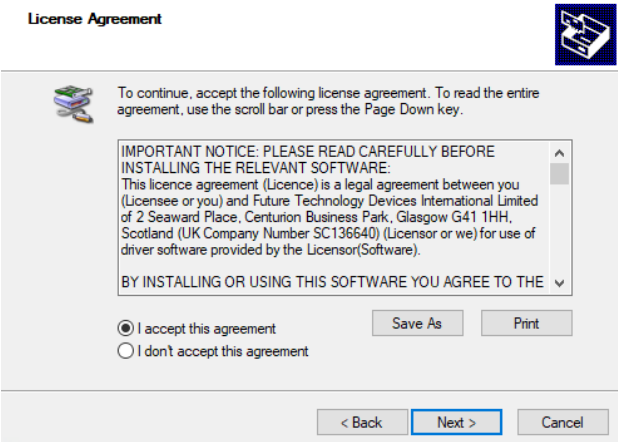


Figure 6: Accept agreement and select Next

3.2 Hardware Validation

Once the FTDI software installation has successfully completed, the PCB-10077 USB-SPI controller board should be plugged into the PC using an available USB port. Successful installation and configuration can be confirmed if the LED labelled DS1 is lit and that the USB Serial Converter A and USB Serial Converter B appear in the Device Manager as illustrated in Figure 8 and Figure 9, respectively.



Figure 8: USB-SPI Controller Board

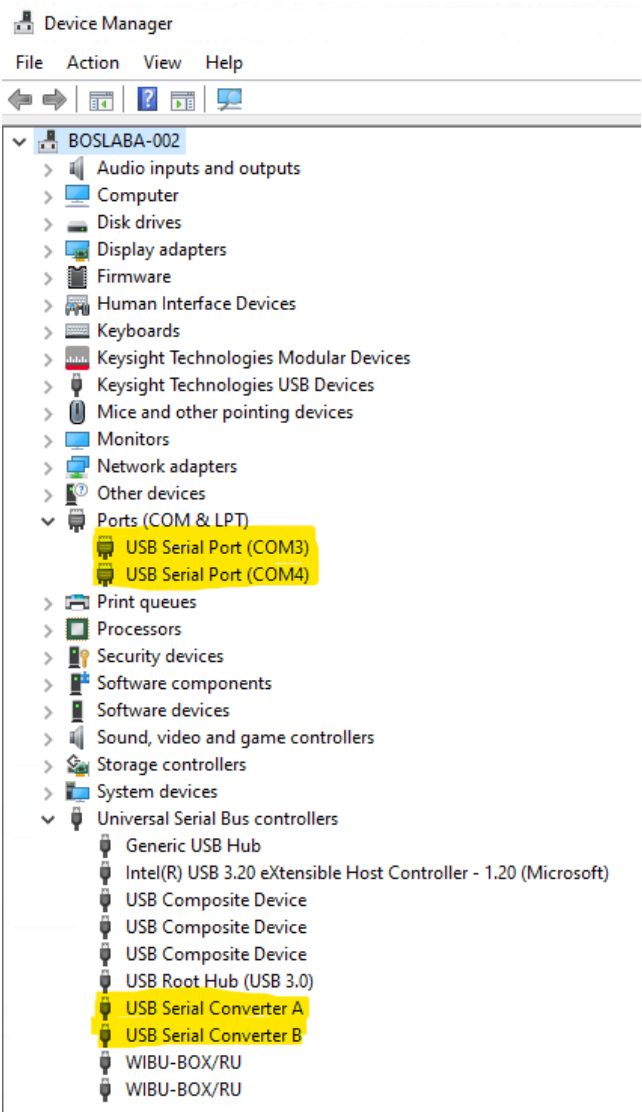


Figure 9: Confirm Devices Are Present in Device Manager

If the driver does not install successfully, please refer to AN396 FTDI Drivers Installation Guide for Windows 10/11 from FTDI Chip (<https://ftdichip.com/>).

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3.3 AWMF-0247 Control Software Installation

This section describes the steps necessary to install the Qorvo Developer Kit control software. The software should be downloaded via the link provided in the AWMF0247-PK070 Quick Start Guide. Follow the steps detailed in Figure 10 to Figure 16 to install the control software.

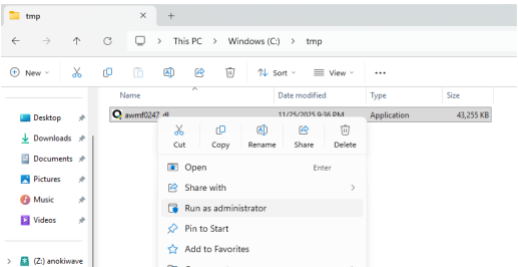


Figure 10: Download the Installer to a Temporary Folder and Run as Administrator

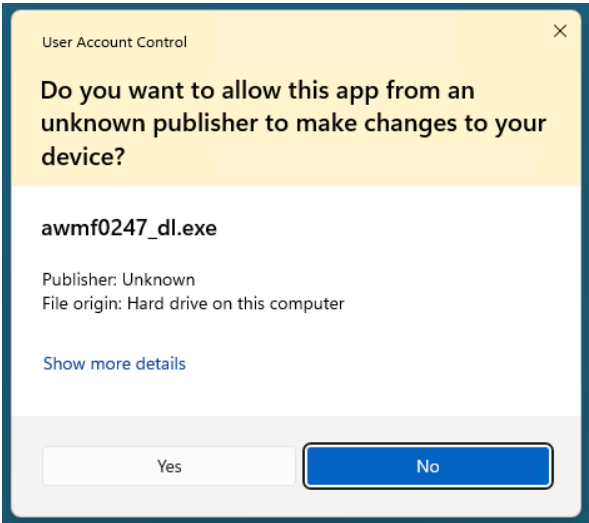


Figure 11: Select Yes and Continue

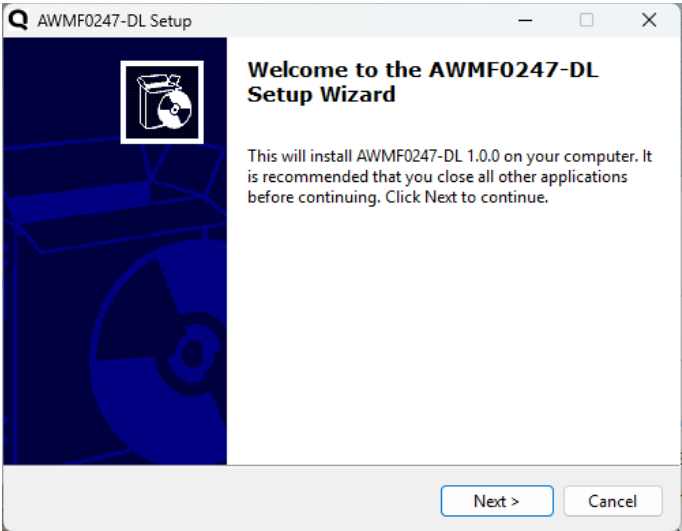


Figure 12: Select Next and Continue

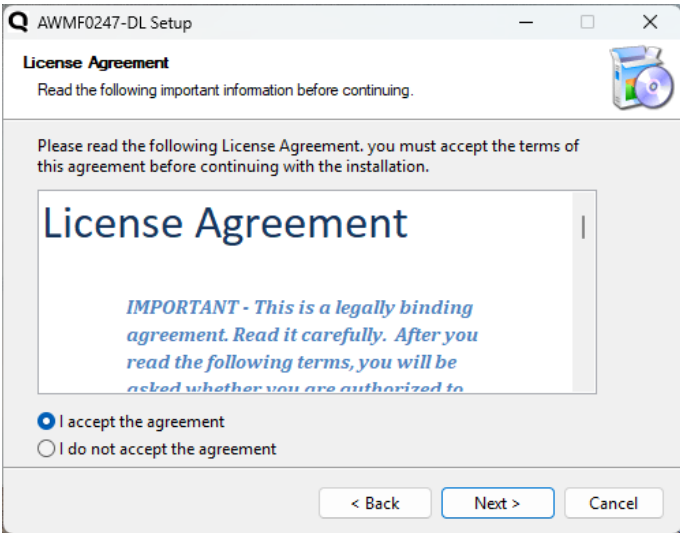


Figure 13: Accept License Agreement and Continue

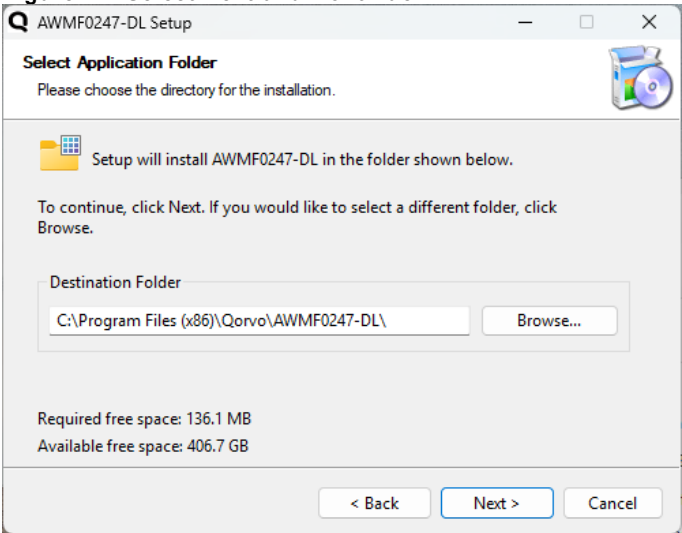


Figure 14: Select Folder for Software Installation

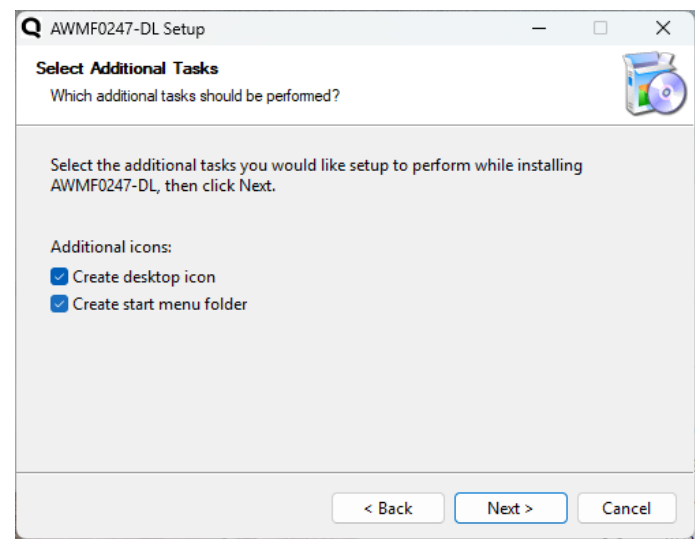


Figure 15: Create Shortcuts if Required

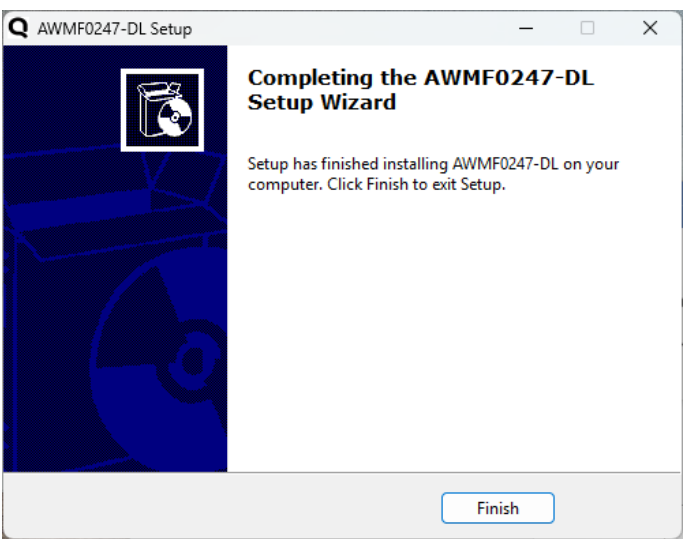


Figure 16: Complete Installation

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4 AWMF-0247 SOFTWARE OPERATION

The control software can be operated in ‘simulation’ or ‘live’ modes and defaults to starting in ‘simulation’ mode. The ‘simulation mode’ does not require any hardware to be attached to the PC and is intended to help familiarize the user with the various controls and register write/read operations. Note that simulation mode does not emulate the behavior of the device (e.g. reading back from the temperature sensor or power detectors in simulation mode will return zeros). For correct operation in live mode, the SPI controller board should be connected to the PC and the EVB and the device should be powered up prior to making connection in the user interface. **The hardware connections and power up sequence detailed in Section 5 should be followed prior to starting the control software in live mode.**

4.1 Connection

The control software starts up in simulation mode. In order to control the device (assuming that the SPI controller is connected and the EVB is powered up) the user should select **Connect** from the drop down menu and then select **usb**, as shown in Figure 17. This will search for and connect to the first USB-SPI controller found. On successful connection, the status window will report **Device connected 0** and the connection status will change from *SIM* to *FTDI*, as illustrated in Figure 18.

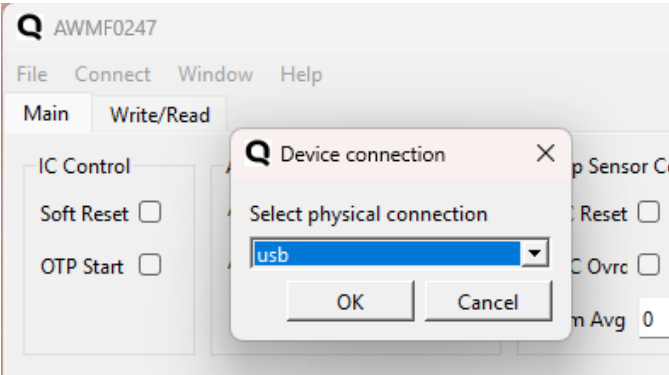


Figure 17: Connecting to the Device

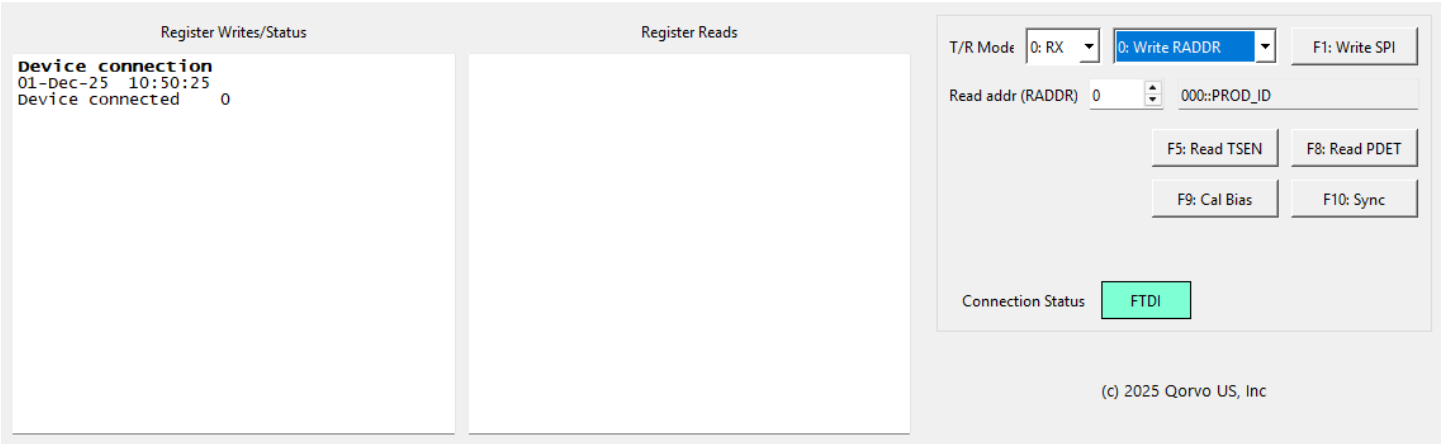


Figure 18: Successful Connection to the Device

4.2 Window Title

The user interface window title can be edited by selecting Window from the drop-down menu. This presents a dialog to allow the user to prepend a string to the standard window title as illustrated in Figure 19. This can be helpful when multiple devices and user interfaces are being controlled simultaneously.

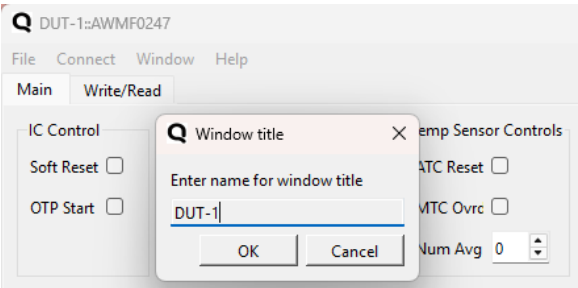


Figure 19: Editing the window title

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5 POWER UP PROCEDURE

Note that it is critical that the steps in the following section are carefully followed to avoid damage to the device.

5.1 Bias Configuration

It is strongly recommended that a power supply capable of 4W operation is used for V_{DDA} , whilst 2W operation is used for $V_{DD_DIG_1P2}$. If a 4W supply is not available, then it is recommended to connect the Yellow and Green wires to the associated supply along with their respective ground lines. When using a 2W power supply and adjusting the source voltage to compensate for any voltage drop in the cable, ensure that the absolute maximum rating for the AWMF0247 is not exceeded.

Power supply connections are provided in Table 1.

Table 1: Power Supply Connectors with AWC9240 Cable

Pin	EVB Power Header Pin/Function	Cable Color	PSU Connection
1	V_{DDA}	Yellow	V_{DD} FORCE HI
2	Ground	Black	V_{DD} FORCE LO
3	V_{DDA}	Green	V_{DD} SENSE HI
4	Ground	Black	V_{DD} SENSE LO
5	n/c	-	-
6	Ground	-	-
7	$V_{DD_DIG_1P2}$	Purple	$V_{DD_DIG_1P2}$ HI
8	Ground	Black	$V_{DD_DIG_1P2}$ LO

5.2 Controller and Power Supply Connections

The cables should be connected as detailed in Table 2 and illustrated in Figure 20 to Figure 22. Note the connection orientation of the SPI IO cable is a straight connection between the controller and the evaluation board as shown in Figure 22.

Table 2: Connections Between DC/SPI Interposer Board and EVB

	TPCB1077V1A Controller Board	TAWMF0247EVB1 Device Eval Board
SPI IO cable (FFTP-12-D-03.85-01-N)	P3	X2
Power cable (AWC9240)	-	P2

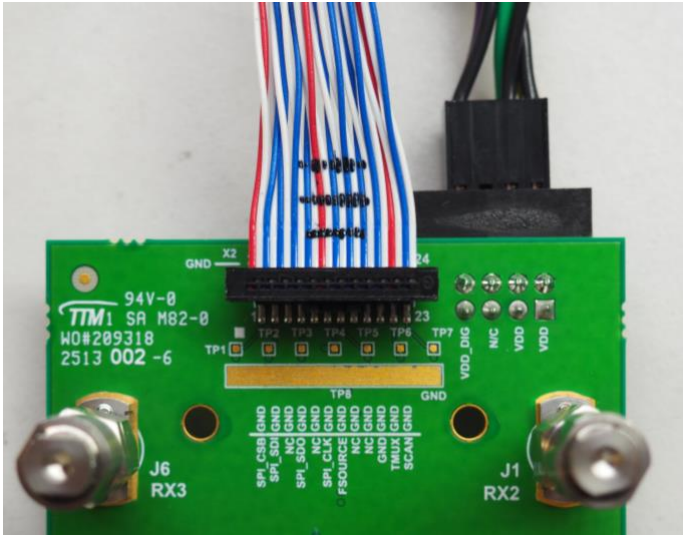


Figure 20: Bottom side view: IO cable connected to X2



Figure 21: Top side view: Power cable connected to P2

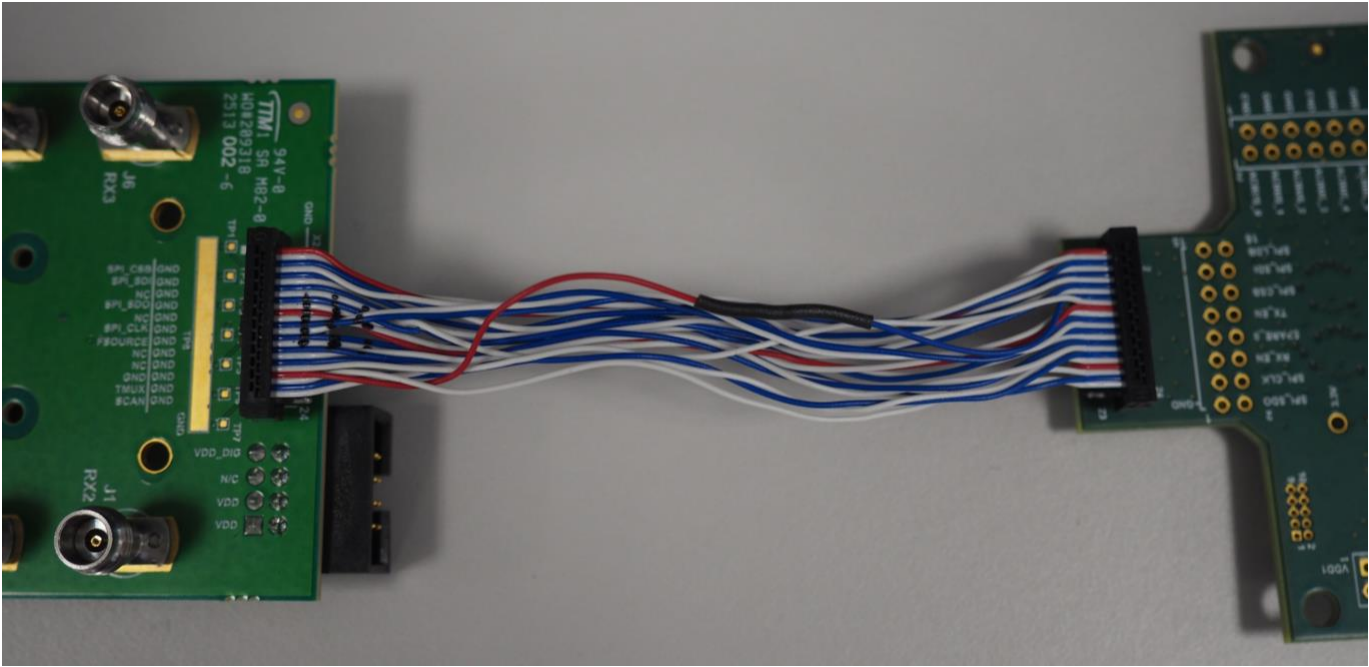


Figure 22: IO Cable Connection Between EVB and Controller

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5.3 Additional Recommendations

- Any unused RF port should be terminated with a high quality 2.4 mm termination.