

Preparations for using the IC-7760 with the HSDR application

The IC-7760 can output the In-phase/Quadrature (I/Q) data that is processed by the FPGA. Connect the [USB] port on the RF deck's rear panel to a PC's USB port, and you can control the IC-7760 from a PC using the HSDR application.

Procedure outline

To use the RF deck's [USB] port as an I/Q port for the first time, follow the steps described below. For the settings and operations of HSDR, see the document "IC-7760 HSDR Operating Guide," which can be downloaded from the Icom website.

Before you start using the IC-7760 with HSDR, check the PC system requirements, as shown on page 2.

Step 1. Installing HSDR

NOTE: First install HSDR before installing "IC-7760 USB I/Q Package for HSDR."

You can use HSDR (freeware) as an SDR application.

Download HSDR (Version 2.80 or later) from the HSDR website and install it.

<https://www.hdsdr.de/>

When using CW Skimmer, install the other required applications to suit your operating needs. (pp. 3 ~ 4)

Icom does not offer technical support for your PC settings or any use of 3rd party applications.

Step 2. Installing "IC-7760 USB I/Q Package for HSDR"

(pp. 5 ~ 6 in this document)

CAUTION: DO NOT connect the RF deck and a PC until the driver installation has been completed.

To control the IC-7760 from a PC using HSDR, download "IC-7760 USB I/Q Package for HSDR" from the Icom website, and install it.

<https://www.icomjapan.com/support/>

The package contains "ExtIO_IC7760.dll" and an IQ driver.

The DLL file is normally saved in the same folder where HSDR is installed as the default.

(Example: C:\Program Files (x86)\HSDR)

Step 3. Connecting the IC-7760 and a PC

(p. 7 in this document)

Connect a USB 3.0 cable (User supplied) between the [USB] port on the RF deck's rear panel and one of your PC's USB ports, and then turn ON the RF deck and controller.

This document describes only hardware connections.

Step 4. Using HSDR

("IC-7760 HSDR Operating Guide")

See "IC-7760 HSDR Operating Guide" to use the application with the IC-7760.

This document gives 4 examples to control the IC-7760 from a PC using the HSDR application. (pp. 3 ~ 4)

TIP: Updating "IC-7760 USB I/Q Package for HSDR":

If you already have the package installed, you can download the latest version and update it by doing an overwrite installation.

System requirements

Use a PC that meets the system requirements as described below.

Minimum system requirements

Operating System	Microsoft® Windows® 11 (64 bit) Microsoft® Windows® 10 (32/64 bit) ① Except for Windows on ARM. ① These instructions are based on Microsoft® Windows® 11.
USB ports	USB 3.0
USB cables	USB 3.0 ① When using N1MM Logger+ and CW Skimmer to check the wide band, another USB cable (2.0) is required.
Remarks	We recommend that you use the on-board sound chipset. The CPU may have a heavy load when an external sound device, such as a USB audio converter, is used.

These are the minimum system requirements to use the IC-7760 with the HDSDR application. Depending on your PC environment (permanently running software such as antivirus software, peripheral devices, settings of OS and other software), the operation of the IC-7760 with the HDSDR application may not perform properly.

Operation notes

- Before connecting or disconnecting a USB cable, turn OFF the controller.
- Depending on your PC environment, the USB audio may be interrupted, or control by the PC software may be delayed.
- If the CPU has a heavy load, the USB audio is easily interrupted. If the audio is interrupted, set a lower sampling rate in the HDSDR application or close other applications, if running.
- To operate your PC and peripheral devices, follow the instructions provided in their manuals.
- This USB I/Q Package is designed only for the IC-7760. Icom does not guarantee its use with other transceivers.

Icom and the Icom logo are registered trademarks of Icom Incorporated (Japan) in Japan, the United States, the United Kingdom, Germany, France, Spain, Russia, Australia, New Zealand, and/or other countries.

Microsoft and Windows are trademarks of the Microsoft group of companies.

HDSDR is the property of Mr. Mario Taeubel (DG0JBJ).

CW skimmer is the property of Afreet Software, Inc.

Null-modern emulator (com0com) is an open source software based on the GPLv2 license.

VB-Audio Hi-Fi Cable is the property of Mr. Vincent Burel.

N1MM Logger+ is the property of Mr. Thomas F Wagner (N1MM).

All other products or brands are registered trademarks or trademarks of their respective holders.

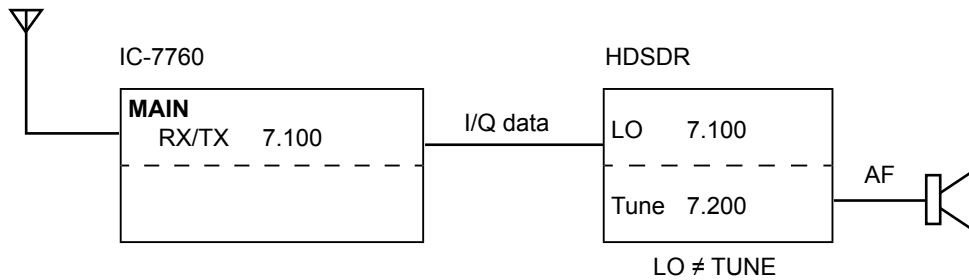
IC-7760 HSDR operations

This section gives 4 examples to control the IC-7760 from a PC using the HSDR application. See "IC-7760 HSDR Operating Guide" for details about software connections, settings, and operating instructions.

A. Using the IC-7760 with HSDR

The I/Q data output from the IC-7760's Main or Sub band is input to your PC. The input I/Q data can be received on HSDR.

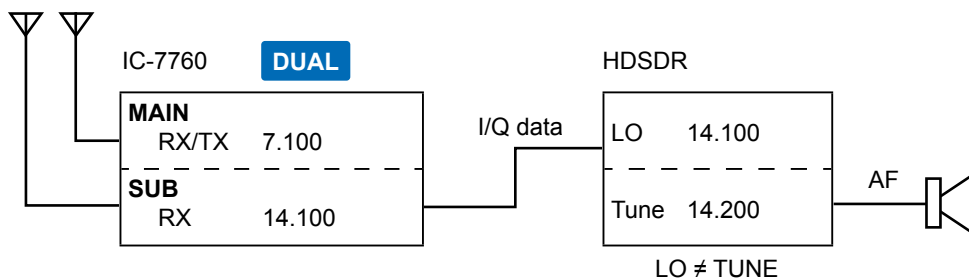
① The HSDR's local oscillator frequency (LO) is synchronized with the IC-7760's operating frequency.



B. Using HSDR as a 3rd receiver

The IC-7760 has the Dualwatch function. Furthermore, you can use the HSDR application as a 3rd receiver by inputting the I/Q data that is output from the IC-7760's Main or Sub band. You can receive 3 different frequencies at the same time.

① The HSDR's local oscillator frequency (LO) is synchronized with the IC-7760's operating frequency.



C. Using HSDR with CW Skimmer (For a narrow 24 kHz bandwidth)

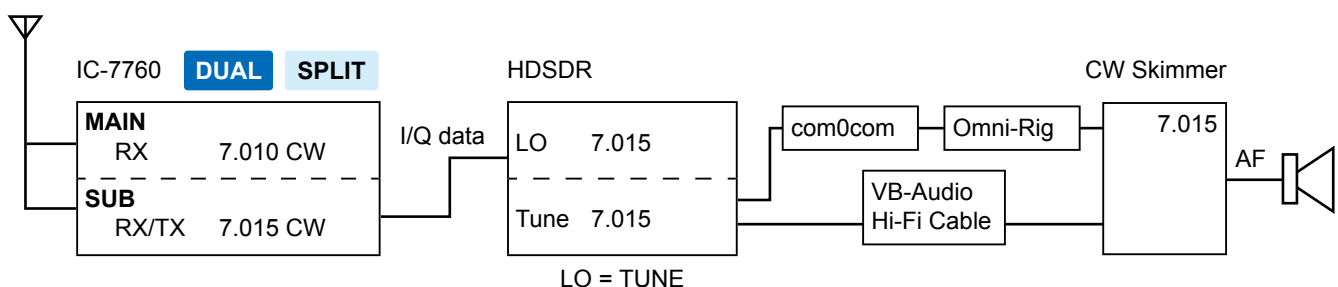
The CW Skimmer application decodes the CW signals received from HSDR.

Use this when:

- Calling a station whose CW signals are displayed on CW Skimmer.
- Calling a station that is in the Split operation and in a pile up during a DXpedition.
- Checking the CW band on CW Skimmer while communicating in the SSB mode.

① The HSDR's local oscillator frequency (LO) and HSDR, CW Skimmer's operating frequencies are all synchronized with the IC-7760's operating frequency.

Install **CW Skimmer** (Shareware), **VB-Audio Hi-Fi Cable** (Donationware), and **Null-modem emulator (com0com)** (Freeware).



► Continued on the next page.

D. Using HDSDR with CW Skimmer (For a wide bandwidth*)

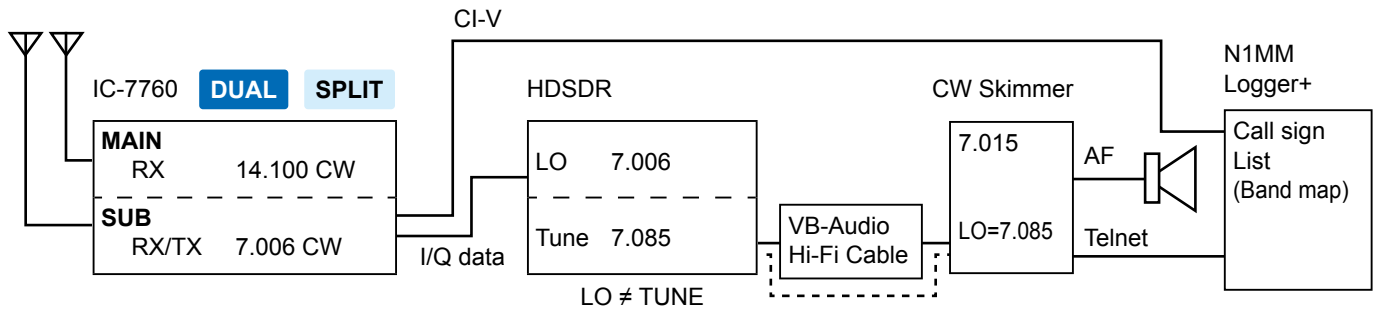
* Approximately 170 kHz

The CW Skimmer application decodes the CW signals received from HDSDR.

Use this when checking the wide band and getting information of many CW stations. This is useful when you participate in a CW contest.

- ① The HDSDR's local oscillator frequency (LO) is synchronized with the IC-7760's operating frequency.
- ① Manually set the same frequency to the HDSDR Tune frequency and the CW Skimmer LO frequency.

Install **CW Skimmer** (Shareware), **VB-Audio Hi-Fi Cable** (Donationware), and **N1MM Logger+** (Freeware).



TIP: Each application can be downloaded from the following websites. (As of October 2024)

- HDSDR: <https://www.hdsdr.de/>
- CW Skimmer (with Omni-Rig): <https://www.dxatlas.com/Download.asp>
- VB-Audio Hi-Fi Cable: <https://www.vb-audio.com/Cable/index.htm#DownloadASIOBridge>
- Null-modern emulator (com0com): <https://sourceforge.net/projects/com0com/?source=directory>
- N1MM Logger+: <https://n1mmwp.hamdocs.com/>

Information

- Icom has checked the operations with these applications but does not guarantee their performance.
- These applications are not Icom products.
- The URL may change without notice or obligation. Check for the latest information.

Installing “IC-7760 USB I/Q Package for HSDR”

Updating the IC-7760 USB I/Q Package for HSDR (p. 6):

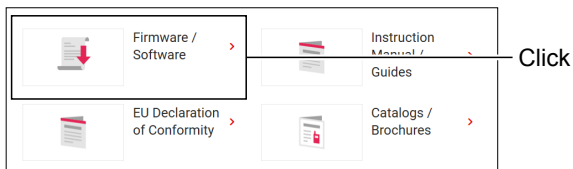
If you already have the package installed, you can download the latest version and update it by doing an overwrite installation.

◇ Downloading

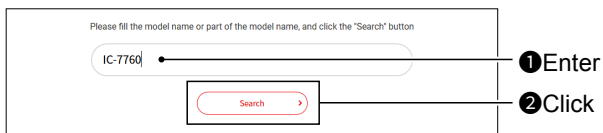
Access the following URL and download the firmware file.

<https://www.icomjapan.com/support/>

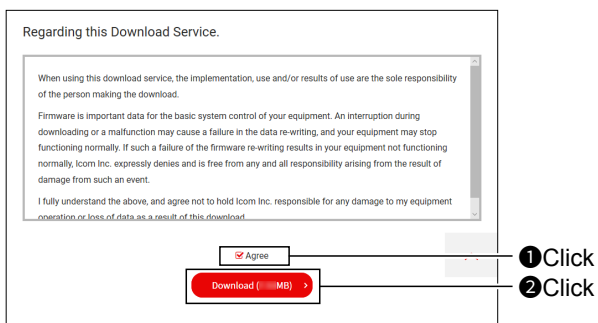
1. Click the “Firmware/Software” link.



2. Enter “IC-7760” into the Search box, and then click [Search].

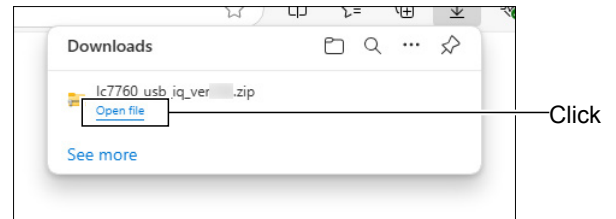


3. Click the link of “USB I/Q Package for HSDR.”
4. Carefully read “Regarding this Download Service.” Click “Agree,” and then click [Download].

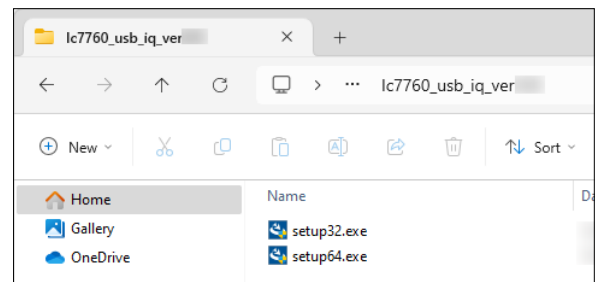


- The file starts downloading.

5. After the download is complete, click “Open file.”
① Download steps may differ depending on the PC settings.



6. Right-click the downloaded firmware folder (zip format), and then click “Extract All...”
 - After unzipping, a folder is created in the same location as the downloaded folder.① The unzipped folder contains “setup32.exe” and “setup64.exe.”



◆ Installing

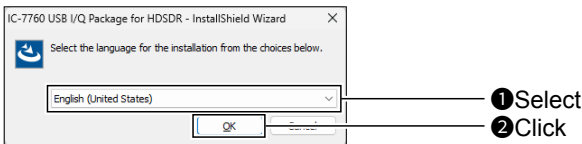
1. Double-click "setup64.exe" or "setup32.exe" in the unzipped folder, depending on your PC's OS type.

① Information

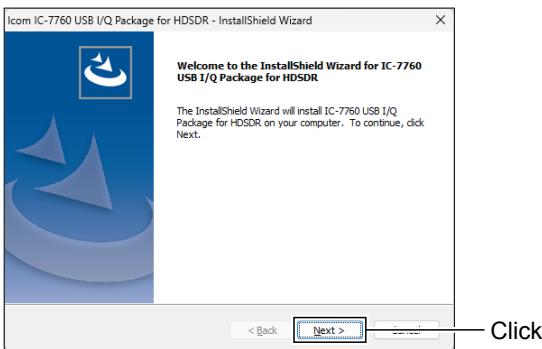
- "setup64.exe" is for a 64 bit operating system. "setup32.exe" is for a 32 bit operating system.
- You can select whether or not to display the file extensions in the Folder Options screen.
- If "User Account Control" is displayed, click <Yes> to continue.

2. Select a language and then click <OK>.

① In this document, "English" is selected.

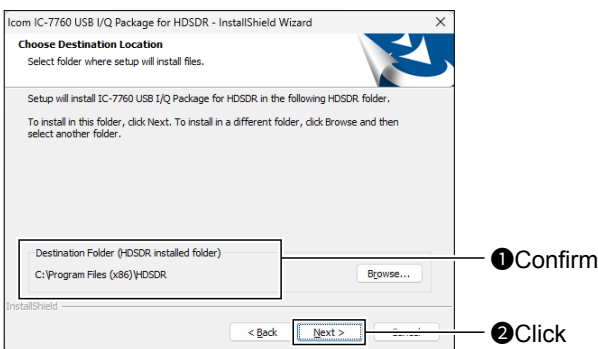


3. Click <Next>>.

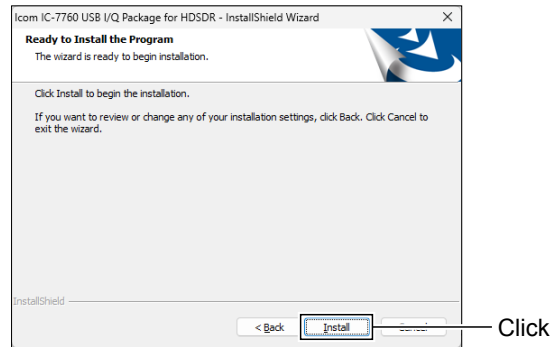


4. Confirm the destination folder, and then click <Next>>.

① If you change the HSDR installed folder and install HSDR, click <Browse...> and select the HSDR installed folder.

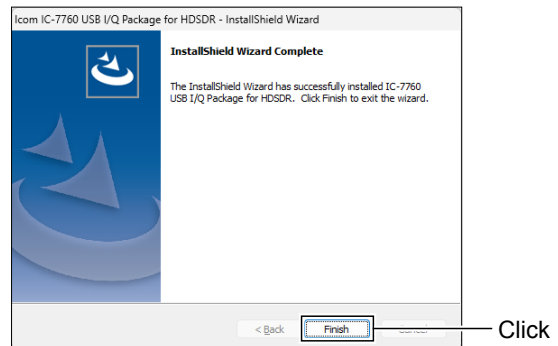


5. Click <Install>.



6. When the Windows Security screen is displayed, click <Install>.

7. Click <Finish>.



TIP: You can uninstall the package using the "Installed apps" in the "Apps" menu. Go to Start > Settings > Apps > Installed apps.

NOTE: About the overwrite installation
If you already have the package installed, you can update it by following the procedure below. BE SURE to turn OFF the IC-7760 and quit the HSDR application before doing an overwrite installation.

1. Double-click "setup64.exe" or "setup32.exe" contained in the unzipped folder, depending on your PC's OS type (as described in step 1 in the column to the left).
 - A confirmation dialog "This setup will perform an upgrade of 'IC-7760 USB I/Q Package for HSDR.' Do you want to continue?" is displayed.
2. Click <Yes>, then follow the instructions displayed in the window.
 - ① You cannot change the language or destination folder.

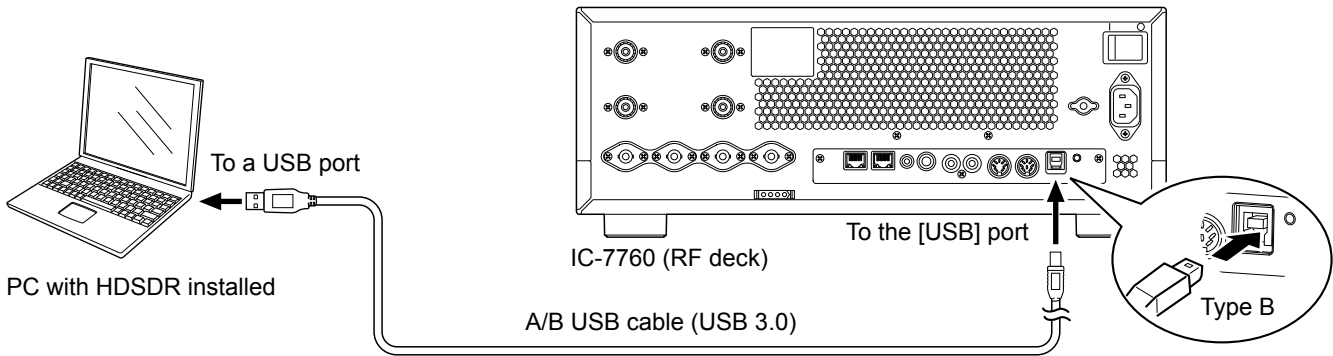
Connecting the IC-7760 to a PC

Connect a USB cable (USB 3.0, User supplied) from the [USB] port on the RF deck's rear panel to one of the PC's USB ports.

① When you connect a USB cable for the first time, a PC starts installing the driver after turning ON the RF deck and controller.

NOTE:

- Before connecting a USB cable, turn OFF the controller.
- The transceiver may not operate properly if connecting the IC-7760 to a PC through any USB hub.
- Depending on the length of a USB cable, the transceiver may not operate properly even if it is recognized by the PC. Use as short a cable as possible.

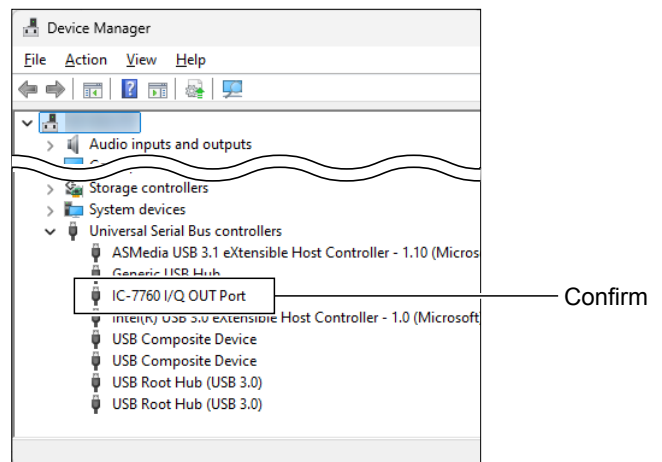


◇ Confirming that the driver has been successfully installed

After the installation has been completed, use the PC's Device Manager to confirm that the driver has been successfully installed.

1. Right-click the Windows icon, and then click "Device Manager."
① If "User Account Control" is displayed, click <Yes>.
2. Double-click "Universal Serial Bus controllers," and then confirm that "IC-7760 I/Q OUT Port" is displayed.

NOTE: If "IC-7760 I/Q OUT Port" is not displayed, the driver may not have been properly installed. Install the driver again. (pp. 5 ~ 6)



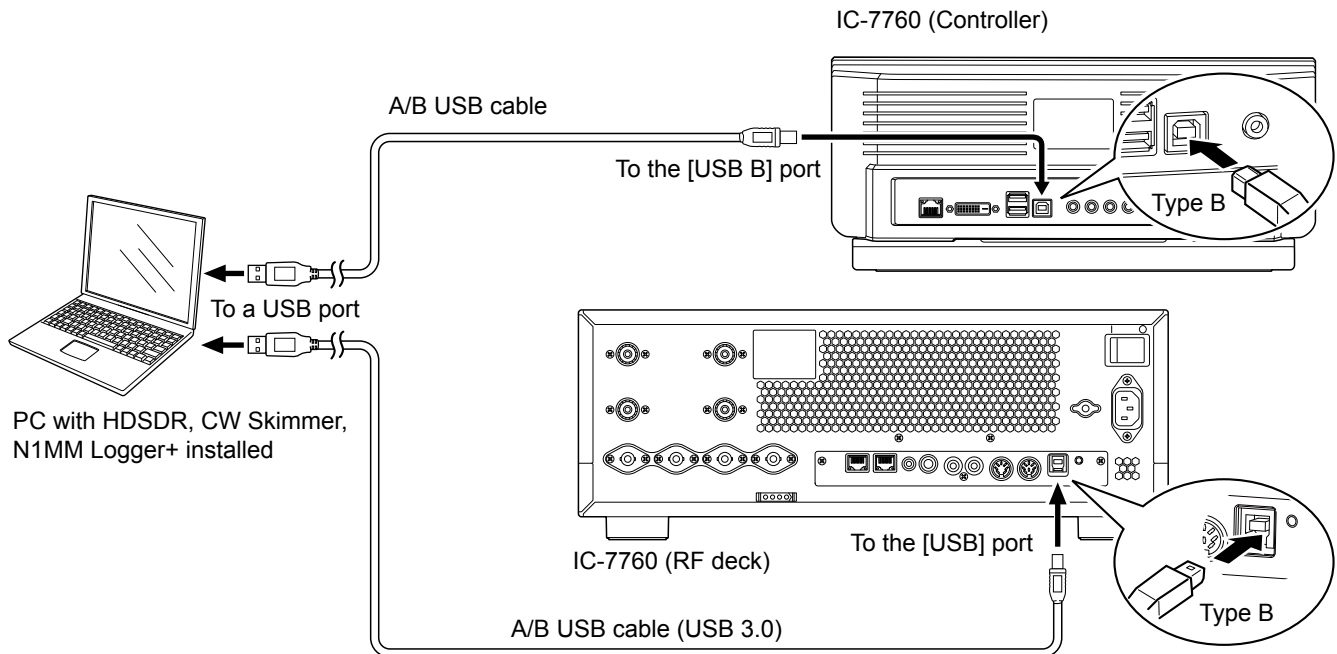
◇ Using HSDR with CW Skimmer (For a wide bandwidth*)

* Approximately 170 kHz

When you want to use N1MM Logger+ and CW Skimmer to check the wide band, connect another USB cable (User supplied) between the [USB B] port on the controller's rear panel and a PC's USB port.

NOTE:

- Before connecting a USB cable, turn OFF the controller.
- The transceiver may not operate properly if connecting the IC-7760 to a PC through any USB hub.
- Depending on the length of a USB cable, the transceiver may not operate properly even if it is recognized by the PC. Use as short a cable as possible.



TIP: When connecting a USB cable to the [USB B] port on the controller's rear panel

If you have not connected a USB cable between the [USB B] port on the controller's rear panel and your PC, download the required USB driver and the installation guide from the Icom website.

<https://www.icomjapan.com/support/>