

ScreenBeam 960

Model SBWD960B

User Manual

This user manual provides step-by-step instructions on how to setup and configure ScreenBeam receiver. After completing the steps described in this guide, you will be able to deploy the receiver in a meeting room or classroom site and provide users the ability to project wirelessly.

Introduction

ScreenBeam 960 receiver with version 9.15.39.0 (or later) now can support wireless display for Windows 10/8.1/7, MacOS and iOS, and some Android devices. The receiver offers a couple methods for client device to connect.

- **Method 1:** Wireless display over Peer-to-Peer (P2P)
This method is also known as Wi-Fi Miracast; which is commonly available in most Windows 10 or 8.1 and some Android devices shipping since 2015. Since Wi-Fi Miracast feature is native to the operating system and the connection direct from client device to the receiver, there's no need for additional software or additional open port on the network.
- **Method 2:** Wireless display over existing LAN infrastructure
This method requires both the client device and ScreenBeam 960 receiver to be on the Local Area Network (LAN). It is an ideal solution for Non-Miracast capable client devices; such as device with either Windows 7, MacOS, or iOS. ScreenBeam app installation and some network configurations may be required to support this method.

Before You Begin

- For the most recent documentation, firmware, and release notes, go to:
<http://support.screenbeam.com/960/>
- For ScreenBeam wireless display application, go to:
<http://www.screenbeam.com/downloads>
Not required for Wi-Fi Miracast, Win10 v1809 (orlater), and mac/iOS with native screen mirroring.
- For how to connect tutorial, go to:
<http://www.screenbeam.com/setup>
- For ScreenBeam Central Management System (CMS) software, go to:
<http://cms.screenbeam.com/>
- For Open Source information, go to:
<http://opensource.actiontec.com>

Package Contents

- ScreenBeam 960 receiver
- Power supply
- HDMI cable
- Quick Start Guide (this document)
- Regulatory documents

<http://support.screenbeam.com> | <http://support.screenbeam.com/ticket>

Recommended System Requirements

- **Wireless display over P2P**
 - OS: Windows 10 version 1703 (and later)
 - Processor: 4th Gen Intel Core I-Series 4xxx or AMD equivalent (or better)
 - Graphics: Intel HD Graphics 4xxx (or better)
 - Wi-Fi: (one of the following)
 - Intel Dual-Band Wireless AC 726x (or better)
 - Qualcomm Atheros Wireless AC 61x4A or 93xx
 - Marvell Avastar Wireless AC with driver 15.68.9120.47 (or equivalent)
- **Wireless display over LAN**
 - ScreenBeam App requirements
 - iOS 11.3 (or later)
 - Processor: A9 (or better)
 - macOS X 10.8 (or later)
 - Processor: Intel Core I-Series 4xxx or AMD equivalent (or better)
 - RAM: 4GB (or more)
 - Wi-Fi: 802.11n/ac
 - Win 7 with Service Pack 1
 - Processor: Intel Core I-Series 4xxx or AMD equivalent (or better)
 - RAM: 4GB (or more)
 - Wi-Fi: 802.11n/ac
 - macOS and iOS native screen mirroring requirements
 - macOS device
 - OS X 10.8 (or later)
 - iOS device
 - iOS 10.2 (or later)
 - Windows 10 Miracast over LAN
 - Windows 10 version 1809 (or later)

Recommended Network Requirements

- **Wireless display over P2P**

No network configuration is required for Wi-Fi Miracast capable device. However, you may need to verify the domain group policy and firewall settings to allow Wi-Fi Direct groups or adhoc connection.
- **Wireless display over LAN**
 - ScreenBeam receiver
 - Ethernet connection: 100Mbps
 - Or Wi-Fi connection: 802.11n/ac (5GHz Non-DFS). Refer to the section below for instructions on how to setup wireless connection.
 - Client device
 - Preferred 5GHz Wi-Fi connection
 - Reliable connection with signal strength of 80% (or better)

- Network
For evaluation purpose, we recommend connecting both the ScreenBeam receiver and the client device to the same Private VLAN or Guest Network. The most basic form for testing is to use a Wi-Fi Router.

- Required port

OS / App	Function	Ports	Protocol
MacOS App	Discovery	5353	Multicast (UDP)
	Mirroring	8554 35507	TCP
Win 7 App	Discovery	N/A	
	Mirroring	7236 35507	TCP
iOS App	Discovery	5353	Multicast (UDP)
	Mirroring	8554 35507	TCP
mac/iOS Native Screen Mirroring	Discovery	5353	Multicast (UDP)
	Mirroring	8554 35507	TCP
Win10 Miracast over LAN	Discovery	N/A	
	Mirroring	7236	TCP

- Multicast support is required for Mac/iOS with Airplay Mirroring to discover the ScreenBeam receiver. If enabling mDNS is not an option, then use the ScreenBeam App to connect.
- Bluetooth is used to assist receiver discovery with SBCast (iOS). It can help you discover ScreenBeam much faster than mDNS discovery. Make sure Bluetooth on the iOS device is turned on.

Setup Requirements

- ScreenBeam 960 receiver
- TV/Projector/Monitor display with available HDMI input
- Ethernet network connection with DHCP IP (i.e. Wi-Fi router)
(Required for wireless display over LAN and access to management console for configuration)
- ScreenBeam App (for Non-Miracast capable devices)

A CONNECT SCREENBEAM RECEIVER TO A DISPLAY

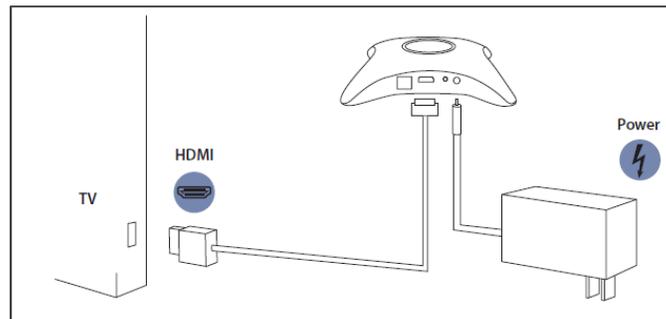


Figure 1 Receiver connection guide

1. Place the receiver next to a display of choice.
2. Using the provided HDMI cable, connect one end of the cable to the receiver's HDMI port and the other end to the HDMI port of your display.
3. (Optional) If the display supports interactive touch, you may connect the USB Type-B to Type-A "Touch" cable to the ScreenBeam receiver's USB port.
4. Connect one end of the receiver's power supply to the receiver's power port, and the other end to an electrical wall outlet.
5. Connect an ethernet cable to the ScreenBeam receiver's ethernet port and connect the other end to your network switch/router with DHCP IP.

Note: This step is required for wireless display over LAN function OR to access the management console via the network.

6. Turn on the TV and switch to the HDMI input to which the receiver is connected to.
7. Wait about 30 seconds, then verify the TV displays the **Ready to Connect** screen.

B UNDERSTANDING THE READY TO CONNECT SCREEN

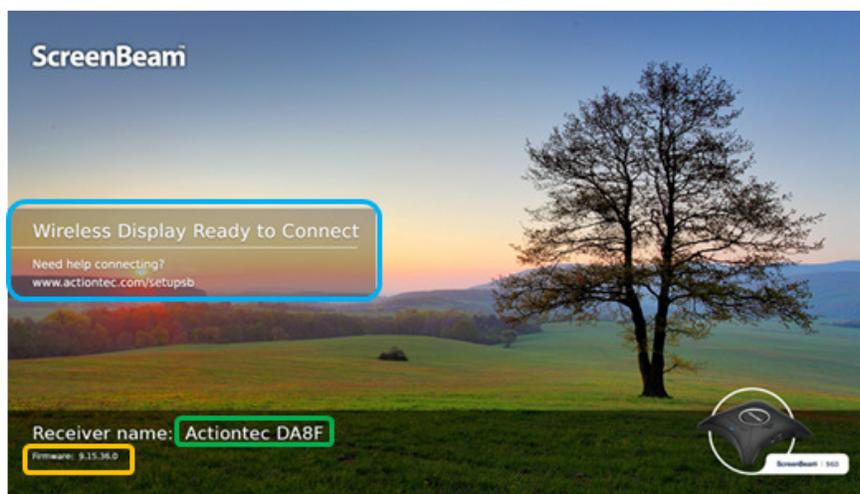


Figure 2 - Ready to Connect screen

- **Ready to Connect** indicates the receiver is currently ready for a client device to connect and project wirelessly. For help on how to connect to your device, visit <http://www.screenbeam.com/setup>.
- **Receiver name** indicates the name that will be shown on the client device's screen upon discovering the ScreenBeam receiver.
- **Network info** indicates the status of the network connection.
- **Firmware info** indicates the current version of the receiver and provides the most accurate information about the product for technical support. IT admin could verify the version and perform an update if necessary.

ScreenBeam 960 receiver is now ready to connect for Wi-Fi Miracast client devices via P2P. Go ahead and connect from your Windows 10/8.1 Miracast device. If you need guidance on how to connect from a Miracast device, go to <http://www.screenbeam.com/setup>.

For MacOS, iOS, and Win7 client devices support; proceed to the next section for instructions on configuring ScreenBeam receiver for wireless display over LAN.

C SETUP SCREENBEAM FOR NETWORK CONNECTION

ScreenBeam receiver requires network connection for couple various functionalities; Wireless display over LAN and Central Management. You can connect the ScreenBeam receiver to the network via either wired or Wi-Fi connection.

- **Wired connection**
If the network connection for ScreenBeam receiver provides a DHCP IP address, the Ready to Connect screen shall display a valid IP address under network status.
- **Wi-Fi connection or Static IP address**
This requires additional steps to configure the receiver with the proper network information. The detailed instructions can be found online at <http://support.screenbeam.com>. For initial testing purpose, we recommend using wired network connection with DHCP.

D ACCESS SCREENBEAM RECEIVER FOR CONFIGURATION

You can configure ScreenBeam 960 receiver by accessing the receiver web management console or by using the ScreenBeam CMS software. If the ScreenBeam receiver is being managed by ScreenBeam CMS, then you may skip this section.

There are a couple of options to access the ScreenBeam receiver's management console:

- **Option 1 - Access the receiver via local network**
 - Verify the ScreenBeam receiver has obtained a valid IP address if it's connected to the network.
 - Connect a laptop or PC to the same network as the ScreenBeam receiver
 - Open a browser and enter the IP address of the ScreenBeam receiver into the browser's address text box (i.e. <http://x.x.x.x>)

<http://support.screenbeam.com> | <http://support.screenbeam.com/ticket>

- Refer to Log into the Management Console
- **Option 2 - Access the receiver via a Wi-Fi Miracast P2P connection**
 - On your Windows 10/8.1 device with Miracast
 - Use Connect (Win10) or Charm (Win8.1) to connect to the ScreenBeam receiver
 - Once connected, enter the following URL into the browser's address text box:
<http://192.168.16.1>
 - Refer to Log into the Management Console
- **Log into the Management Console**
 - You may encounter a browser error that states *"There's a problem with the wireless security certification."* Manually accept the connection by doing one of the following:
 - For Chrome browser: click **Advance**, then click **Proceed**.
 - For Edge/IE browser: click **Continue to this webpage (not recommended)**.
 - When the ScreenBeam management console page appears, enter the following:
 - Username: **Administrator**
 - Password: **Actiontec**
 - Click **Login**.
 - The ScreenBeam receiver management webpage should display.

E SETUP SCREENBEAM FOR WIRELESS DISPLAY OVER LAN

Under the **Features** webpage.

- ScreenBeam App support is enabled by default for Mac/iOS and Win7
- Enable AirPlay Mirroring for Mac/iOS support if needed. Note that security PIN is not supported for this mode.
- Enable Windows 10 Miracast over LAN support if needed. Note that security PIN is only supported by Win10 starting from build 1809 (and later).

Device Configuration	Features	Firmware Upgrade	Local Management	Remote Management	Maintenance
Wireless display over LAN					
Wireless display over LAN allows client devices to project over the local network connection. ScreenBeam receiver must be connected to the network via Ethernet (recommended)					
Windows 10		<input type="radio"/> Enable	<input checked="" type="radio"/> Disable	Requires Windows 10 build 1703 (or later)	
Mac OS or Windows 7		<input checked="" type="radio"/> Enable	<input type="radio"/> Disable	Requires ScreenBeam MacOS or Windows 7 software.	
mac/iOS native screen mirroring		<input type="radio"/> Enable	<input checked="" type="radio"/> Disable	No app required.	

F SCREENBEAM APP DOWNLOADS AND SETUP

Note this is only required for Windows 7 device or Mac/iOS device in network that does not have multicast enabled.

- Get ScreenBeam App for your device here: <http://www.screenbeam.com/downloads>
- Install the ScreenBeam app

G CONNECTING FROM YOUR DEVICE

For the most updated instructions on how to connect, visit <http://www.screenbeam.com/setup>

Congratulations! Your TV/Projector is now enabled with wireless display.

For FAQs, troubleshooting tips and support, go to:

<https://support.screenbeam.com>

H SPECIFICATIONS

Video

- H.264 compression
- Supports up to full HD 1080p30 resolution

Audio

- LPCM & AAC
- 2-channel stereo

A/V Interface

- HDMI Type-A female connector
- VGA in and VGA out, female DE-15
- Audio jack (3.5 mm)

VGA Output Resolution

- 640x480@60Hz, 800x600@60Hz, 1024x768@60Hz, 1280x800@60Hz, 1366x768@60Hz, 1280x1024@60Hz

USB Interface

- USB 2.0, type A

Ethernet Interface

- 1000 Mbps, RJ-45

Wireless

- Miracast: 802.11 a/b/g/n/ac Dual-band 2.4 & 5 GHz, 2T2R
- WLAN: 802.11 a/b/g/n Dual-band 2.4 & 5 GHz, 2T2R
- WPA2, WPS virtual PBC, AES 128-bit

Content Protection

- HDCP 2.x for HDMI

Electrical

- Input: 5V/2A
- Consumption: Less than 5W
- LED Indicator: Power On

Environmental

- Operating temperature: 0 °C to 40 °C (32 °F to 104 °F)
- Storage temperature: 0 °C to 70 °C (32 °F to 158 °F)
- Operating humidity: 10% to 85%, non-condensing
- Storage humidity: 5% to 90%, non-condensing