

# Polycom® Acoustic Fence™ and Polycom Acoustic Fence with Beam Shaping Technology

## *Introduction*

Polycom® Acoustic Fence™ and Polycom Acoustic Fence with Beam Shaping technology limit the pickup of microphone audio to designated areas in open office environments. These features only affect the audio transmitted from the room to the far-end, not the audio output from the far-end.

Polycom Acoustic Fence is made up of primary microphones and fence microphones, which determine the area where audio is picked up and sent to the far-end. The primary microphones serve to pick up the audio within the fence boundaries. The fence microphones define the boundary of audio that is picked up and sent to the far-end. Any audio outside of the fence is not picked up.

Polycom Acoustic Fence with Beam Shaping defines a beam aligned with a particular microphone in the table microphone array or ceiling microphone array. Only sounds within the beam region are picked up and sent to the far-end. Sounds outside the beam region are not picked up. Unlike the Acoustic Fence, the Acoustic Fence with Beam Shaping works with a single microphone array. You can adjust the beam width from +/-10 to +/- 60 degrees.

Polycom Acoustic Fence is supported on Polycom® RealPresence® Group Series and Polycom® RealPresence Centro™ systems. Polycom Acoustic Fence with Beam Shaping technology is supported on RealPresence Group Series.

# Polycom Acoustic Fence

---

The Polycom Acoustic Fence feature determines whether sounds are outside or inside the fence region by comparing the strength of the sound at the fence microphone with the strength of sound at the primary microphone. For sounds inside the fence region, the sound should be stronger at the primary microphone relative to the fence microphone. Alternatively, for sounds outside the fence region, the sound should be stronger at the fence microphone relative to the primary microphone.

## ***Polycom Acoustic Fence Microphone Array***

The fence ceiling microphone array is specially processed to develop a null of approximately +/- 45 degrees centered where the dot is located on the ceiling microphone array, as shown below. This null helps substantially in discriminating between sounds originating inside versus outside the fence region. Therefore, in hanging the fence ceiling microphone array, it is very important to rotate the ceiling microphone arrays so that the dot points to the middle of the fence region. Roughly, sounds outside the +/- 45 degree beam width are outside the fence region whereas sounds inside the +/- 45 degree beam width are inside the fence region.

### **Ceiling Microphone Array**



## **Polycom Acoustic Fence with RealPresence Group Series**

This section includes information on configuring Polycom Acoustic Fence with RealPresence Group Series.

### ***Configuration Options for Polycom Acoustic Fence***

Configuration for Acoustic Fence includes a primary microphone and fence microphones. All possible configurations for Acoustic Fence with RealPresence Group Series are listed in the following table.

**Polycom Acoustic Fence Configurations**

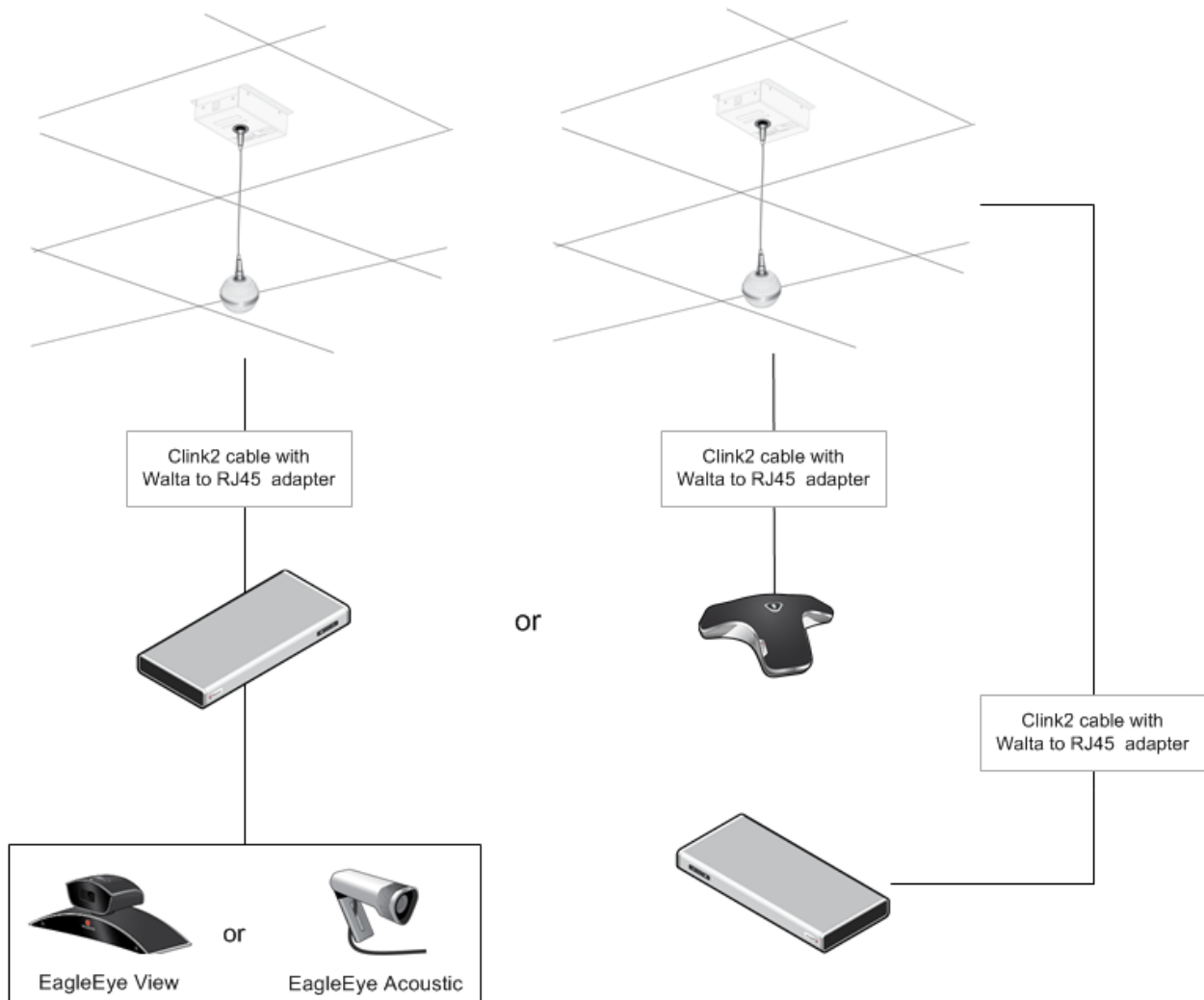
<i>Primary Microphone</i>	<i>Fence Microphone</i>	<i>Configuration</i>
1 ceiling microphone array	2 to 3 ceiling microphone arrays	Rotate fence ceiling microphone array so that the dot points to the primary microphone area. The region opposite the dot is the area where unwanted sounds occur. The last ceiling microphone array in the daisy-chained link is the primary microphone.
1 or 2 table microphone arrays	1 ceiling array directly above table microphone arrays	The primary pick-up area is a ~ +/- 45 degree area beneath the ceiling microphone array. Rotation isn't necessary for this configuration.
1 or 2 table microphone arrays	2 to 3 ceiling microphone arrays	Rotate the fence ceiling microphone arrays so that the dot points to the primary microphone area. The region opposite the dot is the area where unwanted sounds occur.
EagleEye™ Acoustic	1 to 2 table microphone arrays (these microphones form the fence)  Up to 3 ceiling microphone arrays (these microphones form the fence)	Place a single table microphone array behind the talker.  With 2 table microphone arrays, place one to the left of the talker and one to the right.  Rotation isn't necessary for this configuration.  One ceiling microphone: Place the microphone directly over EagleEye Acoustic camera. Two or more microphones:  Rotate the fence ceiling microphone array so that the dot points to EagleEye Acoustic camera. The region opposite the dot is the area where unwanted sounds occur.
Headset	Microphone on laptop or webcam	The pickup area is within a few inches of the headset microphone. This is implemented on RealPresence Desktop and RealPresence Mobile.

## Example Configuration Layouts for Polycom Acoustic Fence

The section includes example Acoustic Fence configurations with RealPresence Group Series.

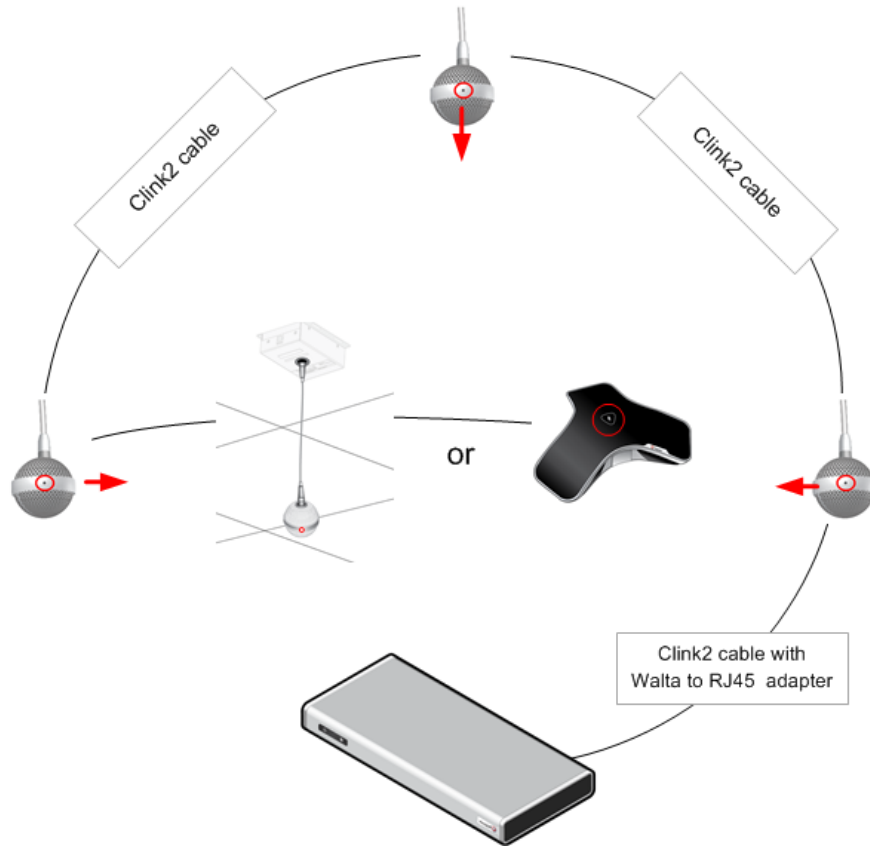
The following example shows a single ceiling microphone array connected to a Polycom camera or table microphone array connected to a RealPresence Group Series system.

### Single Ceiling Microphone Array with RealPresence Group Series



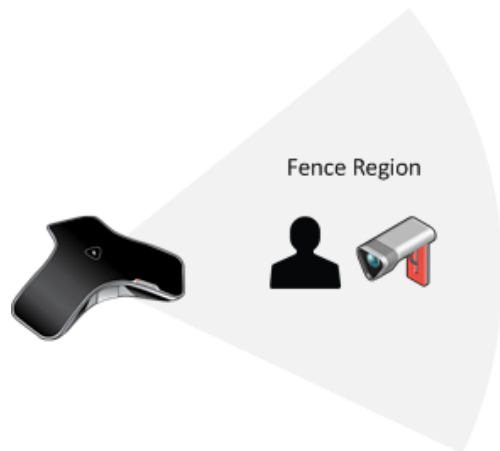
In the following example configuration, the ceiling microphones that make up the fence all point towards the central ceiling or table microphone array, which are connected to the RealPresence Group Series system.

**Central Ceiling Microphone Array or Single Table Microphone Array with Fence Microphones**

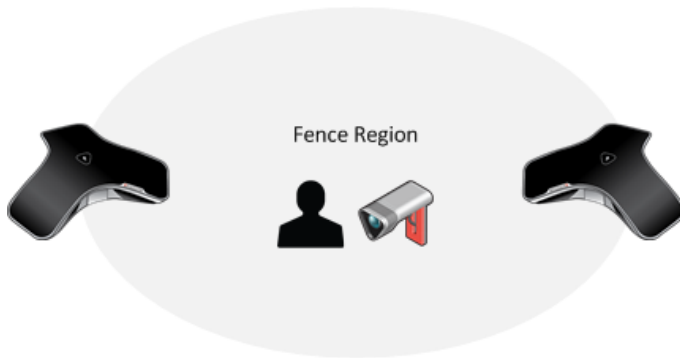


The following example configurations show a fence with table microphone arrays and a Polycom EagleEye Acoustic camera.

**Single Microphone Array with EagleEye Acoustic Camera**



## Two Microphone Arrays with EagleEye Acoustic Camera



## Polycom Acoustic Fence with RealPresence Centro

This section includes information on configuring Polycom Acoustic Fence with RealPresence Centro.

### ***Configuration Options for Polycom Acoustic Fence***

Configuration for Acoustic Fence with RealPresence Centro includes the system's built-in microphones and fence microphones. All possible configurations for Acoustic Fence are listed in the following table.

#### **Polycom Acoustic Fence Configurations**

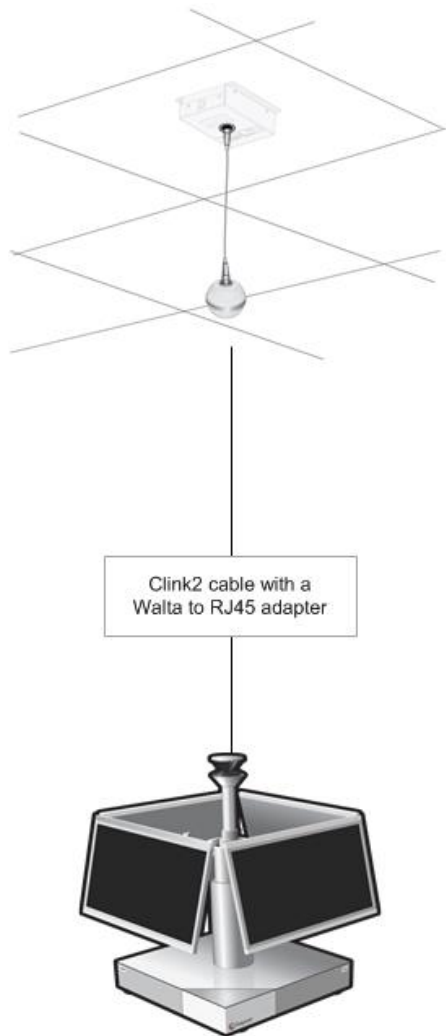
<i>Primary Microphone</i>	<i>Fence Microphone</i>	<i>Configuration</i>
RealPresence Centro (built-in microphones)	1 to 3 ceiling microphone arrays	<p>For 2-3 ceiling microphone arrays, rotate fence ceiling microphone arrays so that the dot points to the RealPresence Centro, which is the primary microphone area. The region opposite the dot is the area where unwanted sounds occur.</p> <p>For 1 ceiling microphone array, hang directly over RealPresence Centro. Rotation isn't necessary in this configuration.</p>

## Example Configuration Layouts of Acoustic Fence Configurations

The section includes example Acoustic Fence configurations with RealPresence Centro.

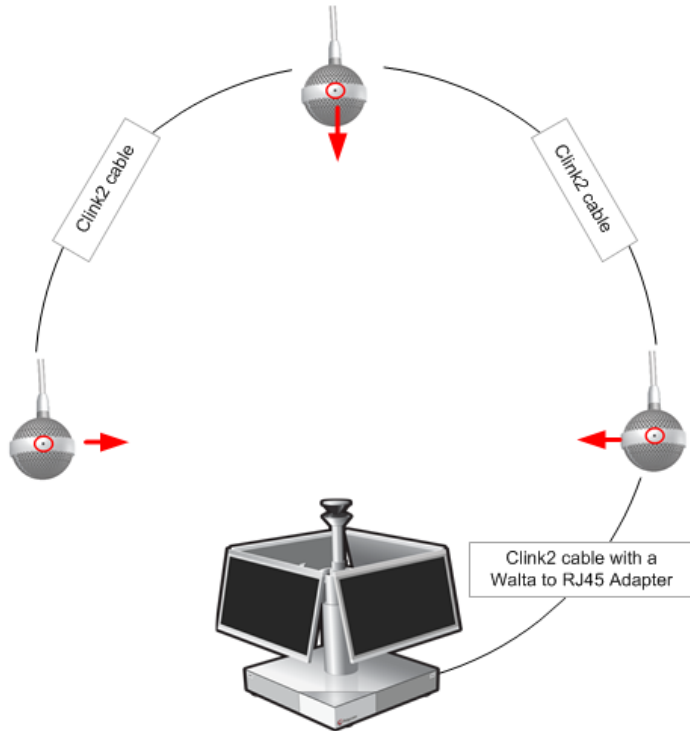
The following example shows a single ceiling microphone array connected directly to a RealPresence Centro system.

### Single Ceiling Microphone Array with RealPresence Centro



In the following example configuration, the ceiling microphones that make up the fence all point towards the RealPresence Centro system, which is the primary microphone area.

**Fence Microphones with RealPresence Centro**





# Polycom Acoustic Fence with Beam Shaping Technology

Polycom Acoustic Fence with Beam Shaping technology greatly reduces sounds outside a well-defined beam. The beam width can vary from +/- 10 degrees to +/- 60 degrees.

It is important to choose the beam width so that talkers within the desired region are heard by the far-end. When configuring the beam region, start with the widest beam width, then decrease the width if you hear any noise interference. You can adjust the beam width by choosing a number from 0 to 10 in the Acoustic Fence Sensitivity menu, where 10 corresponds to the widest beam angle of +/- 60 degrees and 0 corresponds to the smallest beam angle.

A single table microphone array or a single ceiling microphone array forms the beam by comparing the energy between the microphones in the beam direction with the energies of the other two microphones. All three microphones are contained in a single microphone array.

If two table microphone arrays or two ceiling microphone arrays are connected and facing each other, then the only sounds picked up are inside the intersection of the beams formed by each of the two microphone arrays. In addition, if one table microphone array and one ceiling microphone array are set up, then the only sound picked up is within the intersection of those two beams.

## ***Polycom Acoustic Fence with Beam Shaping Technology with RealPresence Group Series***

The following sections provide configuration options and example configurations of Polycom Acoustic Fence with Beam Shaping technology with RealPresence Group Series.

### **Configuration Options for Polycom Acoustic Fence with Beam Shaping Technology**

The following table describes all possible configurations with RealPresence Group Series system microphones.

#### **Polycom Acoustic Fence with Beam Shaping Configurations**

<i>Microphone</i>	<i>Configuration</i>
1 table microphone array	The beam points along leg with Polycom Logo.
2 table microphone arrays	Each array forms the beam along the leg with the Polycom Logo. The intersection of the two beams is the area of pickup.
1 ceiling microphone array	The beam points in the direction of the dot.
2 ceiling microphone arrays	Each array forms the beam in the direction of its dot. The intersection of the two beams is the area of pickup.

<i>Microphone</i>	<i>Configuration</i>
1 table microphone array and 1 ceiling microphone array	For table microphone arrays, the beam points along leg with Polycom Logo. For ceiling microphone arrays, the beam points in the direction of dot. The intersection of the two beams is the area of pickup.
EagleEye Acoustic (built-in microphone array)	Use the EagleEye Acoustic camera alone. The beam points directly from the front of the camera and the center of the video image. The speaker must be in front of the camera, as off-axis sounds are rejected. Open the RealPresence Group Series system web interface and navigate to <b>Admin Settings &gt; General Settings &gt; System Settings &gt; Polycom Labs</b> . Enable <b>Acoustic Fence with Beam Shaping</b> . At <b>Beam Mode</b> , select <b>Fixed Beam</b> . Choose the beam width to suit your environment.

### ***Example Layouts of Polycom Acoustic Fence with Beam Shaping Technology with RealPresence Group Series Systems***

The following examples describe layouts for the Polycom Acoustic Fence with Beam Shaping using table microphone arrays, ceiling microphone arrays, and EagleEye Acoustic camera for RealPresence Group Series systems.

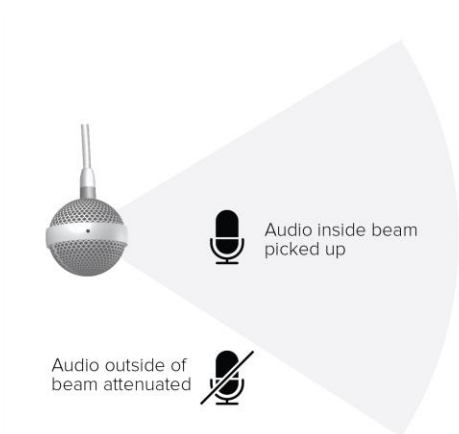
#### **Single Microphone Array**



### Double Microphone Arrays



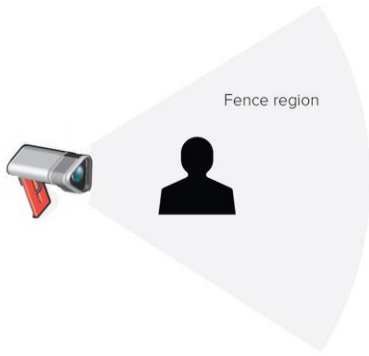
### Single Ceiling Microphone Array



### Double Ceiling Microphone Arrays



### EagleEye Acoustic



Copyright© 2018, Polycom, Inc. All rights reserved. No part of this document may be reproduced, translated into another language or format, or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of Polycom, Inc.

6001 America Center Drive  
San Jose, CA 95002  
USA



Polycom®, the Polycom logo and the names and marks associated with Polycom products are trademarks and/or service marks of Polycom, Inc. and are registered and/or common law marks in the United States and various other countries. All other trademarks are property of their respective owners. No portion hereof may be reproduced or transmitted in any form or by any means, for any purpose other than the recipient's personal use, without the express written permission of Polycom.

**End User License Agreement** By installing, copying, or otherwise using this product, you acknowledge that you have read, understand and agree to be bound by the terms and conditions of the [End User License Agreement](#) for this product.

**Patent Information** The accompanying product may be protected by one or more U.S. and foreign patents and/or pending patent applications held by Polycom, Inc.

**Open Source Software Used in this Product** This product may contain open source software. You may receive the open source software from Polycom up to three (3) years after the distribution date of the applicable product or software at a charge not greater than the cost to Polycom of shipping or distributing the software to you. To receive software information, as well as the open source software code used in this product, contact Polycom by email at [OpenSourceVideo@polycom.com](mailto:OpenSourceVideo@polycom.com).

**Disclaimer** While Polycom uses reasonable efforts to include accurate and up-to-date information in this document, Polycom makes no warranties or representations as to its accuracy. Polycom assumes no liability or responsibility for any typographical or other errors or omissions in the content of this document.

**Limitation of Liability** Polycom and/or its respective suppliers make no representations about the suitability of the information contained in this document for any purpose. Information is provided "as is" without warranty of any kind and is subject to change without notice. The entire risk arising out of its use remains with the recipient. In no event shall Polycom and/or its respective suppliers be liable for any direct, consequential, incidental, special, punitive or other damages whatsoever (including without limitation, damages for loss of business profits, business interruption, or loss of business information), even if Polycom has been advised of the possibility of such damages.

**Customer Feedback** We are striving to improve our documentation quality and we appreciate your feedback. Email your opinions and comments to [DocumentationFeedback@polycom.com](mailto:DocumentationFeedback@polycom.com).



Visit the [Polycom Support Center](#) for End User License Agreements, software downloads, product documents, product licenses, troubleshooting tips, service requests, and more.