Teamline 5250

Installation Guide

03 January 2019

Teamline
by StarLeaf

Contents

Before you install Teamline 5250

Before installing the Teamline system, read the Teamline 5250 safety and compliance information (p30).

Prerequisites

Ensure you have:

- One or two commercial displays that support a 1080p60 input format

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Note: Interlaced input is not supported.

- Displays with an audio-output capability and a spare HDMI input. If the displays have Game Mode or PC Mode, enable one of these options to reduce media processing delays and improve video experience
- A camera
- Microphone(s)

Create a Skype for Business account

On the Skype for Business server, create a user account that will be used by your Teamline system, or you can use an existing account. Make note of the authentication details.

Skype for Business requirements

For on-premise deployments, if the Skype for Business server certificates were issued by a private certificate authority, ensure you have the certificate of the Root Certificate Authority and any intermediate certificates. For more information, visit the Microsoft site: how to export Root Certification Authority Certificates

The Teamline system supports:

- Lync 2010 Server
- Lync 2013 Server

Note: If the deployment is not a Lync 2013 server, ensure that the Lync 2013 user interface is enabled.

- Skype for Business 2015 Server
- Skype for Business Online

Exchange requirements

Ensure you have a user account or room resource with Calendar enabled, and that it is linked to a Skype for Business account.

The Teamline system supports:

- Exchange 2010 SP2 Server
- Exchange 2013 Server
- Exchange Online

Note: Invitation emails to the Teamline system must contain the necessary attachments for conferencing facilities to function correctly. Otherwise, participants will be unable to use the **Join Now** option on the touchscreen. Automatic meeting responses may delete attachments; ensure automatic responses are configured to keep attachments.

Changing the room display title

The Teamline room display shows the titles of upcoming meetings. The meeting titles originate from the room's Exchange calendar. If you are using an Exchange resource account for your room, by default, the organizer's name in the Exchange calendar is displayed as the meeting title. To change the default display to the meeting title, refer to this Microsoft article.

Connecting Teamline 5250 to peripherals

What's in the box?

- Teamline 5250 room system, feet attached
- StarLeaf Touch touchscreen controller
- Audio injector
- Rack mounting kit
- Cables
  - Power cable
  - DVI-I to DVI-I cable (5 meters/16.4 feet)
  - Patch cable (5 meters/16.4 feet)
  - Two HDMI to HDMI cables (3 meters/9.8 feet)
  - 3.5mm jack to 3.5mm jack to connect the system to PC video and audio
  - Network cables
- Adaptors for the system-to-PC cable
  - DVI-I to HDMI
  - DVI-I to VGA
  - DVI-I to DVI-D
- StarLeaf microphone
- A camera and where applicable, camera cables, mounting kit, and camera power supply

Positioning the Teamline 5250 system

1. Choose an appropriate installation site:
   - The system must be accessible to ensure all cables are easily connected
   - Provide ventilation for the system; leave a space of at least 10cm (4 inches) behind, in front, and to the left and right of the system
   - Use a grounded AC power outlet for the system
2. Rack mount the unit or place on firm horizontal surface. The system is 1.5 U high (with removable feet detached) and is designed to fit in standard 19-inch racks. If you are using wireless (for example, Miracast) to connect devices to present content in meetings, ensure the system is not enclosed in a rack or behind a display. Otherwise, the wireless signal may not function.

Connecting network cables to the Teamline system

Note: When connecting HDMI or DVI cables to the camera inputs, the PC input, and the display outputs, ensure you use the correct gauge of HDMI/DVI cable. For short cable lengths of up to 5m (17 feet), use 28AWG or thicker core. For longer lengths, use 24AWG or thicker. StarLeaf does not support the use of HDMI or DVI cables of longer than 15m (49 feet) with the Teamline system.

1. Using an Ethernet cable, connect the **StarLeaf Controller Only** connector on the Teamline system to the PoE network port on the rear of the touchscreen controller. The touchscreen controller must connect directly to the Teamline 5250. Do not connect the touchscreen controller through a switch. The network port on the touchscreen controller is marked with this symbol:
2. Using the second Ethernet cable, connect the **Network** port on the rear of the Teamline system to an Ethernet switch in your network. The Ethernet port is a 10/100/1000 Mbit/s auto-sensing port and is set to 'auto' by default.

If your network doesn't support automatic detection, you can configure the network speed manually. On the touchscreen controller connected to the Teamline system, go to **settings > networking > network port speed** and select **100Mb/s (full)**.

The icons in the top-left corner of the touchscreen show the status of connected devices and the connection to the Skype for Business server:

Status indicators	
	A device is connected to the Teamline system
	The connected device is asleep. (Applicable to the Teamline 5250 system only)
	Connected to the Skype for Business server

Connecting the StarLeaf Touch

Using an Ethernet cable, connect the PoE **Network** port on the rear of the touchscreen to an Ethernet switch in your network. The Ethernet port is a 10/100/1000 Mbit/s auto-sensing port and is set to 'auto' by default. The touchscreen needs a switch/port that supplies PoE to function.

Note: The speed and duplex settings at either end of the connection must be identical. Using non-matching settings causes severe packet loss.

Connecting the camera and microphone

To connect the camera and microphone(s):

1. Connect the PTZ camera to **Camera In** with the VISCA control cable and the supplied HDMI video input cable, then connect power to the camera.
2. Connect the microphone to **Microphone In** with the supplied microphone cable. If required, you can connect third-party microphones to either the XLR connectors or the Line-In connector.

For more information about microphones, see Microphone selection, placement, and setup (p24).

Connecting displays and audio

Connect the display to **Video Out HDMI 1** on the system. If you have a second display, connect it to **Video Out HDMI 2**.

The audio emits from the audio-out connector on the rear of the system. Connect the **Line out** connector on the rear of the system to amplifier and loudspeakers.

Connecting the audio injector

If you are not using loudspeakers and an amplifier, connect the audio injector to send audio to the loudspeakers integrated in the display. Otherwise, audio will not be available in the room during meetings.

1. Connect the **Line Out** on the system to **L/R In** on the audio injector.
2. Connect the **Video Out** on the system to **HDMI Input** on the audio injector.
3. Connect the **HDMI Output** on the audio injector to your display.
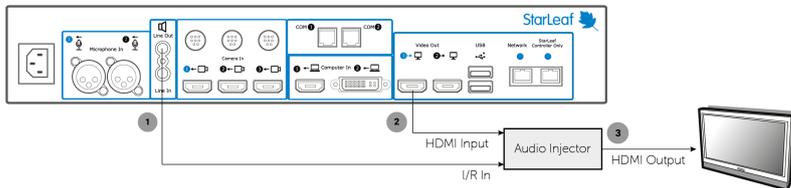
4. On the audio injector, set the EDID switches to zero, and set Mode switch 0 to 1:
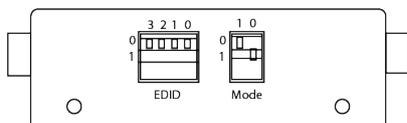
Connecting presentation sources

Presentation sources (such as laptops) can be connected to **Computer In 1** and/or **Computer In 2** on the rear of the Teamline system. This can be used to display content locally on the meeting room displays and to share content with participants in meetings. It is recommended that you leave a cable within easy access on the meeting room table for this purpose. StarLeaf supplies a selection of adaptors that can be used with the DVI-I to DVI-I cable if the video output on the presentation source is not DVI-I (for example, VGA, HDMI, DVI-D.)

To send audio from a presentation source, connect the audio out on the device to the audio **Line In** on the system. Otherwise, participants will not receive audio from the device.

Extending cables

For information about supported cable extenders and cable information, see Cable recommendations for room systems (p27).

Connecting power

Using the supplied power cable, connect the IEC mains power connector on the rear of the system to the mains power.
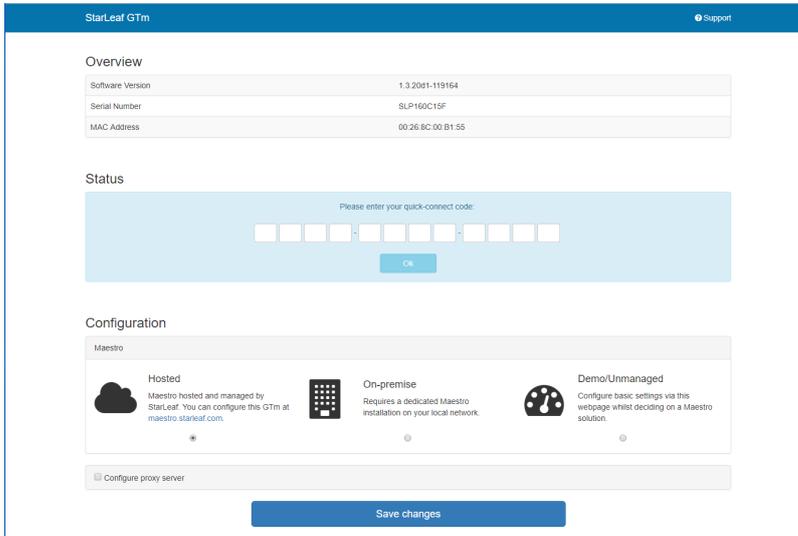
Configuring Teamline 5250

Before you can use the Teamline system, go to the Teamline configuration web interface to:

- Enter the Quick Connect code to connect the Teamline system to the Maestro management platform
- Configure a proxy server (if required)

To access the configuration web interface:

1. Tap 🏠 twice on the touchscreen controller to view settings, then tap **networking** to view the IP address.
2. In a browser, enter this IP address in the address bar. The configuration web interface is displayed:

3. Select **Hosted** if your system is managed by StarLeaf. Select **On-premise** if you are using a local version of Maestro that has been installed by StarLeaf on your local network.

Connecting the system to Maestro

To connect the Teamline system to Maestro:

1. Open the Maestro site. If you haven't created a new room for your Teamline system, see the Maestro management platform guide on the Teamline Knowledge Center.
2. In the Maestro **Meeting Rooms** page, click **Manage** next to the meeting room to view the Quick Connect Code. Enter this code in the Teamline configuration web page.
3. Click **Save changes**.

Configuring the proxy server (optional)

Optionally, you can use the web interface to configure a proxy server:

1. If there is a proxy server for your deployment, select **Configure proxy server**.
2. Select **Automatically detect settings** or **Manual configuration**.
3. If you are using a setup script to configure the proxy server, enter the location of the script in the **Configuration script address** field.

4. If the proxy server requires a user name and password, enter the details in the **Username** and **Passsword** fields.

Changing system settings

To change the Teamline system configuration:

1. In the Maestro **Meeting Rooms** page, click **Manage** next to the relevant room.
2. In the Info area, copy the unlock password.
3. In the Teamline configuration web interface, paste the password in the **Unlock** field.
4. Click **Unlock**.

Using a static IP address

By default, the Teamline system uses DHCP to acquire an IP address. If required, you can configure the system with a static IP address. In **networking**, toggle **DHCP** off and tap to enter the **IP address**, **netmask**, and **gateway** addresses.

Note: If the address entered is invalid, you are not notified on the touchscreen. Ensure you enter the correct details.

Advanced Settings

Configuring EAP authentication

To deploy the Teamline system into a network that is using 802.1x with EAP-TLS authentication:

1. In a browser, enter the Teamline system IP address in the address bar. The Teamline configuration page is displayed.
2. Select **Configure 802.1x**:

3. Select the EAP method from the drop-down list.
4. Enter the identity of the server in the **Identity** field.
5. Click **Choose File** to browse to the location of the client certificate. If you do not have a certificate from your Certificate Authority, click **Generate new signing request** to request a certificate from your CA.

Ports and protocols

This is a list of ports and protocols used by the Teamline system. You will need this if your network has Network Access Control (NAC) enabled, which analyzes traffic from the unit for security purposes.

Room system connectivity

All source ports are ephemeral, that is, 1024-65535, unless otherwise specified.

Outbound

Port	Host	Protocol	Notes
53	DNS server as defined in the network configuration	TCP/UDP (DNS)	Used to resolve domain names or find services (for example, in autodiscovery on older configurations using SRV or A records)
67	Broadcast DHCP server	UDP (DHCP)	Requests to DHCP server
443	*.maestro.starleaf.com Local Maestro server **Note:** * denotes either config or fw. If you are using a proxy, the whitelist should be *.maestro.starleaf.com and maestro.starleaf.com if the first rule doesn't cover this	TCP (HTTPS)	Management server connection (either hosted or on-premise)
5355	Windows devices	TCP/UDP (LLMNR)	Used to resolve names on the local network

Inbound

Port	Host	Protocol	Notes
68	DHCP server	UDP (DHCP)	Responses from DHCP server

Port	Host	Protocol	Notes
80	Any	TCP (HTTP)	Endpoint control API
443	Any	TCP (HTTPS)	Web UI

On-premise Skype for Business 2015 or Lync 2013

All source ports are ephemeral, that is, 1024-65535, unless otherwise specified.

Outbound

Port	Host	Protocol	Notes
80	lyncdiscover.domain lyncdiscoverinternal.domain autodiscover.domain	TCP (HTTP)	Used in Lync and EWS autodiscovery
88	AD server	TCP/UDP	Kerberos authentication
443	Local webticket ADFS wsfed servers	TCP (HTTPS)	Various authentication modes for external servers (also EWS server)
3478	Edge server	UDP (STUN/MSTURN)	Used for external user access to AV sessions and media (UDP)
5061	Front End server	TCP (MTLS)	Used for client-to-server SIP traffic for external user access
1024-65535	Front end server Other client	UDP	Audio, and video (minimum of 40 ports required)
1024-65535	Front end server Other client	TCP	Audio, video, and application sharing
1024-65535	Front end server Other client	TCP (PSOM)	Peer-to-peer file transfer for conferencing file transfer. Clients use PSOM

Teamline systems on external networks

If the Teamline system is not located on the same local network as the Skype for Business deployment (that is, if it connects using the Edge server), the following ports and protocols also apply.

All source ports are ephemeral, that is, 1024-65535, unless otherwise specified.

Port	Host	Protocol	Notes
443	Edge server	TCP (TLS)	Used for client-to-server SIP traffic for external user access
443	Edge server	TCP (PSOM/TLS)	Used for external user access to web conferencing sessions
443	Edge server	TCP (STUN/MSTURN)	Used for external user access to A/V sessions and media (TCP)
3478	Edge server	TCP (STUN/MSTURN)	Used for external user access to A/V sessions and media (UDP)
1024-65535	Other client	UDP	Audio, and video
1024-65535	Other client	TCP	Audio, video, and application sharing
50,000-59,999	Edge server	UDP	Audio, and video
50,000-59,999	Edge server	TCP	Audio, video, and application sharing

Skype for Business Online

The full range of Skype for Business Online IP addresses is available at:
https://support.office.com/en-us/article/Office-365-URLs-and-IP-address-ranges-8548a211-3fe7-47cb-abb1-355ea5aa88a2?ui=en-US&rs=en-US&ad=US&fromAR=1#BKMK_LYO

All source ports are ephemeral, that is, 1024-65535, unless otherwise specified.

Outbound

Port	Host	Protocol	Notes
443	Skype for Business Online servers	TCP (HTTPS)	Webticket, wsfed authentication
443	Skype for Business Online servers	TCP (TLS)	SIP signaling
443	Skype for Business Online servers	TCP (PSOM/TLS)	PSOM connections web conferencing
443	Skype for Business Online servers	TCP	Audio, video, and application sharing (source port depends on configuration)
3478-3481	Skype for Business Online servers	UDP	Audio, video, and application sharing (source port depends on configuration)
50,000-59,999	Skype for Business Online servers Other client	TCP/UDP	Audio (source port 50,000-50,019)
50,000-59,999	Skype for Business Online servers Other client	TCP/UDP	Video (source port 50,020-50,039)
50,000-59,999	Skype for Business Online servers Other client	TCP	Application sharing (source port 50,040-50,059)

Inbound

Port	Host	Protocol	Notes
50,000-50,019	Skype for Business Online servers Other client	TCP/UDP	Audio (source port 50,000-59,999)
50,020-50,039	Skype for Business Online servers Other client	TCP/UDP	Audio (source port 50,000-59,999)

| Port	Host	Protocol	Notes
50,040-50,059	Skype for Business Online servers Other client	TCP	Application sharing (source port 50,000-59,999)

Teamline 5250 system specifications

The following figure shows the connectors on the rear of the Teamline system:
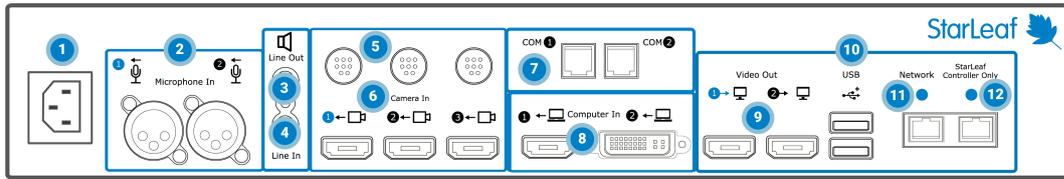
	Connector	Description
1	Power	An IEC mains power connector. The Teamline system automatically adjusts to the supply voltage. Use the supplied power cable to connect the system to the power. Connect all other cables before connecting the power
2	Microphone In	XLR-F connectors. Connect one or two StarLeaf microphones
3	Line-out	3.5mm stereo audio connector. Connect to the display or to a local loudspeaker system
4	Line-in	3.5mm line level stereo audio connector, to input presentation audio. This audio input can be heard at the far end of any video call
5	Camera control	Mini-DIN-8 connector for controlling zoom, pan, and tilt using VISCA™ protocol. Connect the camera control cable from the PTZ video conferencing camera
6	Camera In	HDMI connector. Connect the camera cable from the PTZ video conferencing camera
7	COM	This port is for a 4P4C connector providing an RS-232 interface. This is the same connector used in RJ9, RJ10, and RJ22. An API option and documentation are available for the Teamline system
8	Computer In	HDMI and DVI-I connectors. Connect a device to share content in a call. If a device is connected to both connectors, content can be shared from the last device that was connected
9	Video Out	HDMI connectors. These connectors output video (1080p60 only) to the displays
10	USB	Reserved for future expansion
11	Network	10/100/1000 Mbit/s auto-sensing Ethernet port. Connect to the network
12	StarLeaf Controller	Connect to the StarLeaf Touch

Dimensions

The Teamline 5250 system is designed to fit into a 19" communications rack and occupies 1.5U of height.
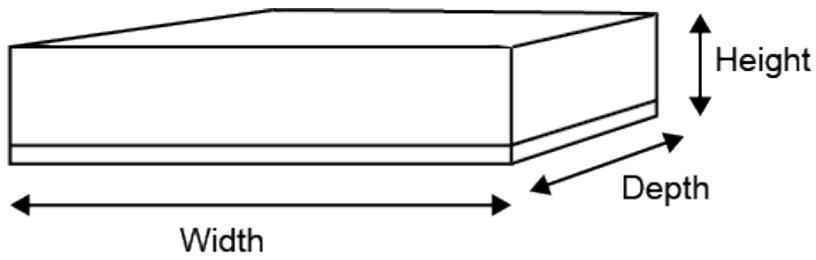
Dimension	Metric	American
Width	420 mm	16.55 in.
Depth	210 mm	8.5 in.
Height (with feet attached)	72mm	2.9 in.
Height (without feet attached)	65mm	2.6 in.

System LED behavior

Network port LED

LED	State
Link/Activity LED (On the left when looking at the port)	Solid yellow indicates there is a link, flashing when there is activity, off when there is no link
Gigabit LED (On the right when looking at the port)	Green for 1000 Mbit/s link, off for 10/100 Mbit/s link or no link

StarLeaf Touch Port LED behavior

LED	State
Link/Activity LED (On the left when looking at the port)	Solid yellow indicates there is a link, flashing when there is activity, off when there is no link
Gigabit LED (On the right when looking at the port)	Green for 1000 Mbit/s link, off for 10/100 Mbit/s link or no link

Power and Status LED behavior

Power LED	Status LED	State
Solid blue	Solid yellow	Power has been applied to the unit, but it has not started services yet
Solid blue	Solid green	The unit has booted up and everything is working properly
Solid blue	Solid red	There is a problem. This can indicate overheating and/or fan failure

Camera comparison for Teamline 5250

This topic explains the features of the different cameras that StarLeaf supports for use with the Teamline 5250 system.
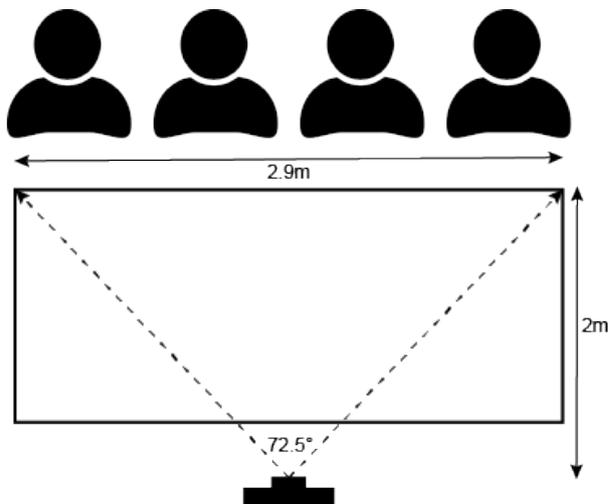
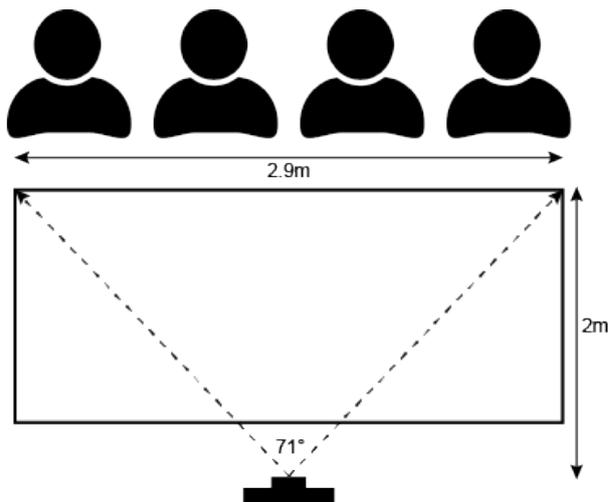|	VHD-V61	Sony SRG-120DH
Use case	Small to large meeting rooms	Small to very large meeting rooms
Video quality	Excellent	Excellent
Low light capability	Excellent	Excellent
Supported maximum resolution	1080p30	1080p30
PTZ	✓	✓
Horizontal field of view	72.5°	71°
Upside-down mounting	✓	✗
Optical zoom	12x	12x
Video connection	HDMI	HDMI
Camera control connection	VISCA - Mini-DIN	VISCA - Mini-DIN
Dimension (W x H x D)	142 x 169 x 164 mm Note: Maximum height is 195mm during startup sequence	153 × 156 × 153 mm

Shelf dimensions

	VHD-V61	Sony SRG-120DH
Dimensions of required mounting shelf	150 x 195 x 200 mm (to accommodate connected cables and startup sequence)	160 x 200 mm

Examples of the maximum field of view

VHD-V61 at 2m

Sony SRG-120DH at 2m

For more information about installing and using the Sony SRG-120DH camera, refer to the Sony website.

For information about installing the VHD-V61 camera, see Installing the VHD-V61 camera (p23).

Installing the VHD-V61 camera

Before you install the camera, read the following safety information:

- Do not subject the camera to rain or moisture
- To prevent electric shock, do not remove screws or covers of the camera. There are no self-serviceable parts. Refer to qualified service personnel for servicing
- Do not operate under unspeci fied temperature, humidity or power supply
- Use the soft dry cloth to clean the camera. If the camera is very dirty, clean it with diluted neutral detergent; do not use any type of solvent, which may damage the surface
- The installation must be performed by qualified service personnel or system installers in accordance with all local rules
- Do not move the camera head manually. Doing so results in the camera malfunctioning
- Before powering the camera, check the power voltage carefully. Ensure you are using the correct power source
- Ensure that the camera is far away from areas where there might be radiation, x-rays, or strong electric waves, or where magnetism is generated

To install the camera:

1. Connect the supplied HDMI-HDMI cable to the HDMI connector on the camera. Connect the other end to the Camera-In HDMI connector on the Teamline system.
2. Connect the supplied VISCA camera control cable to the RS-232 IN connector on the camera. Connect the other end to the VISCA connector on the Teamline system.
3. Connect power to the DC 12V power input on the back of the camera.

Note: The selector switches on the rear of the camera have no effect on the operation of the camera.


Microphone selection, placement, and setup

Teamline systems provide class-leading super-wideband audio to rooms of all sizes; however, to ensure this audio performance, you must use the correct number of microphones in the correct places for a given room. This topic helps you to configure your microphones with the Teamline system.

The 5250 system is shipped with a StarLeaf microphone. Features include:

- Omni-directional pick up pattern
- 80Hz - 16kHz frequency response
- > 70dB signal-to-noise ratio
- Boundary mode operation
- XLR connection. (XLR plugs on the microphone cables are 'male')
- Mute button with dual-colour LED indicator to provide muting control and status
- 6.5m XLR cable that can be extended by up to 100m
- Designed to be resistant to RF interference

Teamline 5250 systems can provide phantom power through XLR connectors used by active microphones, such as the StarLeaf microphone. The phantom power supply can be enabled or disabled for each XLR connector using the Maestro management platform. For more information about configuring audio in Maestro, see *Configuring audio settings* in Managing the room.

The StarLeaf microphone effectively picks up participants of all volumes within a radius of 1.5m (4ft) centered on the microphone:


3 meters
(9 feet)
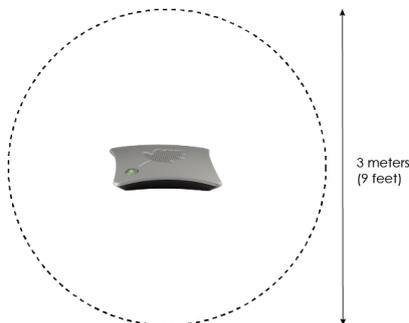
The effective pickup area of the microphone should be considered with the dimensions of the conference table in the meeting room to decide on the correct audio products for this environment.

Up to two microphones are supported for the Teamline 5250 system. If two microphones are used, position them so that the distance between all participants and the closest microphone is minimized. For instance, on a circular table place the microphone in the center of the table. On a large rectangular table measuring 3.6m x 1.2m (12ft x 4ft), place the microphones 1.2m (4ft) apart, 1.2m (4ft) from the ends of the table.
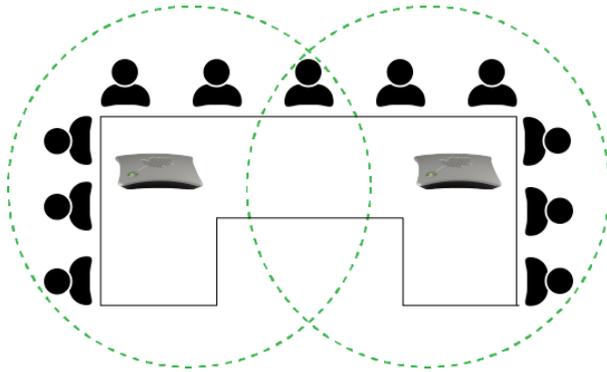
The input sensitivity of the XLR connectors is correct for all StarLeaf microphones, by default.
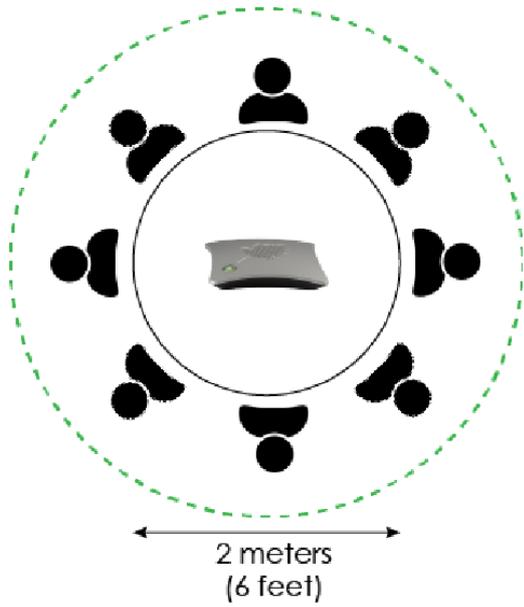
Example microphone placement

With two Telepresence Microphones:

1.2 meters
(3 feet)

3.6 meters (11 feet)
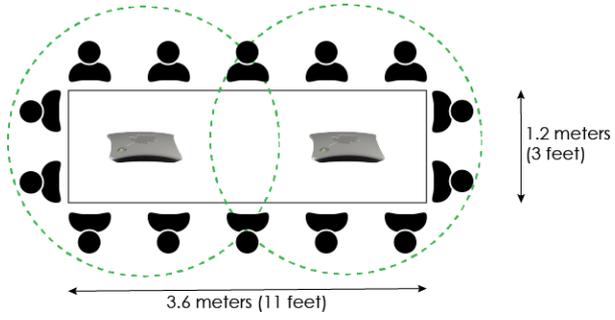
Horseshoe table:

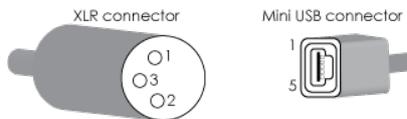Round table:

2 meters
(6 feet)

Pinout for StarLeaf microphone cable

The table below shows the pinout for the XLR-to-mini USB cable that is provided with the StarLeaf Microphone for use with StarLeaf room systems.

Pins on XLR connector	Pins on Mini USB connector	Function
1	5	Ground
2	3	Positive
3	2	Negative

The connectors and pin positions

Cable recommendations for room systems

HDMI cables

For HDMI interfaces and DVI interfaces when used with a digital source, the cable assembly (including any line couplers used) must comply with the requirements of a Category 2 cable as defined in the HDMI specification Version 1.3a.

The maximum length of cable for which these specifications are met depends on the quality of the cable. However, it is unlikely that any cable achieves these specifications at a length greater than 15 meters unless active HDMI/DVI extenders are used. For a given cable quality, the use of passive line couplers reduces the maximum length up to which these requirements are met.

HDMI interfaces are production tested using a 10 meter long cable from the following source: Lindy 10m premium cable

DVI interfaces are production tested using an instance of the 5 meter DVI-I cable supplied with the product.

XLR cables

StarLeaf supplies standard length XLR cables; however, any good XLR cable works well. Testing at StarLeaf shows good results with up to 100m of high quality cable.

USB cables

USB cables greater than 5 meters (16 feet) in length are not recommended. All USB extenders (such as active USB cables) are not supported by StarLeaf.

Camera cables

Teamline systems that include PTZ cameras are provided with 5 meter connection cables. To install cameras further than 5 meters from the system, you can extend cables using a third-party product called an *extender*. This product effectively carries the media and camera-control signals across a cat 6 Ethernet cable.

StarLeaf has partnered with Sound Control Technologies to provide this solution, and is available at http://www.soundcontrol.net/solutions/#

VISCA cable requirements

If you need to use a longer VISCA cable than the one provided with the Teamline room system, refer to the following cable requirements:

- VISCA cables are available in crossed and straight-through configurations; Teamline room systems require straight-through cable
- The plugs should seat well into the socket on the rear of the room system. On some room systems, the sockets are slightly recessed behind the back panel; take care that cables with larger shrouds on the connectors are seated correctly into the sockets (you may need to modify the cables)

Pinout

The following diagram shows the pinout for the Camera Control connector on the rear of the Teamline room system:
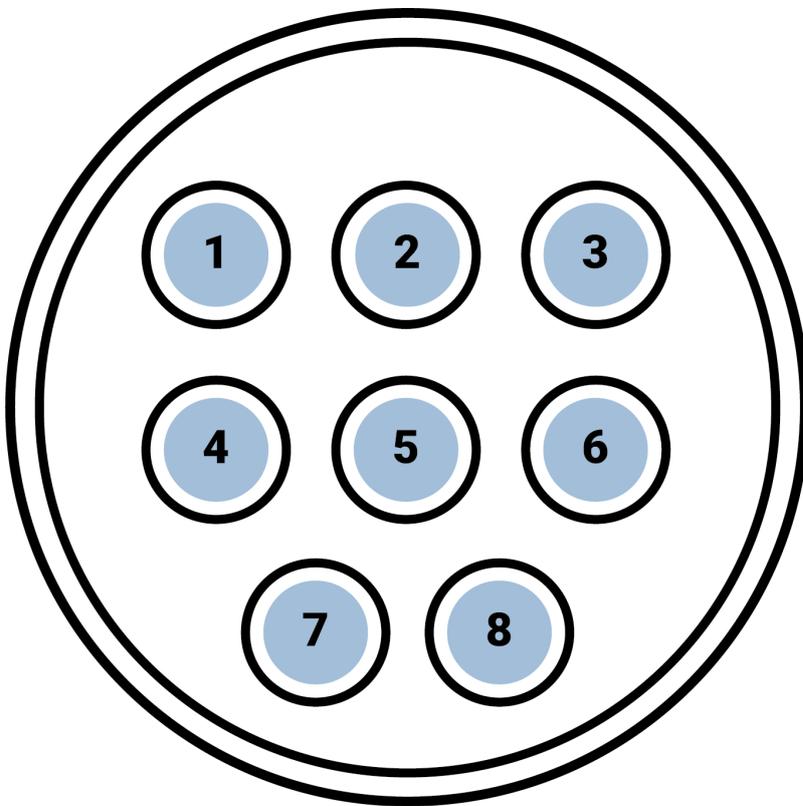
Pin	Function	Direction on the Teamline system
1	MD	Output
2	IR	Input
3	GND	-
4	TX	Output
5	GND	-
6	RX	Input

Pin	Function	Direction on the Teamline system
7	DTR	Output
8	DSR	Input

Teamline 5250 safety and compliance information

For StarLeaf legal information, including the StarLeaf privacy notice, end user license agreement, and GDPR compliance, go to the StarLeaf Knowledge Center at https://support.starleaf.com/legal-information/

Installation

Install the Teamline 5250 only in accordance with the installation instructio ns.

Ventilation

Do not block any of the ventilation openings of the Teamline 5250.

The Teamline 5250 uses side-to-side cooling fans. Allow an adequate space on the sides of the unit to promote a good air flow for cooling of the Teamline 5250. Do not block the fan inlet or outlets. Ensure that the fan intake is not placed inline with the outlet from any other fan or convection cooled device.

Rack mounting

Read the rack mounting instructions carefully before you rack mount the Teamline 5250. Ensure that the rack will remain stable.

Servicing

Do not remove the cover of the Teamline 5250. There are no user-serviceable parts. If you open the Teamline 5250 or remove its cover you may expose yourself to dangerous voltages or other hazards, and you will invalidate the warranty.

Power requirements

Over-current protection

Ensure the power supply to the Teamline 5250 is protected by a branch circuit protector rated by a maximum of 20A.

Caution—over-current devices must meet applicable national and local electrical safety codes and be approved for the intended application.

The table below shows the power ratings of the Teamline 5250:

Table 1: AC power ratings

Rating	Value
Supply voltage range	100 to 240V 50/60 Hz
Current rating	5A maximum

Operating environment

The Teamline 5250 must only be used indoors and within the following environmental conditions:

Table 2: Operating environment

Environment	Temperature	Humidity
Operating environment	0°C to 35°C	10% to 95% (non-condensing)
Non-operating environment	-10°C to 60°C	10% to 95% (non-condensing)

Approvals information

EU/EEC

COMPLIANCE MODEL: MEK01A

The Declaration of Conformity is available on request.

Directive 2006/95/EC (Low Voltage Directive):

- Standard EN 60950-1

Directive 2004/108/EC (EMC Directive):

- Standard EN 55032 Class A
- Standard EN 55024
- Standard EN 61000

USA

Approved according to UL 60950-1

Complies with FCC Part 15 Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Canada

ICES-003 Class A Notice

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Canada

ICES-003 Class A Notice

Legal information

Third party software acknowledgments

Acknowledgments of third-party software are available at:

www.starleaf.com/support/legal

Disclaimers and notices

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