90 Dallas Camera Club

Inspiring Photographers For 90 Years 1934-2024

DCC House Audio/Visual Equipment Setup
for Club Meetings

Prepared by Don Haig
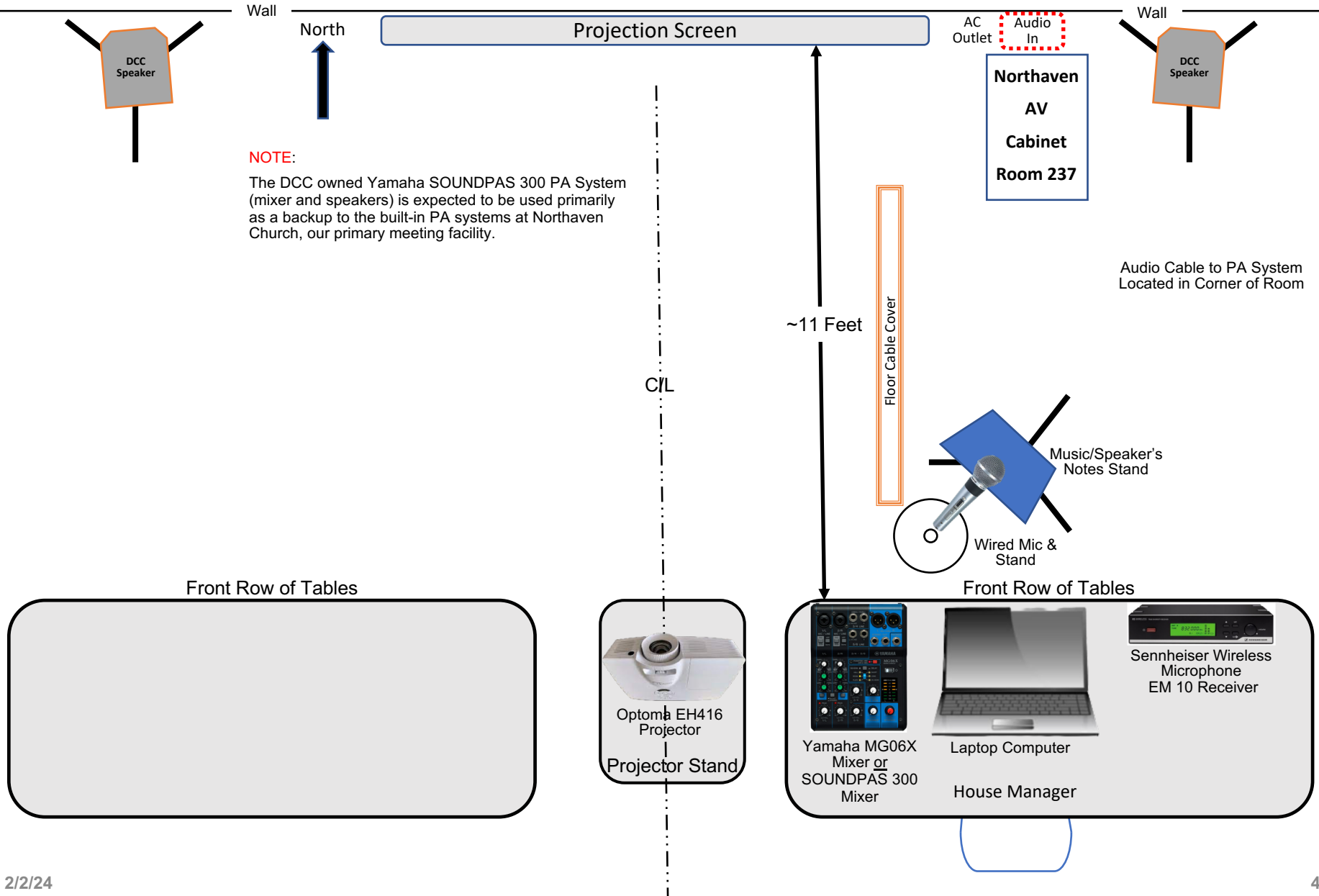
2/1/24

Table of Contents

A/V System Components Placement- Room 237

Wall

North

Projection Screen

AC Outlet

Audio In

DCC Speaker

Northaven

AV

Cabinet

Room 237

Wall

DCC Speaker

NOTE:

The DCC owned Yamaha SOUNDPAS 300 PA System (mixer and speakers) is expected to be used primarily as a backup to the built-in PA systems at Northaven Church, our primary meeting facility.

Audio Cable to PA System Located in Corner of Room

~11 Feet

Floor Cable Cover

C/L

Music/Speaker's Notes Stand

Wired Mic & Stand

Front Row of Tables

Front Row of Tables

Optoma EH416 Projector

Projector Stand

Yamaha MG06X Mixer or SOUNDPAS 300 Mixer

Laptop Computer

House Manager

Sennheiser Wireless Microphone EM 10 Receiver

Audio/Visual Setup Configurations for Northaven Church

- Configuration 1- Yamaha MG06X Mixer & built-in PA Systems in Northaven Church, Rooms 237 & 239
  - Preferred configuration with audio from ceiling mounted speakers in both rooms
  - Audio is sent via 2 cables from the Mixer to the Audio In wall jacks (3.5mm) in each room
    - A thin audio cable (~15 feet in length) with 3.5mm plugs on both ends is connected to the Phones out stereo jack (via an adapter) on the Mixer and to the Audio In jack in Room 237
    - A second thin audio cable (75 feet in length) with a splitter having two ¼" TS (telephone plugs) on one end and a 3.5mm plug on the other.
      - The two ¼" telephone plugs are connected to the primary output jacks (L & R) on the Mixer
      - The 3.5mm plug connects to the Audio In jack in Room 239
    - AThe primary output jacksUse dual audio outputs from Mixer to feed wall mounted Audio IN jacks in Rooms 237 & 239. 75 feet of audio cable required to reach from mixer in Room 237 to Audio IN jack in Room 239.
- Configuration 2- Yamaha SOUNDPAS 300 System (Mixer & Speakers)
  - Backup PA system to the built-in PA Systems in Northaven Church Rooms 327 & 239
  - Also used for DCC meetings at other facilities, such as restaurant where the annual awards banquet is held
  - Mixer equipped with an internal power amplifier to drive the passive speakers

A/V Cables, Connector Types & Adapters

XLR Female (L); Male (R)
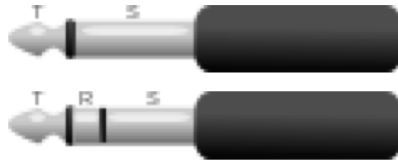
¼" TS Mono Male;
¼" TS Stereo Male

3.5mm Audio Stereo Cable
75 Feet, Male to Male

3.5mm Stereo to 3.5mm Stereo

3.5mm Male Stereo Splitter to
Dual Mono ¼" TS

1/4 Inch Mono Extension Cable- 10
Feet 1/4" Male to 1/4" Female Plug

3.5mm Stereo Splitter to
dual Mono RCA

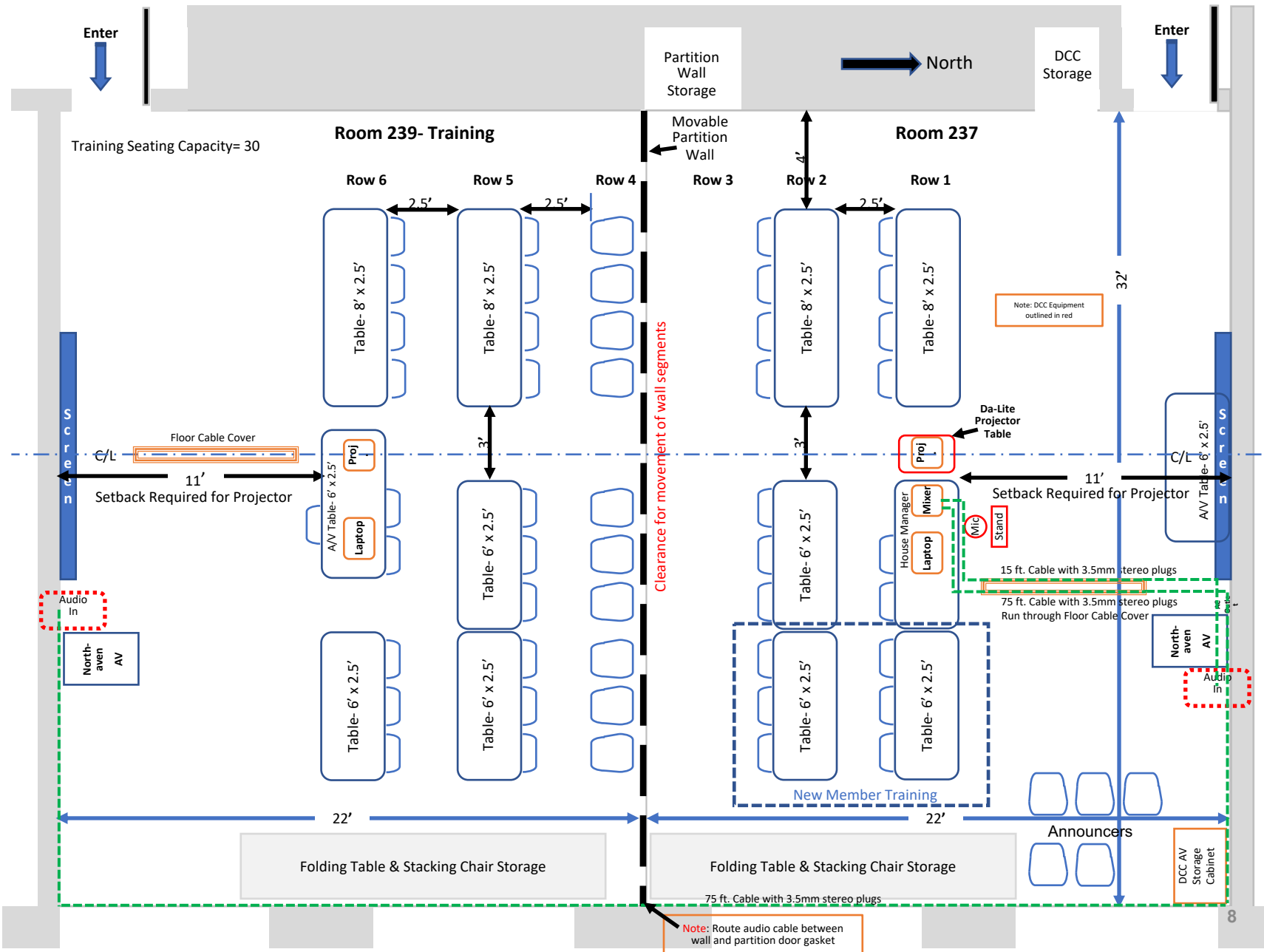HDMI to HDMI

3.5mm Female Stereo
Splitter to dual Mono ¼' TS

1/4" TRS, Stereo Male to
3.5mm Stereo Female

DCC Audio/Visual System Setup- Configuration 1
## Yamaha MG06X Mixer & Northaven PA Systems

XLR Connector

Sennheiser 5650D Microphone

XLR Connector (rear)

Sennheiser SK 20
Bodypack Transmitter

RF

Splitter

Splitter

3.5mm Female Stereo
Splitter to dual Mono ¼' TS

Sennheiser Wireless Microphone EM
10 Receiver

XLR Connectors
IN

¼" Mono TS
Plugs IN

¼" Mono TS
Plugs OUT

Outputs

3.5 mm
Headphone
Plug

HDMI

Laptop Computer

Output to 2 Ceiling
Mounted Speakers
Room 239

Output to 2 Ceiling
Mounted Speakers
Room 237

Main Power Switch

Main Power Switch

Gain Controls

Gain Controls

AV Cabinet- Room 239

AV Cabinet- Room 237

Yamaha MG06X Mixer

HDMI-2

1/4" TRS, Stereo Male to
3.5mm Stereo Female

Optoma EH416 Projector

3.5mm (1/8 inch) Stereo Audio

3.5 mm stereo
Audio IN from
Yamaha Mixer

AUDIO IN

3.5 mm stereo
Audio IN from
Yamaha Mixer

AUDIO IN

Wall Mounted Jack

Wall Mounted Jack

NOTES:

Red lines represent audio cables. Blue lines
represent HDMI cable.

Power cords and power supplies not shown

75 ft. Cable with 3.5mm stereo plugs on both ends

~15 ft. Cable with 3.5mm stereo plugs on each ends

Audio Cable Routing from Room 237 to Room 239

Northaven PA Systems Setup- Rooms 237 & 239

Keys located in Room 230

Key to Partition Wall
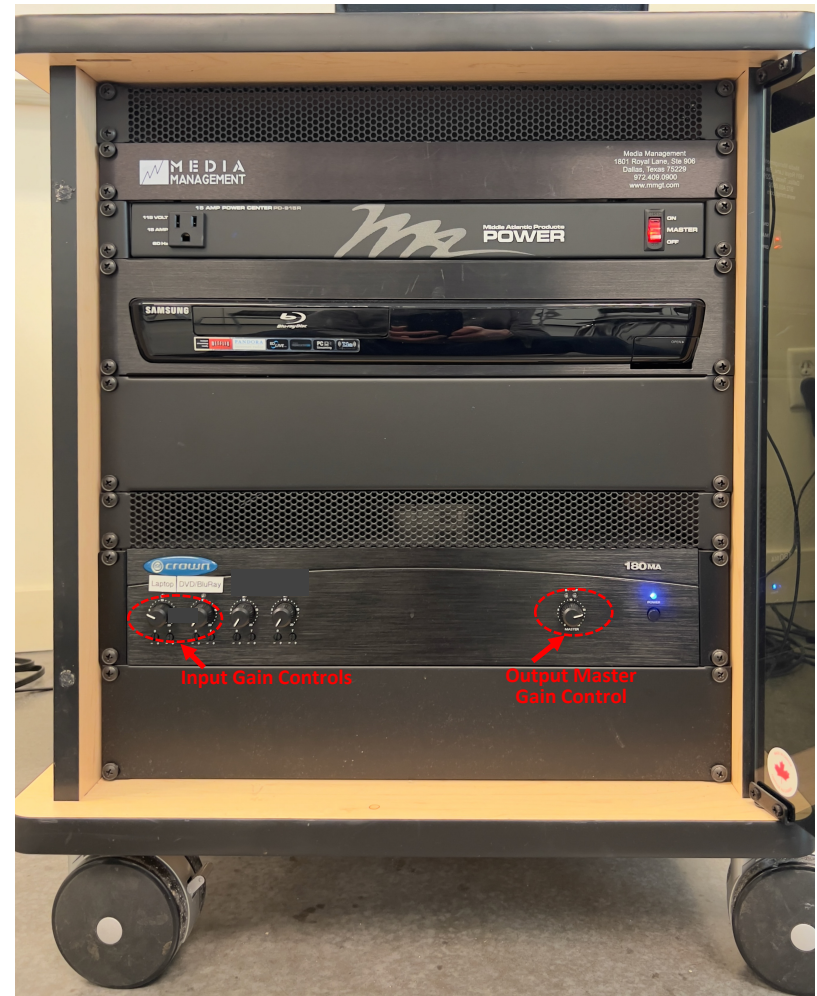
Keys to A/V Cabinets
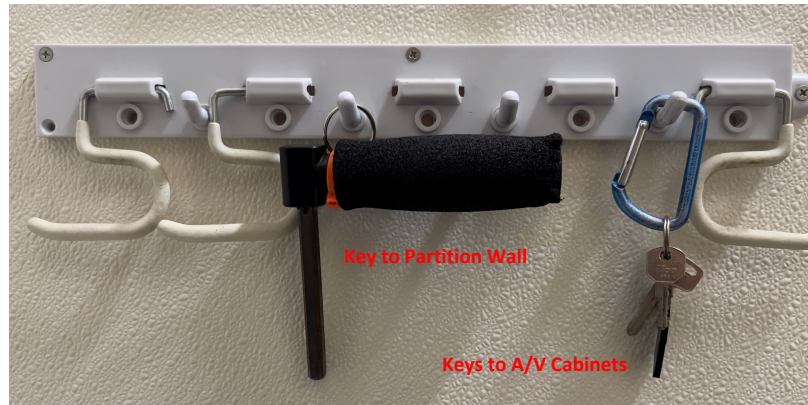
- Refer to diagram on prior slide with dashed green lines showing routing of audio cable to connect DCC Mixer to wall mounted Audio In jacks in both rooms

- See following slide for photos of A/V Cabinets

- Room 237
    - Unlock A/V cabinet front door
        - Turn ON Master Power in A/V cabinet (top right)
        - Adjust Laptop input volume dial to maximum (lower left)
        - Adjust Output Level (lower right) dial to 90% of maximum
        - Adjust two dials marked Room 239 to minimum
    - Plug in 15 ft. 3.5mm audio cable from DCC Mixer Phones output jack jack (with ¼" TX to 3/5mm adapter installed) and to Audio In wall jack
    - Plug in two ¼" TS plugs of splitter to DCC Mixer L & R Output jacks
    - Connect 75 ft. 3.5mm cable to 3.5mm female connector on splitter
    - Uncoil 75 ft. audio cable and route along eastern wall (windows) of Room 237 toward Room 239
    - Feed 3.5mm end of audio cable between fixed wall and gasket of partition wall, above baseboard

- Room 239
    - Continue to route audio cable along eastern wall and turn toward A/V cabinet in Room 237
    - Coil excess audio cable an place behind A/V cabinet
    - Plug in 75 ft. 3.5mm audio cable to Audio In wall jack behind A/V cabinet
    - Unlock A/V cabinet front door
        - Turn ON Master Power in A/V cabinet (top right)
        - Adjust Laptop input volume dial to maximum (lower left)
        - Adjust Clipping (lower right) dial to 90% of maximum

A/V Cabinets- Rooms 237 & 239
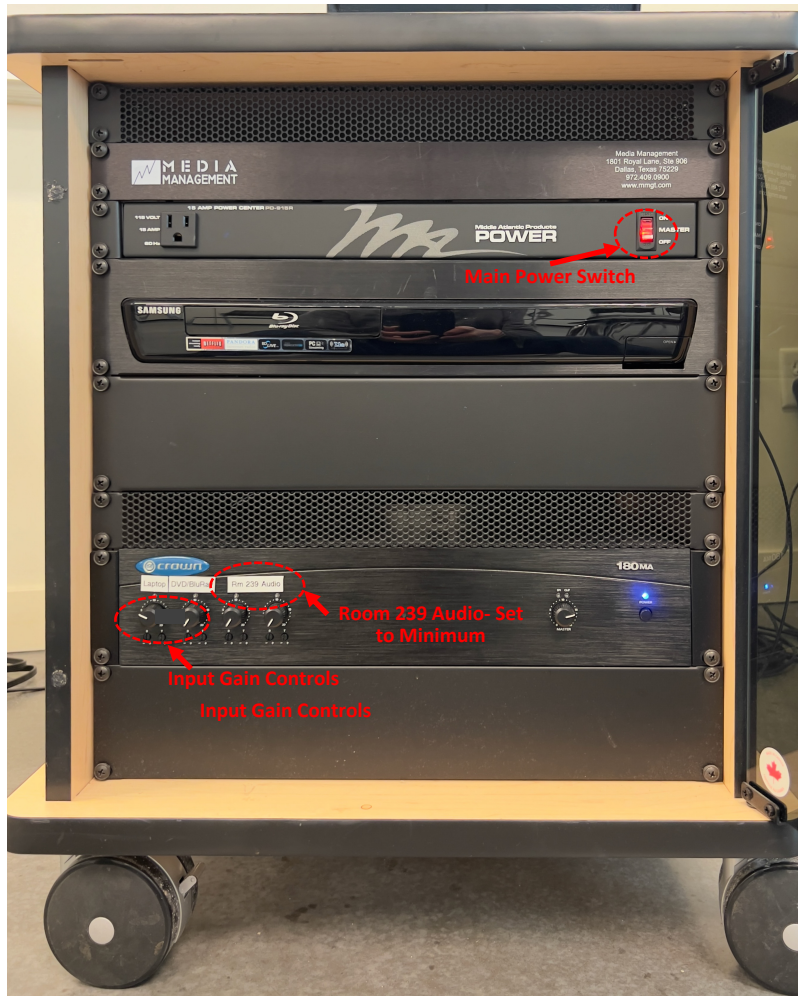
AV Cabinet- Room 237

AV Cabinet- Room 239

Yamaha MG06X Audio Mixer Controls (Top)

Mic- Wired IN- XLR

Mic- Wireless IN- XLR

Computer Audio IN

Output to Room 239 PA L & R OUT ¼" TS from Splitter

Output to Room 237 PA Stereo OUT Use ¼" TS to 3.5mm adapter

Filters- All OFF (UP)

Preamp- Midpoint (initial)

Hi & Lo Pass Filters- 0

All OFF (UP) Mono

Channels Intput Levels 0 (initial)

48V Power Always OFF (UP)

Power Standby (UP); ON (DOWN)

REVERB- Set to Hall

Peak Output Level Keep < +6

Master Level OUT 0 (initial)

Phones- Output to Room 239 Level OUT 0 (initial)

Yamaha MG06X Audio Mixer (Rear)

NOTE: Power to mixer is ON whenever 12 VDC Power Supply connected. Power switch on top toggles between ON and STANDBY

Controls and Functions
Yamaha MG06X Mixer

Connect the supplied AC power adaptor to this jack.

② [MIC/LINE] mono input jacks (channels 1/L, 2/R)

Connect a microphone, an instrument, or an audio device (CD player, etc.) to the unit. These jacks support both XLR and phone plugs.

XLR   Phone

③ [LINE] stereo input jacks (channels 3/4, 5/6)

Connect line-level devices such as an electric keyboard or an audio device. These jacks support phone plugs. If you use only the [L/MONO] jack, same sound is output from both L (left) and R (right) speakers.

④ [PAD] switches

Turning the switch on (▬) will attenuate the sound input to the unit. If you hear distortion or the [PEAK] LED ⑫ lights, turn the switch on (▬).

NOTE Turn the [LEVEL] knob to "0" (minimum) before toggling the [PAD] switch on (▬) and off (▮). Otherwise, noise may be produced.

⑤ [HPF] (High-Pass Filter) switches

Turning the switch on (▬) will apply a high-pass filter that attenuates frequencies below 80Hz. When speaking into the microphone, you may want to turn this switch on (▬), in order to reduce unwanted vibration and wind sound received by the microphone.

⑧ [GAIN] knobs

Determines the basic volume for each channel, 1/L and 2/R. Adjust these so that the corresponding [PEAK] LEDs ⑫ flash briefly when singing or playing the loudest.

⑨ Equalizer (EQ) knobs

Adjust the sound quality by using the [HIGH] (high frequency band) and [LOW] (low frequency band) knobs. If you do not need to adjust the sound quality, set the knob to the "▾" (flat) position.

⑩ [FX] switches (MG06X)

Toggle the FX (effect) of channels 1/L and/or 2/R on and off.

⑪ [▮MONO/▬STEREO] switch

(▮) [MONO]: Sound input to channels 1/L or 2/R can be heard from both the right and left speakers. If you use the 1/L or 2/R individually, set the switch to this setting.

(▬) [STEREO]: Sound input to channel 1/L can be heard from only the left speaker, and that input to channel 2/R can be heard from only the right speaker.
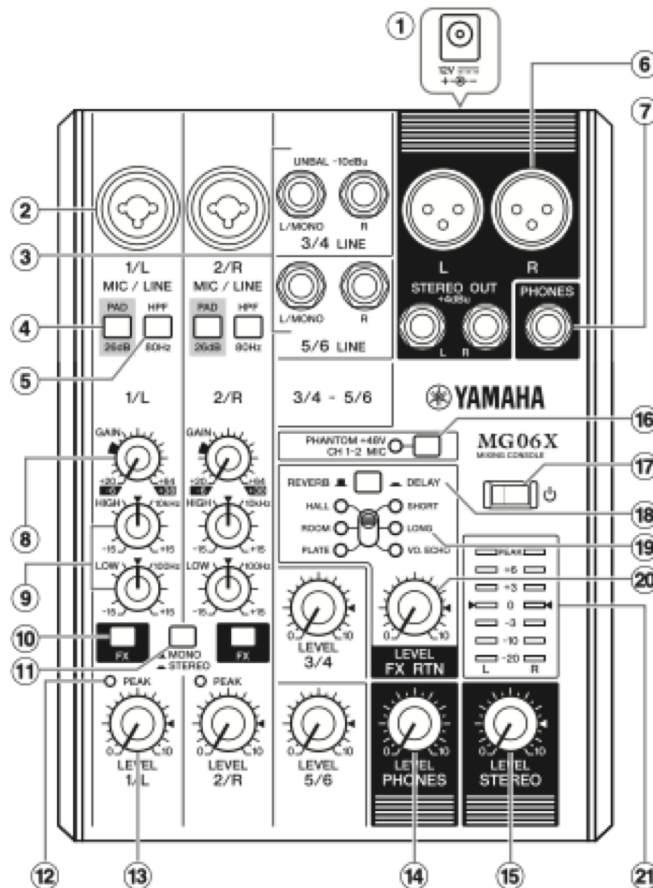
⑫ [PEAK] LED

Lights when the volume of input and/or post-equalizer sound is too high. If it is lit, turn the [GAIN] knob ⑧ to the left to lower the volume.

⑬ [LEVEL] knobs

For adjusting the volume balance among the channels.

⑭ [PHONES LEVEL] knob

Adjusts the headphones volume.

⑮ [STEREO LEVEL] knob

Adjusts the overall volume output from the [STEREO OUT] output jacks.

⑥ [STEREO OUT] output jacks

Connect a powered speaker or powered amp. These jacks support both XLR and phone plugs.

⑦ [PHONES] output jack

Connect a set of headphones. This jack supports a stereo phone plug.

⑯ [PHANTOM +48V] switch/LED

When this switch is on (▬), the LED lights indicating that the unit supplies DC+48V phantom power to the XLR plugs of the [MIC/LINE] mono input jacks ②. Turn this switch on when using a phantom-powered condenser microphone.

⚠ **CAUTION**

Be sure to leave this switch off (▮) if you do not need phantom power. Follow the important precautions below, in order to prevent noise and possible damage to external devices as well as the unit when you operate this switch.

• Be sure to leave this switch off when you connect a device that does not support phantom power to channels 1/L or 2/R.

• Do not connect/disconnect a cable to/from channels 1/L and 2/R while this switch is on.

• Turn the [LEVEL] knob of the channels 1/L and 2/R to the minimum before operating this switch.

⑰ [⏻] (On/Standby) switch

Toggles to turn the unit's power On (▬) or Standby (▮).

⚠ **CAUTION**

• Rapidly switching the unit between on and standby in succession can cause it to malfunction. After setting the unit to standby, wait for about 5 seconds before turning it on again.

• Even when the switch is in the standby (▮) position, electricity is still flowing to the unit. If you do not plan to use the unit for a while, be sure to unplug the AC power adaptor from the outlet.

⑱ [REVERB▮/▬DELAY] switch (MG06X)

Toggles to select the effect applied to channels 1/L and 2/R between Reverb (▮) and Delay (▬).

⑲ Effect select slide switch (MG06X)

Moves up and down to select the effect type. The LED of the selected effect lights.

⑳ [FX RTN LEVEL] (effect return level) knob (MG06X)

Adjusts the volume of the effect sound.

㉑ Level meter

The L and R meters show the level of the signal output from the [STEREO OUT] jack. If the [PEAK] lamp lights in red, use the [LEVEL] knob to lower the volume.

DCC Audio/Visual System Setup- Configuration 2

Yamaha SOUNDPAS 300 Speakers
(passive)

XLR Connector (rear)

Sennheiser Wireless Microphone EM
10 Receiver

RF

Sennheiser 5650D Microphone

Sennheiser SK 20
Bodypack Transmitter

¼" TS Audio (L)
IN (at rear) from
Yamaha Mixer

¼" TS Audio (R)
IN (at rear) from
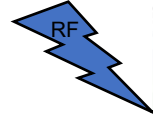Yamaha Mixer

Audio cables running
along floor to front of room

XLR Connectors
IN

RCA L & R IN

Splitter

3.5 mm
Headphone
Plug

HDMI

Laptop Computer

HDMI-2

Yamaha SOUNDPAS 300 Mixer
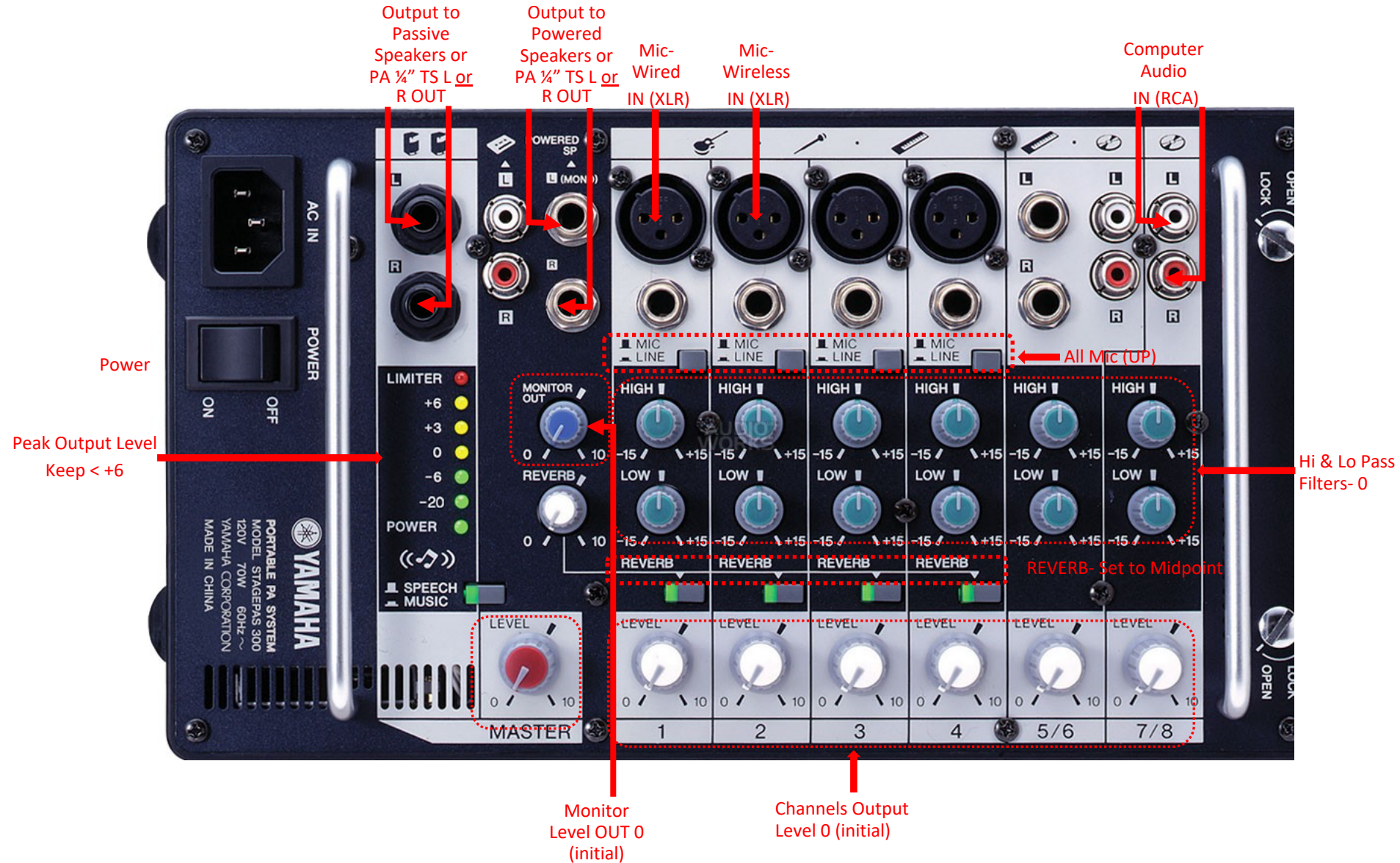
NOTES:

Red lines represent audio cables. Blue lines
represent HDMI cable.

Power cords and power supplies not shown

Optoma EH416 Projector

Yamaha SOUNDPAS 300 Mixer Controls

Output to Passive Speakers or PA ¼" TS L or R OUT

Output to Powered Speakers or PA ¼" TS L or R OUT

Mic-Wired IN (XLR)

Mic-Wireless IN (XLR)

Computer Audio IN (RCA)

Power

Peak Output Level Keep < +6

All Mic (UP)

Hi & Lo Pass Filters- 0

REVERB- Set to Midpoint

Monitor Level OUT 0 (initial)

Channels Output Level 0 (initial)

Yamaha SOUNDPAS 300 Mixer- Controls & Functions

Controls and Functions

❶ AC IN jack
Connect the included power cable here.

⚠ **Caution** Be sure to use the included power cord. Use of other cords may result in malfunction, heat generation, or fire.

❷ POWER switch
For turning the power to the mixer on and off.

❸ SPEAKER L/R jacks (for included speakers only)
These output the mixed signal channels from 1 to 7/8, and the level is adjusted with the MASTER LEVEL control. When connecting the included speakers, make sure to turn the power off first. Also, to avoid any possible malfunction, use only the included speakers and the speaker cables included with the device.

❹ REC OUT L/R jacks
These output the mixed signal channels from 1 to 7/8, and the level is unaffected by the MASTER LEVEL control. You can use these jacks, for example, to connect to an external recorder.

❺ MONITOR OUT L (MONO) /R jacks
These output the mixed signal channels from 1 to 7/8, and the level is adjusted with the MONITOR OUT control. These jacks are convenient for connecting an external powered speaker for monitoring purposes.

❻ Channel input jacks (CH 1 to 4)
For connecting a guitar, microphone, keyboard or other instrument/device. For low-level signals (such as that of microphones), set the MIC/LINE switch to the MIC (◾) position. For high-level signals (such as keyboard instruments and audio equipment), set the MIC/LINE switch to the LINE (◼) position.

NOTE: On any given channel, you may use either XLR or phone jack, but not both. Please connect to only one of these jacks on each channel.

❼ Stereo channel input jacks (CH 5/6, 7/8)
Input the left and right channels of a stereo signal into the respective odd and even channels of the mixer. These inputs are intended mainly for use with instruments and equipment having stereo outputs, such as a synthesizer or CD player.

NOTE: The channel 5/6 input provides two sets of jacks—both phone jacks and RCA-pin jacks. Either one one of these jacks may be used, but not both at the same time. Please connect to only one of these jacks on each channel.

❽ MIC/LINE switch
Set this switch to MIC or LINE for channels 1 to 4, depending on the level of the input signal. For low-level signals (such as that of microphones), set the switch to the MIC (◾) position. For high-level signals (such as keyboard instruments and audio equipment), set the switch to the LINE (◼) position.

❾ Equalizer
HIGH Determines the level of the high frequency band for each channel. Rotating the knob clockwise boosts the high frequencies and produces a clearer, crisper sound. If you start getting feedback (a high-pitched squealing sound) or you want to make the sound softer and less harsh, turn the knob counterclockwise slightly.

LOW Determines the level of the low frequency band for each channel. Rotating the knob clockwise boosts the low frequencies and produces a deeper, warmer sound. If you start getting feedback or you want to make the sound less boomy, turn the knob counterclockwise slightly.

❿ REVERB switch
Set this switch to ON to recreate the rich ambience of various performance environments, such as a concert hall or a night club. The switch lights up in green when REVERB is ON (◼).

⓫ REVERB control
Determines the overall level of the reverb or echo that is applied to the output signal. For best results, this level should not be set very high, to avoid possible feedback and to prevent the sound from becoming "muddy" with too much reverb.

⓬ LEVEL control
Use these controls to adjust the volume balance among the various channels.

⚠ **Caution** To reduce noise, set any LEVEL controls on unused channels to the minimum.

⓭ MASTER LEVEL Control
Determines the volume of the signal output from the SPEAKER L/R jacks. This allows you to adjust the overall volume without changing the relative volume balance among the various channels (made with the LEVEL controls) or the tone settings (made with the Equalizer).

⓮ SPEECH/MUSIC switch
Set this switch to SPEECH (◾) to optimize the mixer settings and sound quality for speech purposes and announcements. Set this to MUSIC (◼) to optimize the mixer for musical performance. The switch lights up in yellow when it is set to MUSIC (◼).

⓯ MONITOR OUT Control
Determines the signal level output from the MONITOR OUT jack.

NOTE: The MASTER LEVEL Control does not affect the signal via the MONITOR OUT Control.

⓰ LEVEL meter
The LEVEL meter shows the level of the output signal from the SPEAKER L/R jacks.

⚠ **Caution** If the LIMITER flashes continuously, the internal power amplifier section is being excessively overloaded and may malfunction. Reduce the output level with the MASTER LEVEL control so that the indicator flashes only briefly on the highest transient peaks.
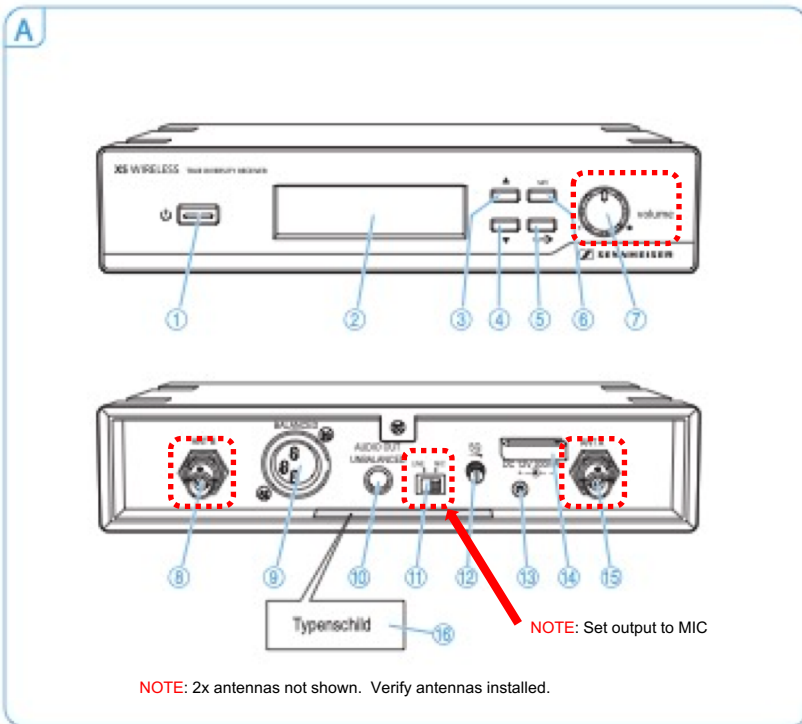
⓱ POWER indicator
This lights when the POWER switch is ON. When the indicator flashes, the protection circuit is operating. Check that the speaker cable is correctly connected to the mixer and reapply the power.

Sennheisser X5 Wireless Microphone-
EM 10 Receiver Controls

NOTE: Set output to MIC

NOTE: 2x antennas not shown. Verify antennas installed.

A EM 10 receiver

① Standby button ⏻
② Display panel
③ UP button ▲
④ DOWN button ▼
⑤ sync button
⑥ set button
⑦ volume control
⑧ Antenna input (ANT B), BNC socket
⑨ Audio output (BALANCED), XLR-3M socket, balanced
⑩ Audio output (AUDIO OUT UNBALANCED) ¼" (6.3 mm) jack socket, unbalanced
⑪ LINE/MIC slide switch
⑫ SQ rotary switch for squelch threshold
⑬ DC socket (DC 12 V, 300 mA) for connection of mains unit
⑭ Cable grip for mains cable
⑮ Antenna input (ANT A), BNC socket
⑯ Type plate

B Display panel

⑰ Frequency
⑱ RF signal level "RF"
⑲ Audio level "AF"
⑳ Battery charge status of transmitter
㉑ Channel
㉒ Frequency bank
㉓ SYNC display
㉔ SCAN, PRESET, TUNE menu items
㉕ ANT A/ANT B active antenna input
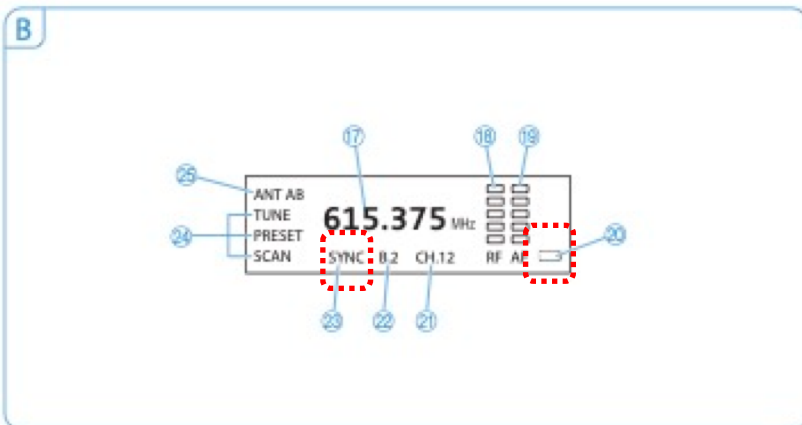
Sennheisser X5 Wireless Microphone- SK 20 Bodypack Transmitter Controls
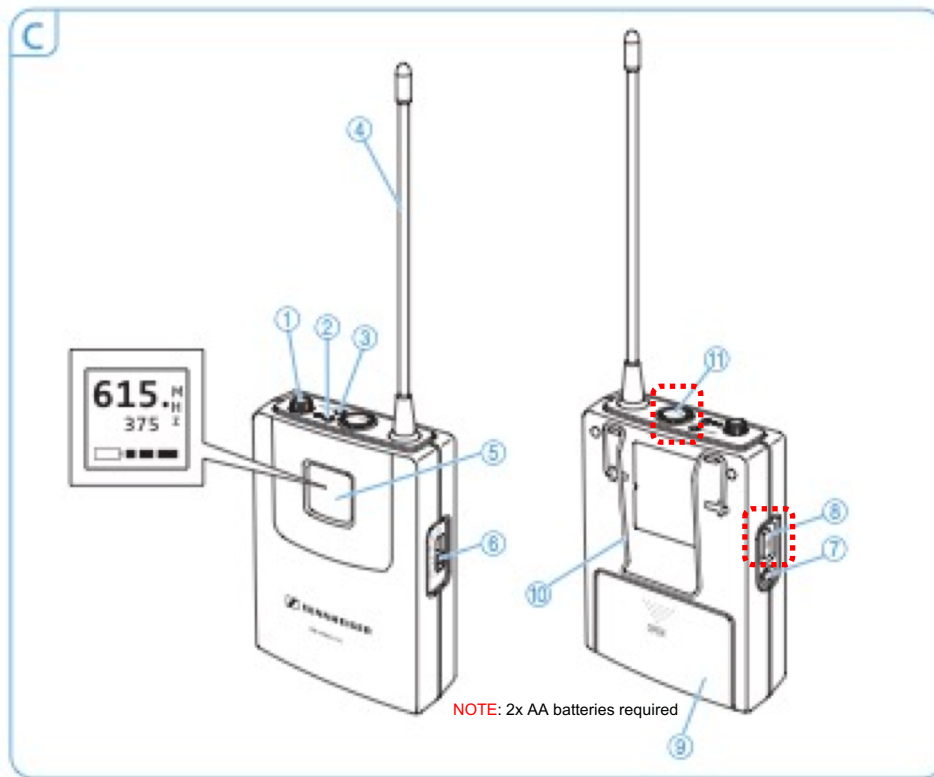
**C SK 20 bodypack transmitter**

1. Microphone/instrument input
2. mute LED, yellow
   (lit = muting is activated)
3. power LED, red
   (lit = switched on;
   flashing = batteries are low)
4. Antenna
5. Display panel
6. Input sensitivity slide switch
7. sync button
8. ON/OFF button ⏻
9. Battery compartment cover
10. Belt clip
11. MUTE button

NOTE: 2x AA batteries required

Optoma EH416 Projector Overview & Controls
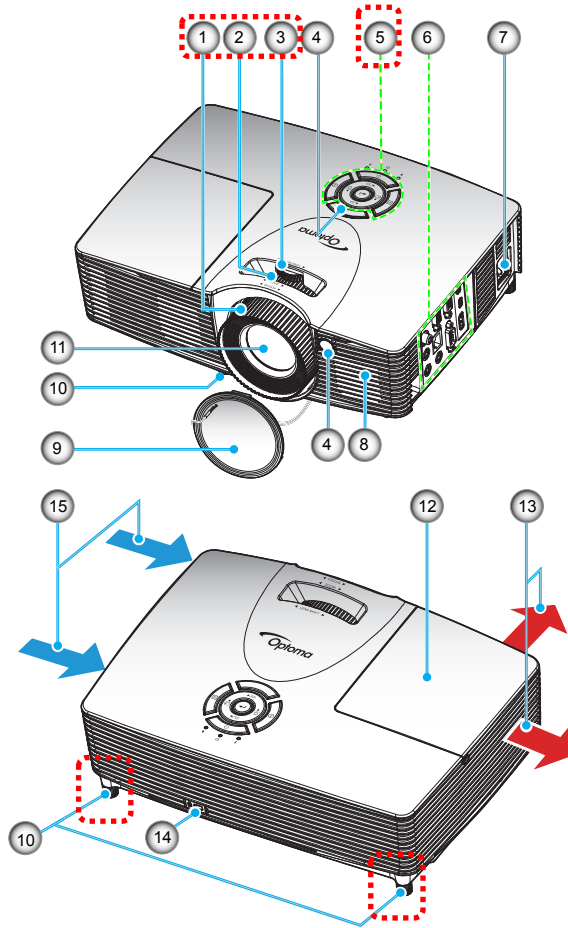
Note: *Do not block projector inlet or outlet air vents.*

No	Item	No	Item
1.	Focus Ring	9	Lens Cap
2.	Zoom Ring	10.	Tilt-Adjustment Feet
3.	Lens Shift Ring	11.	Lens
4.	IR Receiver	12.	Lamp Cover
5.	Keypad	13.	Ventilation (outlet)
6.	Input / Output	14.	Kensington™ Lock Port
7.	Power Socket	15.	Ventilation (inlet)
8.	Speaker		

NOTE: Speaker in projector NOT used. Set laptop sound control to send output to headphone jack.

Optoma EH416 Projector Connections
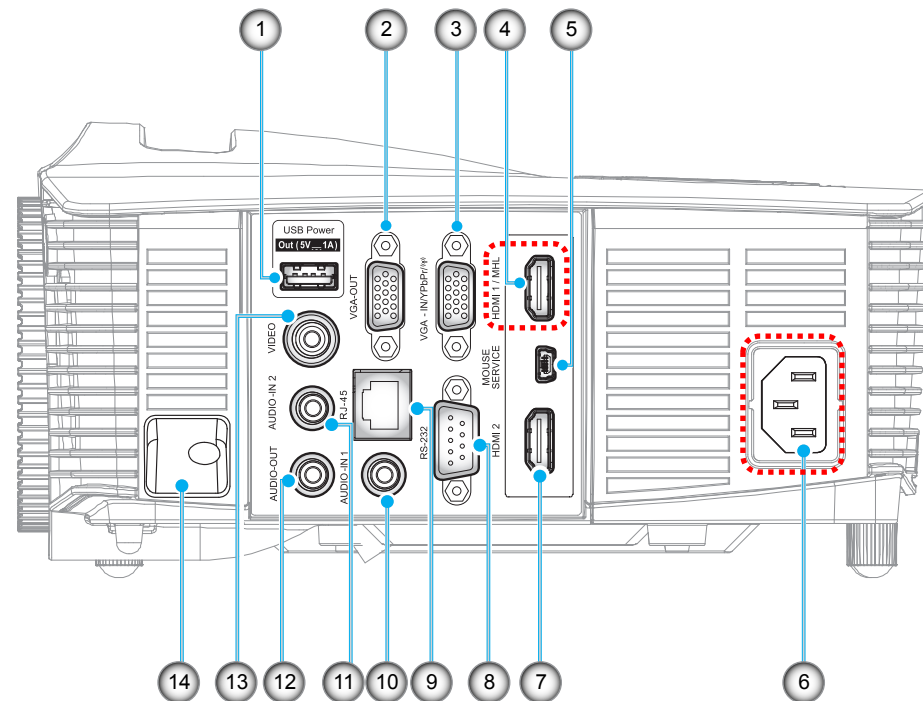
Note: *Remote mouse requires special remote control.*

No	Item	No	Item
1.	USB Power Out (5V⎓1A) Connector	8.	RS-232 Connector
2.	VGA-OUT Connector	9.	RJ-45 Connector
3.	VGA2 In/YPbPr / ((ŗ)) Connector	10.	AUDIO-IN 1 Connector
4.	HDMI 1 / MHL Connector	11.	AUDIO-IN 2 Connector
5.	MOUSE / SERVICE Connector	12.	AUDIO-OUT Connector
6.	Power Socket	13.	VIDEO Connector
7.	HDMI 2 Connector	14.	Security Bar

Optoma EH416 Projector- Keypad Controls
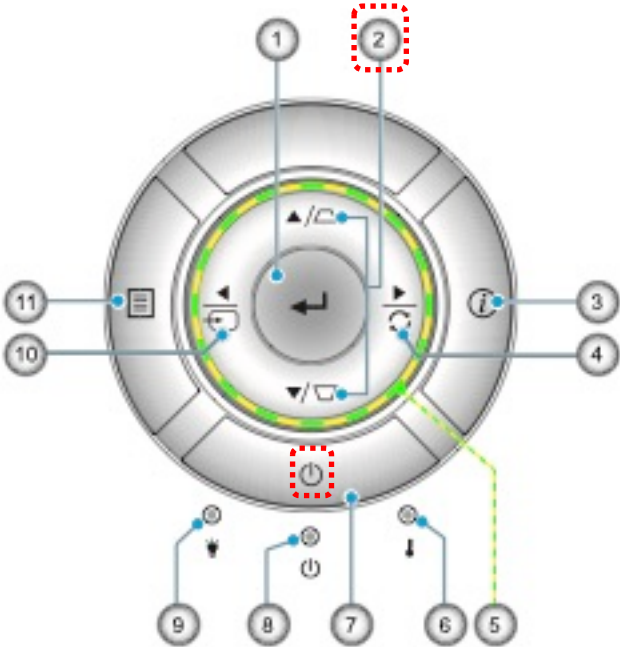
No	Item	No	Item
1.	Enter	7.	Power
2.	Keystone Correction	8.	On/Standby LED
3.	Information	9.	Lamp LED
4.	Re-Sync	10.	Source
5.	Four Directional Select Keys	11.	Menu
6.	Temp LED		

Troubleshooting

- Check all cable connections- see diagrams on slides 7-8
- Check power is ON to all components
- Verify PA System settings
  - Master Power is ON
  - Gain is set to mid-range

Issue- No sound
  - Start with sound sources and proceed toward PA System mixer and amplifier
  - Wired Microphone (connected to Channel 1 of Yamaha MIxer)
    - Verify switch on microphone is ON and plugged in to XLR jack on Channel 1
    - Speak into Mic and observe of output level LEDs flash with varying sound level
    - Verify Pad switch is OFF (UP position)
    - Check Pre-amp levels on Channel 1- start with dial at midpoint
    - Check Channel 1 output level- start with output level dial at midpoint
    - Check Master Level output level- gradually raise output level dial from minimum
    - Connect headphones to Phones stereo output Jack on Yamaha Mixer
    - If sound is heard on headphones proceed to check the PA System mixer and amplifier
    - If sound is heard through the PA System speakers, any other sound issues should be related to the other input devices, e.g., Wireless Mic or Laptop Computer

Troubleshooting (cont.)

- Issue- No sound
  - The following steps assume satisfactory sound from Wired Mic is heard on PA System speakers
  - If not, return to testing Wired Mic
  - Laptop Computer(connected to Channels 5 and 6 of Yamaha Mixer)
    - Turn OFF Wired and Wireless microphones
    - Verify Computer Sound Control Panel is set to send audio to Headphone jack
    - Verify Computer sound volume set to midpoint or greater
    - Select and play a competition slideshow file (MP4) which has an audio track with music
    - Check Level dial on Channels 5 and 6- start with dial at midpoint
    - Check Master Level output level- gradually raise output level dial from minimum

Troubleshooting (cont.)

- Issue- No video
  - Verify Computer Display Control Panel set to send video via HDMI port to Optoma Projector
  - On Optoma Projector Keypad Controls select Source and verify HDMI 1 is selected
  - Also verify Computer Display Control Panel set to <u>mirror</u> image on Computer display to Projector

- Issue- Projected image does not fill screen or exceeds edges of screen
  - Adjust Zoom ring on lens of Optoma Projector to adjust size of image
    - Also, the Projector may need to be moved toward or away from screen to achieve proper image size to match screen
  - Play a competition slideshow set to Full Screen on Computer to set size of projected image on screen

- Issue- Edges of projected image are not parallel to the edges of the screen (keystoning)
  - On Optoma Projector Keypad Controls select Keystone Correction and adjust to achieve congruence of projected image to screen

Backup PA System

- In the event the Northaven PA System is not available, or cannot be made to operate, an alternate, backup PA System is available.
- See slide 14, Configuration 2- DCC owns a a Yamaha Portable PA System, Model: STAGEPAS 300 consisting of:
  - Powered Mixer with 4 mono inputs and 2 stereo inputs
  - 2- 8 inch Speakers (passive)
  - 2- Tripods to support the speakers
- The Yamaha STAGEPAS 300 PA System is also used for meetings held in other venues (e.g., holiday party, awards banquet).
- This PA System is stored in the DCC storage cabinet at Northaven Church
  - Also is the cabinet is a clear plastic storage box with spare audio cables.
- NOTE: The Yamaha MG06X Mixer is <u>NOT</u> compatible with the speakers of the Yamaha STAGEPAS 300 system. It has no power amplifier and will not provide sufficient volume.
- See slide 14 for diagram to setup the Yamaha STAGEPAS 300 system.