



Gujarat University

Technical Specification-AV work

Tender No: GU/ESTATE/CC/2024/09

**Tender Document
Of
Electrical , HVAC & Misc. work for
Convention & Exhibition Centre At
Gujarat University, Ahmedabad.**

TECHNICAL SPECIFICATION OF AUDIO-VISUAL SYSTEM

LINE ARRAY SPEAKER

- Compact and self-amplified 2-way system
- Class D amplifier module with integral DSP and 4 versatile pre-sets
- 142 dB peak SPL
- 2 x 8" Neodymium woofers, 2" voice coil
- 1 x 1.4" Titanium compression driver, 3" voice coil
- Smart rigging system

Description	2-way self-powered full-range line array element
Frequency range (-6dB)	70Hz-19kHz
SPL peak (1)	142 dB
Transducers	LF: 2 x 8" and HF: 1x3"
Nominal directivity (-6dB)	Horizontal 110° Vertical: depends on the number of elements and array curvature
Rigging	20 different inter-cabinet angle positions, from 0 to 10°
Power Connectors	IN: 1x3-point power ON TRUE1TOP LINK: 1x3-point power CON TRUE1TOP
Network Connectors	1 x ether CON for control
Audio connectors	IN: 1x3-point XLR LINK: 1x3-point XLR

SUBWOOFER

- Class D amplifier module with integral DSP and 4 versatile pre-sets
- compact, high-performance self-powered subwoofer
- Powerful bass-reflex T-line design
- Mobile applications
- Pole mount socket
- Self-powered, plug 'n play

- 6 pre sets

Description	High-power self-powered subwoofer
Frequency range (-6dB)	38Hz-100Hz
SPL peak (1)	134 dB
Transducers	LF: 1 x 18"
Rigging	Pole socket
Power Connectors	IN: 1×3-point power CON TRUE1TOP LINK: 1×3-point power CON TRUE1TOP
Audio connectors	IN: 1×3-point XLR LINK: 1×3-point XLR

FRONT FILL SPEAKER

- 2-way self-powered speaker delivers our signature audio quality in a discreet, compact, lightweight format, making it the go-to solution
- Class D amplifier module with integral DSP and 4 versatile pre-sets
- Lightweight and portable
- Mirror monitor configuration
- Tiltable pole mounts
- Plug 'n play
- Self-powered

Description	2-way active self-powered full-range point source
Frequency range (-6dB)	55Hz-20kHz
SPL peak (1)	134 dB
Transducers	LF: 1×8" and HF : 1×1"
Nominal directivity (-6dB)	80°x80°
Rigging	Adjustable pole mount
Power Connectors	IN: 1×3-point power CON TRUE1TOP LINK: 1×3-point power CON TRUE1TOP
Audio connectors	IN: 1×3-point XLR LINK: 1×3-point XLR

DIGITAL MIXER WITH STAGE BOX

- 48 Input Channels
- 16 Local Mic Inputs (XLR)
- 2 ¼" Stereo Inputs (TRS)
- 1 3.5mm Stereo Input
- 36 Total Busses
- 12 Stereo Mix (Aux or Group) + Main
- PAFL Bus
- 14 Assignable Local Outputs (12 XLR + 2 ¼" TRS)
- AES Digital Output
- Dedicated Talkback mic input (XLR)
- ¼" TRS Headphone out with dedicated control
- 8 Mute Groups
- 8 DCA Groups
- 8 Stereo FX with dedicated FX Returns
- 16+1 Faders with 6 Layers for 96 assignable Channel Strips
- Input processing – Trim, HPF, Gate, PEQ, Compressor, Delay
- Output processing – Graphic EQ, PEQ, Compressor, Delay
- Digital Mixer should have 48 Mic Preamps on XLR Stage Box with 16 XLR Line Outs, 96 kHz audio Phantom Power LED per Input.

System	
Dynamic Range	112 dB
Frequency Response	+0/-0.5dB 20Hz to 20kHz
Headroom	+18dB
Internal operating Level	0dBu
THD+N, Mic/Line routed to Main L/R Out	Unity gain faders@0dB, 0.006%, -84dBu (20 - 20kHz)
Peak Indication	-3dBFS (+19dBu at XLR out), multi-point sensing
Sampling Rate	96kHz
Max Power Consumption	75W

Inputs	
Mic/Line Inputs	Balanced XLR, fully recallable
Input Sensitivity	-60 to +0dBu
Switchable Pad	-20dB
Input Impedance	>5k Ω
Phantom Power	+48V (+3V / -2V)
Maximum Input Level	+30dBu
THD+N, Unity gain 0dB	0.002% -92dBu (20Hz-20kHz, AES Direct Out, @0dBu 1kHz)
THD+N, Mid gain +30dB	0.003% -91dBu (20Hz-20kHz, AES Direct Out, @-30dBu INPUT 1kHz)
Stereo Line Inputs	Balanced, 1/4" TRS jack
Analogue Gain	0dB to +60dB, 1dB steps
Outputs	
XLR Outputs	Balanced, XLR
Outputs A and B	Balanced 1/4" TRS Jack
Output Impedance	<75 Ω
Source	Patchable
Nominal Output	+4dBu
Maximum Output Level	+22dBu
Residual Output Noise	-90dBu

GOOSENECK MICROPHONE

- Wide dynamic range and frequency response for accurate sound reproduction across the audio spectrum
- Interchangeable cartridges provide the right polar pattern for any application
- Balanced, transformer less output for increased immunity to noise over long cable runs
- Programmable on/off switch and LED on/off indicator
- New brighter LED improves visibility under strong ambient lighting
- Logic input and output terminals for remote control or use with automatic microphone mixers
- Snap-fit foam windscreen

Frequency Response	50 to 17,000 Hz
Output Impedance	Rated at 150 Ω
Maximum SPL (1kHz at 1% THD, 1 k Ω load)	Cardioid: 123.0 dB Super cardioid: 122.0 dB Omnidirectional: 117.5 dB
Equivalent Output Noise	Cardioid: 29.0 dB SPL Super cardioid: 28.0 dB SPL Omnidirectional: 70.5 dB SPL
Dynamic Range with 1 k Ω load	94.0 dB
Common Mode Rejection	45.0 dB minimum
Mute Switch Attenuation	50.0 dB minimum
Preamplifier Output Clipping Level (1% THD)	-6.0 dBV (0.5 V)
Power Requirements	11 to 52 Vdc phantom, 2.0 mA
Operating Temperature Range	-18° to 57° C (0° to 135° F)
Relative Humidity	0 to 95%

DIGITAL WIRELESS HANDHELD MICROPHONE

- Transparent 24-bit digital audio
- Extended 20 Hz to 20 kHz frequency range (microphone dependent)
- 118 dB dynamic range
- Digital predictive switching diversity
- 44 MHz tuning bandwidth (region dependent)
- 32 available channels per frequency band (region dependent)
- Up to 10 compatible systems per 6MHz TV band; 12 systems per 8 MHz band
- Easy pairing of transmitters and receivers over scan and IR sync
- Compatible with Shure Wireless Workbench® control software
- Rugged metal construction
- Transparent 24-bit digital audio
- Extended 20 Hz to 20 kHz frequency range (microphone dependent)
- 118 dB dynamic range
- Digital predictive switching diversity
- 44 MHz tuning bandwidth (region dependent)
- 32 available channels per frequency band (region dependent)
- Up to 10 compatible systems per 6MHz TV band; 12 systems per 8 MHz bandv
- Easy pairing of transmitters and receivers over scan and IR sync

- Up to 8 hours from 2 AA batteries
- Interchangeable microphone capsules
- Rugged metal construction

Receiver	
Spurious Rejection	>75 dB
Connector Type	BNC
Impedance	50 Ω
Gain Adjustment Range	-18 to +42 dB in 1 dB steps
Configuration	1/4" (6.35 mm): Balanced & XLR: Balanced
Impedance	1/4" (6.35 mm): 1.3 k Ω (670 Ω Unbalanced) XLR (line): 400 Ω (200 Ω Unbalanced) XLR (mic): 150 Ω
Full Scale Output	1/4" (6.35 mm): +15 dB differentially (+9 dBV single) XLR (LINE setting): +15 dBV XLR (MIC setting): -15 dBV
Mic/Line Switch	30 dB pad
Transmitter	
Configuration	Unbalanced
Maximum Input Level	8.2 dBV
Antenna Type	Integrated Single-Band Helical
Occupied Bandwidth	<200 kHz

DIGITAL WIRELESS TIE PIN MICROPHONE

- Transparent 24-bit digital audio
- Extended 20 Hz to 20 kHz frequency range (microphone dependent)
- 118 dB dynamic range
- Digital predictive switching diversity
- 44 MHz tuning bandwidth (region dependent)
- 32 available channels per frequency band (region dependent)
- Up to 10 compatible systems per 6MHz TV band; 12 systems per 8 MHz band
- Easy pairing of transmitters and receivers over scan and IR sync
- Compatible with Shure Wireless Workbench® control software
- Rugged metal construction
- Transparent 24-bit digital audio
- Extended 20 Hz to 20 kHz frequency range (microphone dependent)

- 118 dB dynamic range
- Digital predictive switching diversity
- 44 MHz tuning bandwidth (region dependent)
- 32 available channels per frequency band (region dependent)
- Up to 10 compatible systems per 6MHz TV band; 12 systems per 8 MHz bandv
- Up to 8 hours from 2 AA batteries
- Rugged metal construction

Receiver	
Spurious Rejection	>75 dB
Connector Type	BNC
Impedance	50 Ω
Gain Adjustment Range	-18 to +42 dB in 1 dB steps
Configuration	1/4" (6.35 mm): Balanced & XLR: Balanced
Impedance	1/4" (6.35 mm): 1.3 k Ω (670 Ω Unbalanced) XLR (line): 400 Ω (200 Ω Unbalanced) XLR (mic): 150 Ω
Full Scale Output	1/4" (6.35 mm): +15 dB differentially (+9 dBV single) XLR (LINE setting): +15 dBV XLR (MIC setting): -15 dBV
Mic/Line Switch	30 dB pad
Transmitter	
Configuration	Unbalanced
Maximum Input Level	8.2 dBV
Antenna Type	1/4 Wave
Occupied Bandwidth	<200 kHz
Connector	4-Pin male mini connector
Impedance	1 M Ω

ANTENNA DISTRIBUTION SYSTEM

- Wideband antenna distribution system with power cables should allow for the expansion of wireless microphone systems by splitting one pair of antennas to multiple receivers,
- It should amplifies RF signals to compensate for insertion loss that results from splitting signal power to multiple outputs.
- System should support up to five wireless receivers

- Maximum five systems should be used in a two-tiered configuration.
- System should have five-way RF signal output
- Should support above wireless microphone receivers
- Should be with front mounting antenna hardware and rack mounting hardware,
- Should have 4 x DC power feeds, 12 V DC outputs for antenna bias.
- Output Connector Isolation 30 dB, DC Input Voltage 14 to 18 Vdc, DC
- Output Voltage -14 to 18 Vdc
- 4 connectors
- Maximum Current Supply from DC Outputs-1.5 Amps
- DC Antenna Voltage- 12 Vdc
- Impedance- 50 Ω
- RF Input/output Antenna Connector Type-BNC.

ANTENNA

- Active directional UHF antenna with integrated amplifier for improved wireless signal reception
- should compatible with all wireless receivers and antenna distribution systems that provide 12 V DC bias
- four-position gain selector switch
- low-noise signal amplifier that compensates for transmission loss in coaxial cable
- Integrated threaded adapter that mounts easily to microphones stands
- Legendary quality and reliability.

VOCAL MICROPHONE

- Frequency response tailored for vocals, with brightened midrange and bass roll off
- Uniform cardioid pickup pattern isolates the main sound source and minimizes background noise
- Pneumatic shock-mount system cuts down handling noise
- Effective, built-in spherical wind and pop filter
- Supplied with break-resistant stand adapter which rotates 180 degrees
- Legendary Shure quality, ruggedness and reliability
- Cardioid (unidirectional) dynamic
- Frequency response: 50 to 15,000 Hz

Type	Dynamic
Frequency Response	50 to 15,000 Hz
Polar Pattern	Cardioid
Sensitivity	-54.5 dBV/Pa
Impedance	150 Ω

DYNAMIC VOCAL MICROPHONE

- Premier live performance microphone with Shure quality, ruggedness, and reliability
- Uniform super cardioid pick-up pattern for maximum gain before feedback and superior rejection of off-axis sound
- Tailored frequency response specifically shaped for vocals, with brightened midrange and bass roll off to control proximity effect
- Neodymium magnet for greater sensitivity and higher output
- Advanced pneumatic shock mount system that minimizes transmission of mechanical noise and vibration
- Dent-resistant steel mesh grille and enamel coated die-cast metal construction resist wear and abuse
- Effective built-in pop filter reduces undesirable wind and breath noise

Type	Dynamic
Frequency Response	50 to 16,000 Hz
Polar Pattern	Super Cardioid
Sensitivity	-51 dBV/Pa
Output Impedance	150 Ω

LED PARCAN LIGHT

- 100W LED PARCAN Light
- 100W LED Lamp Power
- It should have 0-100% Dimming
- Function: Dimming, Strobe
- Beam Angle - 9° / 15° / 20° / 25° / 30°
- Manually Adjustable
- Color Rendering Index (CRI) > 90
- Power supply should be 100-240 AC, 50/60 Hz
- 54LED should be totaling output more than 180W

LED PANEL LIGHT

- 150W LED Panel Soft light panel with 150W Lamp Power
- Beam Angle should be 30°
- Control Protocol : RDM / Manual
- Color Rendering Index (CRI) - >95

- Color Temperature: 3200K
- Dimming - 100-0% through manual and RDM
- Power supply should be AC 100 - 230V, 50-60Hz
- Mean Well Driver 20V DC Output

LED PAR LIGHT

- 160W 54 x 3W LED PAR light used as an Effect Light, Spot Light and Strobe Light etc.
- Beam angle should be 25°
- LUX @ 2m: >10,000
- Dimming: 0 - 100%
- Function: strobe, dimming, sound active and Master slave
- Control Protocol : RDM / Manual
- Power supply should be 100-230V AC, 50/60Hz
- Maximum Power consumption should be 160W

LED FRESNEL LIGHT

- 200W LED Fresnel Light with 200W Lamp Power
- Control Protocol : RDM / Manual
- Beam Angle : 10°-50°
- Manual steeples adjustable
- Color Temperature: 3200K
- Color Rendering Index (CRI) - >95
- Dimming - 100-0% through manual and RDM
- Power supply should be AC 100 - 230V, 50-60Hz
- Mean Well Driver 54V DC Output

LED PROFILE SPOT LIGHT

- 300W LED Profile Spot Light with 300W COB LED Lamp Power
- CRI : >90
- Focus : Manual Focus
- Beam Angle : 19°
- Control : DMX, Auto run and Master/Slave
- Shutter arrangements : Beam shaping shutter or plastic gobo projection assembly
- Color Temperature: 3200K
- Power Supply should be AC 110-230V, 50Hz

ZOOM PROFILE SPOT LIGHT

- 300W LED Zoom Profile Spot Light with 300W COB LED Lamp Power
- Beam Angle : 15° - 38°
- RI : >90
- Color Temperature : 3200K
- Focus : Manual Focus
- Control : DMX, Auto run and Master/Slave
- Power Supply should be AC 100-240V, 50Hz-60Hz

MOVING HEAD LIGHT

- 300W LED Beam / Wash / Spot 3 in 1 Moving Head Light with 300W LED Lamp Power
- Operation Modes : DMX512, Master / Slave, Sound active
- Beam Angle : 1°/3°/6.5° (with beam reducer)
- Pan/Tilt Angle : 540°/ 240° (16 bit)
- DMX Channels : 16/19 channel
- Power Supply should be 100 - 240V AC, 50 - 60Hz

LED FOLLOW SPOT LIGHT

- 300W LED follow Spot Light with 300W LED Lamp Power
- Color Wheel with 5 Colors
- Projection distance : 5-50meters
- Manual Control through : High precision tactile switch or dedicated faders
- Power Supply should be 100 - 240V AC, 50 - 60Hz

BLINDER LIGHT

- 400W LED 2 x 2 Blinder Light with 400W Lamp Power
- Beam Angle: 30 degree
- Lifetime: Over 50,000 hours
- Dimmer: 0~100% linearly adjustable
- Channel: 4/8 channel
- LEDs Qty : 4 pieces
- Light Color: Single color warm white
- Control mode: DMX512, Master/Slave, Auto Run, Sound active
- Power Supply should be 100-240 AC, 50-60Hz
- Power Consumption should be 400W

RGB LASER LIGHT

- 30W RGB Laser light with Red -100mw, G-80mw, B-120mw Lamp
- Scan System: Micro-step motor scanner
- Control Mode: Sound, active / Auto-Run, Dmx512, Master-Slave
- DMX Channel: 5/9CHS
- Power Supply should be 100 - 240V AC, 50 - 60Hz

MOTORIZED WINCH

- Motorized winch to use as Lighting bar of required length, made using 40NB GI Pipe and 40x80 MS tube finished with two coats of Red Oxide primer and one coat of enamel paint
- should be provided with Necessary pulley
- guide pulleys
- Minimum 4mm GI wire rope with pile winding drum plates
- Specially designed compact aluminum gear box,1.0HP 3 phase AC motor
- Upper and lower limit controller
- Motor cable termination box with cable retractor & cable trays

8" COMPACT LINE ARRAY SYSTEM

- 8" Powered compact line array system
- 80° horizontal coverage
- Symmetric V-shaped configuration
- 4-channel, 3000 W continuous Class D amplifier

Input Type	Balanced Analog
Nominal Amplifier Power (continuous)	3000 W
Frequency Range (-10 dB)	70 Hz – 17 kHz
Horizontal Coverage (-6 dB)	80°
Maximum Linear SPL1	138 dB
Maximum SPL2	142 dB
Input Impedance	20 kohms
Input Sensitivity	6.2 V (+18 dBu)
Audio Signal Input Connector	1 x Female XLR
Audio Signal Loop Thru Connector	1 x Male XLR

Audio/Data Input Connector	ether CON
Sampling Rate	96kHz

18" SBWOOFER

- Compact cardioid powered subwoofer 18"
- neodymium transducer with 4" VC 15" 15FVN rear neodymium transducer with 3" VC
- 4-channel, 3000 W RMS Class D amplifier

Input Type	Balanced Analog
Nominal Amplifier Power (continuous)	3000 W
Nominal Amplifier Power (peak)	6000 W
Frequency Range (-10 dB)	35 Hz – 125 Hz
Maximum Linear SPL1	134 dB
Maximum SPL2	138 dB
Input Impedance	20 kohms
Input Sensitivity	6.2 V (+18 dBu)
Audio Signal Input Connector	1 x Female XLR
Audio Signal Loop Thru Connector	1 x Male XLR
Audio/Data Input Connector	ether CON
Sampling Rate	96kHz

DIGITAL MIXER

- 48 Input Channels
- 16 Local Mic Inputs (XLR)
- 2 ¼" Stereo Inputs (TRS)
- 1 3.5mm Stereo Input
- 36 Total Busses
- 12 Stereo Mix (Aux or Group) + Main
- PAFL Bus
- 14 Assignable Local Outputs (12 XLR + 2 ¼" TRS)
- AES Digital Output

- Dedicated Talkback mic input (XLR)
- ¼" TRS Headphone out with dedicated control
- 8 Mute Groups
- 8 DCA Groups
- 8 Stereo FX with dedicated FX Returns
- 16+1 Faders with 6 Layers for 96 assignable Channel Strips
- Input processing – Trim, HPF, Gate, PEQ, Compressor, Delay
- Output processing – Graphic EQ, PEQ, Compressor, Delay

System	
Dynamic Range	112 dB
Frequency Response	+0/-0.5dB 20Hz to 20kHz
Headroom	+18dB
Internal operating Level	0dBu
THD+N, Mic/Line routed to Main L/R Out	Unity gain faders@0dB, 0.006%, -84dBu (20 - 20kHz)
Peak Indication	-3dBFS (+19dBu at XLR out), multi-point sensing
Sampling Rate	96kHz
Max Power Consumption	75W
Inputs	
Mic/Line Inputs	Balanced XLR, fully recallable
Input Sensitivity	-60 to +0dBu
Switchable Pad	-20dB
Input Impedance	>5kΩ
Phantom Power	+48V (+3V / -2V)
Maximum Input Level	+30dBu
THD+N, Unity gain 0dB	0.002% -92dBu (20Hz-20kHz, AES Direct Out, @0dBu 1kHz)
THD+N, Mid gain +30dB	0.003% -91dBu (20Hz-20kHz, AES Direct Out, @-30dBu INPUT 1kHz)
Stereo Line Inputs	Balanced, 1/4" TRS jack
Analogue Gain	0dB to +60dB, 1dB steps
Outputs	

XLR Outputs	Balanced, XLR
Outputs A and B	Balanced 1/4" TRS Jack
Output Impedance	<75Ω
Source	Patchable
Nominal Output	+4dBu
Maximum Output Level	+22dBu
Residual Output Noise	-90dBu

6" WALL SPEAKER

Type	Wall Mount
Size	Woofer : 6.5" (165mm) Graphite Cone, Rubber Surround Tweeter : 1" (25mm) Silk Soft Dome
Frequency Range +/-3	57Hz - 20kHz
Power Handling RMS	100W Program, 60W (IEE 219) 60W Program, 40W (IEE 219) (Switchable 70V/100V or Ohms)
Sensitivity	86 dB
Impedance	8ohms

800W POWER AMPLIFIER

- 800 Watt Booster Amplifier can be connected to various input sources like PA Mixer, DJ Mixer, Microphone, CD player, Cassette Player, Keyboard etc.
- Ideal for use in wide variety of PA applications and DJ performances
- Built in protection against over voltage in AC mains supply
- LED indicators for Power, Signal, Overload, Temperature and Fault conditions
- Protection against short circuit and overload provided by Circuit protector device

Power Supply	AC: 220-240, 50 / 60Hz
Power Output	800W RMS, 10% THD at 1000W RMS Max.
Input Channels	1 x 200mV / 1V (Switchable)

Input Impedence	39K Ω 200mV INPUT 10K/1V INPUT
Frequency Response	50-15000 HZ \pm 3 dB
Tone Control	Bass: (100Hz) \pm 10dB MID: (1 kHz) \pm 10dB Treble: (10 kHz) \pm 10dB
Cooling	AC Fan (120mm x 120mm)
Speaker Output	2 Ω , 4 Ω , 70V, 100V Line

AUDIO MIXER

- Dual 7 band Graphic Equalizer
- Rotary control knobs per channel
- 24 bit DSP effect processing
- 2 sub group out, 2 main mix out
- 36 Effect modes, power-off memory, CD liquid crystal display, easy to operate.
- Global phantom power
- High quality USB MP3 Player and Bluetooth on board.
- 48 kHz sampling frequency.
- Standard double 12 segment level meter.

Inputs	4Mic/Line +2 Stereo
Nominal Gain(Mic/Line/Stereo line)	60Db
Max Gain(Mic/Line/Stereo line)	80DB
Input Levels Sensitivity	(20 HZ-20KHz)
Mic(Gain Min/Gain Max)	(+10 to +60db)
Line(Gain Min/Gain Max)	(-10 to +40db)
Input Impedance	MIC input: \geq 1.0k Ω /line output: \geq 10K Ω
Main Output Level(Nominal/Max)	Balanced XLR socket, unbalanced 1 / 4 socket
Main Output Impedance	About 240 Ω for balanced type and 120 Ω for unbalanced type
Frequency Response	20Hz~20KHz(+1,-3dB)
Total Harmonic Distortion	\leq 0.01% (+4dB, 1KHz)

Signal to Noise Ratio	$\geq 113\text{dB } \Omega$
Equalization(Mic/Stereo Line)	12KHz+/-15dB MF : 5KHz+/-15dB LF : 80Hz+/-15dB
Effect	36 Effects 24-bit DSP, 48KHz
Phantom Supply	48VDC
Power Supply	AC100~120V/200~240V 50/60Hz

16 X 16 DIGITAL SIGNAL PROCESSOR

- Digital Audio Processor Should have 16-channel balanced input audio channel, 16 balanced audio output channels
- 16-channel independent adaptive feedback suppressor
- each Input channel Should have pre-amplifier
- noise gate, compressor
- 16-band parametric equalization, delayer & per Output channel
- 16-band parametric equalization
- frequency divider
- high and low pass filter
- limiter, delayer
- Should have Built-in signal generator
- Should Support RS-232
- Should Support 32 sets of scene pre-set functions
- Maximum input level Should be +20dBu
- Input impedance Should be $>5\text{ k}\Omega$ balanced & $>3\text{ k}\Omega$ unbalanced
- Common mode rejection ratio Should be $>70\text{dB @ } 1\text{ kHz}$
- Phantom power supply Should be +48 V DC
- Output impedance Should be $600\ \Omega$ balanced
- Frequency response Should be 20 Hz – 20 kHz
- Dynamic range Should be 114 dB
- Total harmonic distortion Should be $<0.01\%$
- Power supply Should be 100~240VA, 50/60 Hz
- Power Consumption Should be 75W

WIRELESS HEADWORN MICROPHONE

- Wireless Head worn Microphone with built in Digital Chip
- It should have Strong Anti-Interface System with UHF Band
- Transmitter has adjustable frequency function for more system using at the same time
- 6.35 Audio Plug for mini receiver and easy to use
- receiver has Auto Lock Frequency Function
- Recharging and overload protecting for battery on receiver
- Frequency Range should be 600 MHz - 700 MHz
- It should have >90 db Signal Noise Ratio
- $\leq 0.5\%$ @ 1 KHz T.H.D.
- Digital FM Modulation Mode
- 50Hz - 18KHz Frequency Response
- 3.7V/18650 Li-ion Receiver Battery
- $200\text{mV} \pm 5\text{mV}$ Output Level

4 X 4 DIGITAL SIGNAL PROCESSOR

- Digital Audio Processor Should have 4-channel balanced input audio channel, 4 balanced audio output channels
- 4-channel independent adaptive feedback suppressor
- each Input channel Should have pre-amplifier
- noise gate, compressor
- 4-band parametric equalization, delayer & per Output channel
- 4-band parametric equalization
- frequency divider
- high and low pass filter
- limiter, delayer
- Should have Built-in signal generator
- Should Support RS-232
- Should Support 32 sets of scene pre-set functions
- Maximum input level Should be +20dBu
- Input impedance Should be $>5\text{ k}\Omega$ balanced & $>3\text{ k}\Omega$ unbalanced

- Common mode rejection ratio Should be >70dB @ 1 kHz
- Phantom power supply Should be +48 V DC
- Output impedance Should be 600 Ω balanced
- Frequency response Should be 20 Hz – 20 kHz
- Dynamic range Should be 114 dB
- Total harmonic distortion Should be <0.01%
- Power supply Should be 100~240VA, 50/60 Hz
- Power Consumption Should be 75W

6000 LUMENS PROJECTOR

- Bright WUXGA short throw laser projector - 6,000 lumens
- 30,000 hours maintenance-free laser light source at full brightness
- 4K and HDR compatible
- HD Base T Connectivity

Display technology	DLP™
Resolution	WUXGA (1920x1200)
Brightness	6,000 lumens
Contrast ratio	30,000:1
Native aspect ratio	16:10
Contrast ratio - dynamic	3,00,000:1
Keystone correction - horizontal	+/-30°
Keystone correction - vertical	+/-30°
Horizontal scan rate	15.375~91.146 Khz
Uniformity	85%
Light source type	Laser
LASER life	30,000 hours
Native offset	100%
Connections	
Inputs	1 x HDMI 1.4a 3D support, 1 x HDMI 1.4a 3D support + MHL, 2 x VGA, 1 x Composite video, 1 x Mic 3.5mm, 1 x Audio 3.5mm, 1 x HD Base T, 1 x S-Video
Outputs	1 x VGA, 1 x USB-A power 1.5A, 1 x Audio 3.5mm

Control	1 x RS232, 1 x 12V trigger, 1 x RJ45
Noise level (typical)	33dB
Noise level (max)	38dB
In Built Speaker	2 x 10W
Power supply	100V ~ 240V ± 10%, 50-60Hz
Power consumption (standby)	<0.5W
Power consumption (max)	389W

133" DIAGONAL MOTORIZED PROJECTION SCREEN

- Screen Size : 133" Diagonal
- Intelligent motorized screen with attractive hexagon PVC coated metal casing.
- Fabric 1.0 gain with 160° viewing angle
- Protection : Fire proof, water proof, washable
- Four layer coating 2 PVC,1 Fibre glass,1 embossed structure
- Tubular Motor, low noise ≤ 45 db.
- In-line Switch with direct control and high stability, Last-long flatness, sophisticated images
- Screen should be 16 : 9 ratio

CEILING MOUNT KIT FOR PROJECTOR

- Ceiling mount kit provides exceptionally smooth and quiet movement and is suspended from ceilings.

POP UP BOX

- Pop-up Boxes provide real ease of use and rapid connection solutions for mobile application such as Laptop, audio and video systems.
- Should support all Format i.e. HDMI,DVI-D/DVI-I connector, Display Port, VGA, Stereo Audio on 3.5 mm mini jack.

Input Ports	1 HDMI, 1 DVI, 1 Display Port, 1 stereo audio on a 3.5mm mini jack
-------------	--

Output Ports	1 RJ-45 connector.
Maximum Step in Distance	50m (164ft) up to 1080p @60Hz.
Power Consumption	12V DC, 800mA.
Operating Temperature	0° to +40°C (32° to 104°F).
Humidity	10% to 90%, RHL non-condensing
Input Ports	1HDMI, 1 DVI, 1 Display Port, 1 stereo audio on a 3.5mm mini jack

4 x 2 HDMI SWITCHER

- 4 x 2 Seamless HDMI Matrix with Any one of the 4 sources to any one of the 2 displays.
- Each port support both HDMI and DVI inputs.
- 1U rack design.
- easy instalment
- DC 12V 3A power supply
- Control via Remote & RS232
- Operating Temperature Range : 0 to +35°C (32 to +95°F)
- Operating Humidity Range : 5 to 90 % RH (no condensation)
- Input Video Signal : 0.5-1.0 volts p-p
- Input DDC Signal : 5 volts p-p (TTL)
- Video Format Supported : DTV/HDTV: 1080P/1080i/720P/576P/480P/576i / 480i
- Audio Format Supported : LPCM, Input ports : 4xHDMI(standard Type A connector)
- Output ports : 4xHDMI(standard Type A connector)
- Matrix mode : 2x1 Seamless switching
- Power consumption: 24watts (Maximum).

HDMI EXTENDER SET

- HDMI Extender Set with Bidirectional IR with EQ and EDID management should have point to point extension of HDMI over UTP supporting 1080p@60hz/24bit video and audio up to 40m/131ft along a single Cat5e/6 cable.

- support all high definition resolutions like 1080p, 1080i, 720p with screen refresh rates of 24Hz, 30Hz, 50Hz and 60Hz, should transmits discrete wide-band bidirectional IR control signal together within the HDMI signal over UTP.
- It includes wide-band and dual-band IR Receivers for improved IR performance.
- extensive EDID management on Transmitter and EQ management on Receiver for improved communication between connected devices and transmission over cable distances
- Extenders cascable up to 7 times within a single output zone, 24bit True Colour, cable termination follows IEEE-568B standards, HDCP compliant.

VIDEO COFERENCE CAMERA

- Dual Lens PTZ Camera having advanced ISP processing technology and algorithms make the image true to life with uniform picture brightness
- It should have 20 X optical zoom with 80.5° angle
- 4K UHD Image Quality : maximum resolution can reach 4K (3840×2160)
- 4K output frame rate can reach up to 30 frames per second
- The advanced auto-focusing algorithm enables the lens to complete auto-focusing quickly, accurately and stably
- It supports HDMI, USB3.0, wired LAN, POE, USB3.0 supports dual stream
- It supports low-power sleep/wake-up, and the power consumption during sleep is less than 400mW
- Multiple Pre-sets: Supports up to 255 pre-sets (10 for remote control settings)
- Users can choose infrared remote control or wireless remote control according to the environmental conditions used. 2.4G wireless remote control is not affected by angle, distance and infrared interference
- Support remote control signal transparent transmission function, which is convenient for back-end devices to use
- Image Sensor: 1/2.8inch high quality CMOS sensor, Effective Pixel: 8.51M, 16:9
- Video Signal HDMI: 4KP30, 4KP25, 1080P30, 1080P25, 1080P29.97
- 12X Close-up Lens, Viewing Angle : H : 7.6° (N) ~ 80.5° (W)
- Digital Zoom : 15X, Minimum illumination : 0.5Lux(F1.8, AGC ON)
- Focus Mode : Auto/Manual/One key focus, Shutter Speed : 1/25 ~ 1/20000

- Dynamic Range : Off, 1 ~ 8, SNR : >50dB
- Panoramic Lens: Fixed Lens, Back Panel: HDMI, LAN (support POE), USB3.0, A-IN, RS232IN
- DC12V power supply, power switch
- Video Output: HDMI, LAN, USB3.0
- Audio Input : Dual channel 3.5mm linear input
- Audio Output: HDMI, LAN, USB3.0
- Audio Compression Format : AAC, MP3, G.711A
- Control: RS232-IN, Serial Port Communication Protocols: VISCA/Pelco-D/Pelco-P; Baud Rate: 115200/38400/9600/4800/2400
- PTZ PAN: -110°~+110°, Tilt: -30°~+30°, pre-set Speed: Pan : 78.8°/s, Tilt : 31.7°/s
- Auto Framing : Built-in high-speed processor and face detection algorithm, it can automatically detect participants and provide optimal framing
- Speaker Tracking: Built-in 6 omnidirectional microphone arrays, intelligent sound source localization algorithm, can locate the speaker's position in real time

600W POWER AMPLIFIER

- 600 Watt Booster Amplifier can be connected to various input sources like PA Mixer, DJ Mixer, Microphone, CD player, Cassette Player, Keyboard etc.
- Ideal for use in wide variety of PA applications and DJ performances
- Built in protection against over voltage in AC mains supply
- LED indicators for Power, Signal, Overload, Temperature and Fault conditions
- Protection against short circuit and overload provided by Circuit protector device

Power Supply	AC: 220-240, 50 / 60Hz
Power Output	600W RMS, 10% THD at 750W RMS Max.
Input Channels	1 x 200mV / 1V (Switchable)
Input Impedence	39KΩ 200mV INPUT 10K/1V INPUT
Frequency Response	50-15000 HZ ±3 dB
Tone Control	Bass: (100Hz) ±10dB MID: (1 kHz) ±10dB Treble: (10 kHz) ±10dB

Cooling	AC Fan (120mm x 120mm)
Speaker Output	2Ω, 4Ω, 70V, 100V Line

CONFERENCE CHAIRMAN UNIT

- Patent appearance design, high-end and solemn
- 20Hz~20KHz Professional hi-fi condenser capsule, good sensitivity, clear sound quality
- Advanced circuit design, anti-interference.
- Red ring indicator shows the ON/OFF status
- Luminous design for ON/OFF button
- With LCD window
- Built-in speaker and earphone output, the volume can be set by main controller
- Voice active function, the units turn on once the spokesman talk
- Support multi chairman units, and the chairman unit can connect any position

Working Voltage	DC24V
Cable	8P-DIN
Capsule	Cardioid
Sensitivity	-46 dBV/Pa
Frequency response	20Hz-20kHz
Input impedance	2 kΩ
Directional 0°/180°	> 20 dB (1 kHz)
Equivalent noise	20 dBA (SPL)
SPL	125 Db. (THD < 3%)
S/N ratio	> 80dB
T.H.D.	< 0.05%
Built-in speaker	8Ω 2W
Earphone load	>10 Ω
Earphone volume	10 mW

CONFERENCE DELEGATE UNIT

- Patent appearance design, high-end and solemn

- 20Hz~20KHz Professional hi-fi condenser capsule, good sensitivity, clear sound quality
- Advanced circuit design, anti-interference.
- Red ring indicator shows the ON/OFF status
- Luminous design for ON/OFF button
- With LCD window
- Built-in speaker and earphone output, the volume can be set by main controller
- Voice active function, the units turn on once the spokesman talk

Working Voltage	DC24V
Cable	8P-DIN
Capsule	Cardioid
Sensitivity	-46 dBV/Pa
Frequency response	20Hz-20kHz
Input impedance	2 k Ω
Directional 0°/180°	> 20 dB (1 kHz)
Equivalent noise	20 dBA (SPL)
SPL	125 Db. (THD <3%)
S/N ratio	>80dB
T.H.D.	<0.05%
Built-in speaker	8 Ω 2W
Earphone load	>10 Ω
Earphone volume	10W

CONFERENCE ONTROLLER

- Adapting digital technology, embedded high performance CPU
- High effect circuit ensure the anti-interference function
- With USB recording in WAV format
- With 4 channels input, each channel supports 30 units. VIP units can be preset
- Multi system can be connected
- System can be set in main controller or via computer, main controller and computer can be connected by USB.

- Meeting mode includes FIFO, LIFO, FREE, C-ONLY etc.
- Time off, auto off and voice control can be set

Power supply	AC110V-220V/50Hz
Frequency response	20Hz-20kHz
S/N ratio	> 96dBA
T.H.D	< 0.05%
Recording connector	USB
Input connector	DIN-8 x4
Extension connector	DIN-8 x2
Central controller connector	RS-232 x1
Computer connecting	USB x1
Audio input	RCA x2 6.3mm x1
Audio output	RCA x2 6.3mm x1 XLR x1

WIRELESS PRESENTATION DEVICE

PORTS	<p>1 Ethernet: On an RJ-45 connector</p> <p>1 USB 3.0: On a female USB type-A connector</p> <p>1 USB 2.0: On a female USB type-A connector</p>
OUTPUTS VIDEO	<p>1 HDMI: On a female HDMI connector</p> <p>Max Resolution: 4K@30Hz</p>
GENERAL	<p>Processor: Intel® Gemini Lake SOC</p> <p>Main Memory: 4GB LPDDR4 (2400)</p> <p>Storage: 32GB eMMC</p> <p>Networking: 802.11 ac/b/g/n dual band Wireless LAN and Bluetooth 4.1</p> <p>Operating System: Linux</p>
Power	<p>Source: 12V DC</p> <p>Consumption: 2A</p>
Operating Temperature	0° to +40°C (32° to 104°F)
Storage Temperature	-40° to +70°C (-40° to 158°F)

Humidity	10% to 90%, RHL non-condensing
----------	--------------------------------

WIRELESS DIGITAL COFERENCE CONTROLLER

- The unique AUDIO-LINK digital ring network technology achieve full-digital signal transmission and processing
- One CAT5e cable to transmit up 64 channels audio and other signals.
- All microphone units support audio, ID independent output. Working with voice recognition system to achieve voice role separation.
- High-fidelity sound quality by lossless audio transmission technology, 48K audio sampling rate and 20Hz ~ 20KHz frequency response
- A single conference controller can realize the independent control and merging of 4 conference rooms, can handle the cascade of multiple conference controllers to realize the merging and separation of larger conference rooms (Optional).
- "Hand-in-Hand-Loop-Network" connection makes the system always working perfectly no matter changing discussion unit or having any malfunctioned units
- The sensitivity of the unit microphone and 8 segment equalizer EQ adjusted independently.
- Conference controller can output 16 segment equalized EQ to achieve sound field adjustment; pressure limit, which can recognize the noise gate passed by human voice. AGC automatic volume gain control; AFC automatic feedback suppression and auto-mix technology.
- Sound output by separated zones function, each zone is automatically adjusted according to the volume of the position of the microphone, achieve longer distances pickup without whistle.
- Echo cancellation, remote two-way real-time call with another conference controller or another third-party video conferencing terminal.
- USB recording, controller monitor, advanced noise cancellation technology to realize clearer recording.
- System date, time management, and support count-down speech.
- Optional DANTE output module with other DANTE equipment used.
- Can drive 2x120W POE speaker, through extension main unit, support up to 16 POE speakers.
- Up to 8 wireless microphones to be turned on at the same time, adaptive avoiding interference technology to achieve stronger anti-interference ability
- 2 channel audio input, XLR or RCA type, for local audio input or remote video-conferencing input.

- Maximum 8-channel audio output, XLR, RCA or Phoenix type, can be connected to simultaneous interpretation output or partitioned output.
- Built-in multi-way internal communication function.
- TCP/IP connection between controller and PC
- RS232 central control, realize microphone switch, priority, volume and other controls.
- LCD display to show all the operations and results 4-Way button for menu operate
- One-button press to start recording light indicator
- Master volume control knob
- Front panel USB recording interface
- 3.5mm headphone for monitoring 1x RCA audio input
- 1x XLR audio input 1x RCA audio output 1x XLR audio output
- 6x Phoenix audio output connector 2x RJ45 digital audio connection
- 2x RJ45 for chairman unit, delegate unit, unit translators and other connection 1x RJ45 for wireless AP or router
- 1x DP9 male interface for external control 1x DP9 female interface for camera
- 1x three-pin phoenix interface for camera control keyboard 1x RJ45 for computer connection or network switcher
- 1x grounding screw
- 1x 100 ~ 240V AC Power Interface
- Static power consumption 12W
- Maximum power consumption 150W
- Frequency Response 20Hz ~ 20KHz and Noise ratio (S / N)> 80dB
- Total harmonic distortion <0.05% and Channel Crosstalk> 80dB

WIRELESS DIGITAL COFERENCE SYSTEM DISCUSSION UNIT

- Stylish, low profile design with touchable interface
- Wireless communication, setting up all system in few minutes to be ready for using, and put them away in short time as well
- Built-in DC connector for power supply without battery
- Detachable battery pack is easy to replace and charge, 4 hours to fully charge. Can use 24 hours continuously

- Internal high-fidelity loudspeaker
- Pluggable microphone and long range sound pickup ability, support different length of microphone.
- 2.23-inch OLED display with backlight, with status of signal and battery indication icon
- Head-set interface in both sides with volume adjust
- Line-in interface which allows microphone or other line-in device like cell phone, laptop to pass audio through to perform teleconference
- Full-digital signal transmission and processing, completely avoid the RF interference from cell phone or similar devices.
- The unit showing time/date on the screen. Timer on display to set certain time for each delegate to speak, will remind user or close the MIC automatically.
- All units can be configured as Chairman or Delegate unit through software settings based
- Full-digital transmission and processing technology in uncompressed audio, professional microphone to achieve perfect sound quality at 20Hz ~ 20KHz;
- 128 bits digital encryption technology,
- 8 units of delegates can open at the same time
- Support more AP working together to increasing the Wi-Fi coverage range for wireless MIC units working in a large conference room or multi-rooms
- Precise cardioid directional microphone capsule with anti-wind microphone foam, with two-colour LED indicator
- Button for MIC ON/OFF, Priority & Apply Answer button for chairman unit
- Built-in high-fidelity speakers, it automatically mutes to prevent howling when press MIC ON
- Head-set interface in both sides with volume adjustment.
- AGC (Automatic Gain Control)/AFC (Adaptive Feedback Cancellation)/ANC (Active Noise Control)/Mix (Auto-Mix) technology
- Build-in functions for intercom
- Detachable battery pack is easy to replace and charge, 4 hours to fully charge. Can use 24 hours continuously, power-saving technology to enable 24 hours continuous use and 48 hours for standby.
- Combined with camera and camera tracking controller, it has an automatic camera tracking function.
- Built-in MCU, support wireless upgrade of all units.

- With voice control function, you can adjust the sensitivity of voice control, intelligently turn on the microphone and set the off time.
- Microphone with two-colour LED ring, red indicates speaking status, green indicates request to speak.
- Chairman unit with priority button and consent button for the delegates Power ON/OFF button is hiding on the left side

WIRELESS COFERENCE SYSTEM RECEIVER

- Pluggable gooseneck microphone base 2x 3.5mm stereo headphone jack
- 1x 3.5mm stereo input jack Contactor for battery pack
- DC Connector for power adaptor
- Button should be Touchable interface
- Sound Pickup: heart type capacitance Display: OLED display 128 × 32
- Sensitivity: -46 dBV / Pa
- Maximum power consumption: 2.0W
- Directivity: 0 ° / 180 ° > 20 dB (1 kHz)
- Headphone load: 16Ω
- Headphone volume: 10mW Headphone jack: 3.5mm stereo
- Input impedance: 2kΩ
- SNR: 70dB
- Frequency response: 20 ~ 20000Hz
- Equivalent noise: 20dBA (SPL) Main
- The maximum sound pressure: 125dB (THD <3%)
- Power Consumption Operational:11 Watt

RECHARGABLE BATTERIES

- Rechargeable Battery pack for wireless unit Features
- Long life and lasting stability of charging performance
- After fully charged it can use 24 hours
- Four hours needed to fully charge
- Efficient lithium batteries

- Battery capacity: 4900Ma
- Output voltage: 7.2VDC
- Operation temperature: -20°C~60°C

GOOSENECK MICROPHONE

- 18" Pluggable Gooseneck Microphone
- Precise directional microphone head with Mini design
- Two colour LED ring indicator
- anti-wind microphone foam cover
- Strong audio collection ability to work with different length of microphone
- Two-colour LED indicator on microphone, red for speaking, green means need acceptance from chairman to speak
- Screw lock socket to connect removable microphone

SPEAKER CABLE

- High quality low smoke, halogen free twisted pair cable designed for connecting speakers and 1.5sqmm 2 core twisted pair. Amplifiers in commercial or residential AV systems.
- 1.5Sq.mm. 2 Core Twisted pair 16AWG, (26/30) bare copper conductor Speaker Cable.

MICROPHONE CABLE

- 0.5 Sq.mm. 2 Core Microphone Cable.
- High quality shielded pair cable designed for routing balanced mono or unbalanced stereo mic or line level audio signals in commercial or residential AV systems.
- 1 Shielded Pair 20 AWG Audio or Control Bulk Cable.

CAT-6 CABLE

- CAT-6 Copper shielded Twisted Pair cable. Category 6 24 AWG (CAT-6), Supply and laying of specified make.
- CAT 6 cable in prepaid PVC conduits / pipes / raceway, but without the cost of raceway or pipe.

Approved Make List

Sr.No.	Product	Approved Make List
1	Line Array Speaker	Meyersound LINA / Audiofocus ARES / L Acoustics KARA
2	Subwoofer	Meyer sound / Audiofocus / L Acoustics
3	Monitor Speaker	Meyersound / Audiofocus / L Acoustics
4	Front Fill Speaker	Meyersound / Audiofocus / L Acoustics
5	Digital Audio Mixer	Allen & Heath / SSL / Digico
6	Gooseneck Microphone	Shure / CKS Acoustics / CAD Audio
7	Wireless Handheld Microphone	Shure / CKS Acoustics / CAD Audio
8	Wireless Tie-Pin Microphone	Shure / CKS Acoustics / CAD Audio
9	Vocal Microphone	Shure / CKS Acoustics / CAD Audio
10	Speaker Cable	CKS Acoustics / Belden / Draka
11	Microphone Cable	CKS Acoustics / Belden / Draka
12	Stage Lighting and Drapery System	PLS / CKS Acoustics / ARRI
13	Line Array Speaker	Meyersound / DAS Audio / Audiofocus
14	Subwoofer	Meyersound / DAS Audio / Audiofocus
15	40W Speaker	CKS Acoustics / LD System / Quest Audio
16	800W Power Amplifier	CKS Acoustics / LD System / Quest Audio
17	Audio Mixer	CKS Acoustics / Allen & Heath / Digico
18	Digital Signal Processor	CKS Acoustics / Clearone / Shure
19	USB Interface	CKS Acoustics / Wyrestorm / Tascam
20	Volume Controller	CKS Acoustics / Rampo / Audio Power
21	6000 Lumens Projector	Optoma / Christie / Barco
22	Motorized Projection Screen	Suvira / Harkness / Grandview
23	POP UP Box	Wyrestorm / Rampo / Kramer
24	HDMI Switcher	Wyrestorm / Rampo / Kramer
25	HDMI Extender Set	Wyrestorm / Rampo / Kramer
26	Video Conference Camera	Newtek / CKS Acoustics / Panasonic
27	Wireless Presentation Device	Kramer / Wyrestorm / Extron
28	600W Power Amplifier	CKS Acoustics / LD System / Quest Audio
29	Chairman Unit	CKS Acoustics / Televic / Shure
30	Delegate Unit	CKS Acoustics / Televic / Shure
31	Controller Unit	CKS Acoustics / Televic / Shure
32	Fully Digital Wireless Conference System	CKS Acoustics / Shure / Beyer dynamic
33	CAT-6 Cable	D-Link / Digi Link / Schneider