



DEENDAYAL PORT AUTHORITY

ISO 9001:2008 | ISO 14001 | ISPS Compliant Port



Office of Executive Engineer (Electrical), Ground
Floor, Nirman Building, New Kandla, Kutch,
Pin Code 370210.

No.: EL/AC/EOI/ELV/

Date: 10/01/2025

EXPRESSION OF INTEREST [EOI]

"ELV System for Green Energy Office, Deendayal Port Authority, AO Building, Gandhidham "

(This EOI is issued to elicit Expression of Interest from the parties interested in the work and does not constitute any binding commitment from the Deendayal Port Authority to proceed with the work or invite any or all the parties in the subsequent bidding process. The Open Tenders will be issued subsequently.)

Executive Engineer (Electrical), DPA invites Expression of Interest for the work of "ELV System for Green Energy Office, Deendayal Port Authority, AO Building, Gandhidham" from the reputed firms from those who have executed similar work in Government/public sectors and other leading private organizations. The Expression of Interest (EOI) documents containing details are enclosed herewith.

The interested firms are requested to submit their expression of interest for the said work in BOQ format as enclosed at Annexure I. The completed EOI (Expression of Interest) shall be submitted to the office of the undersigned on or before 15/01/2025. A soft copy of EOI is also acceptable through e-mail Id xenedpa@gmail.com & deepak.hazra@deendayalport.gov.in

Sd/-

Executive Engineer (E)
Deendayal Port Authority

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SCHEDULE FOR @OFFICE BUILDING					
Sr. No.	Description of Item	Unit	Qty	Rate (in Rs.)	Amount
1	<p>Supply, Installation, Testing & Commissioning of Front Of House Speaker shall meet the minimum technical requirements as detailed herein. The horizontal coverage of the equipment must be a minimum of 90° or better, with the vertical coverage being a minimum of 75° asymmetrical or better, ensuring compliance with all performance expectations. The equipment shall be designed exclusively for indoor use and must, at a minimum, be listed under UL1480A and comply with UL2043 standards or better. The frequency range of the equipment shall cover a minimum of 55 Hz to 20,000 Hz or better, measured at - 10 dB, ensuring optimal sound reproduction across a wide spectrum. Horizontal coverage shall be a minimum of 90° or better, delivering focused and effective sound dispersion. The calculated maximum sound pressure level at a distance of 1 meter shall be no less than 112 dB continuous and a minimum of 118 dB peak or better to meet critical performance needs. The nominal impedance of the equipment must be a minimum of 8 Ω or better, with this value applicable when the integrated transformer is bypassed. The power handling capacity of the equipment shall not be less than 400 W peak or better, ensuring robust and reliable performance. Vertical coverage shall meet a minimum standard of 75° or better, guaranteeing consistent and effective sound distribution. The crossover frequency of the system shall be a minimum of 1 kHz or better, implemented through a passive 2-way crossover configuration that incorporates an integrated transformer supporting 70/100V operation. The specifications outlined in this tender document establish the minimum acceptable design criteria. The Itemder shall strictly comply with these requirements. Higher-performance alternatives that exceed these minimum parameters shall be reviewed and are strongly encouraged for submission. The Itemder must provide a Manufacturer Authorization Certificate along with the detailed technical Item submission. This submission must include a compliance statement on the Manufacturer's official letterhead, clearly affirming conformity with or exceeding the outlined technical specifications. Failure to meet these minimum design requirements shall result in immediate rejection of the proposed Item without prior notice. All submissions must ensure comprehensive adherence to the specified parameters and requirements without exception. approved Make - Bose / Fidelity / Electrovoice/Shure/</p>	Each	2		
2	<p>Supply,Installation,Testing & Commissioning of Front Of House Center Speaker shall meet the minimum technical requirements as detailed herein. The horizontal coverage of the equipment must be a minimum of 90° or better and alternatively provide horizontal coverage of no less than 180° or better, with the vertical coverage being a minimum of 75° asymmetrical or better, ensuring compliance with all performance expectations. The equipment shall be designed exclusively for indoor use and must, at a minimum, be listed under UL1480A and comply with UL2043 standards or better. The frequency range of the equipment shall cover a minimum of 45 Hz to 20,000 Hz or better, measured at -10 dB, ensuring optimal sound reproduction across a wide spectrum. Horizontal coverage shall be a minimum of 180° or better, delivering extensive sound dispersion. The calculated maximum sound pressure level at a distance of 1 meter shall be no less than 114 dB continuous and a minimum of 120 dB peak or better to meet critical performance needs. The nominal impedance of the equipment must be a minimum of 8 Ω or better, with this value applicable when the integrated transformer is bypassed. The power handling capacity of the equipment shall not be less than 500 W peak or better, ensuring robust and reliable performance. Vertical coverage shall meet a minimum standard of 75° or better, guaranteeing consistent and effective sound distribution. The crossover frequency of the system shall be a minimum of 1 kHz or better, implemented through a passive 2-way crossover configuration that incorporates an integrated transformer supporting 70/100V operation.The specifications outlined in this tender document establish the minimum acceptable design criteria. The Itemder shall strictly comply with these requirements. Higher- performance alternatives that exceed these minimum parameters shall be reviewed and are strongly encouraged for submission. The Itemder must provide a Manufacturer Authorization Certificate along with the detailed technical Item submission. This submission must include a compliance statement on the Manufacturer's official letterhead, clearly affirming conformity with or exceeding the outlined technical specifications. Failure to meet these minimum design requirements shall result in immediate rejection of the proposed Item without prior notice. All submissions must ensure comprehensive adherence to the specified parameters and requirements without exception approved Make - Bose / Fidelity / Electrovoice/Shure</p>	Each	1		

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3	<p>Supply,Installation,Testing & Commissioning of Low Frequency Driver shall meet the minimum technical requirements as specified herein. The frequency range must be a minimum of 35 Hz to 125 Hz or better, measured at -10 dB, ensuring precise low-frequency reproduction. The horizontal and vertical coverage shall be omnidirectional below a minimum of 200 Hz or better to ensure uniform sound dispersion across all axes. The calculated maximum sound pressure level at a distance of 1 meter shall be no less than 115 dB or better, and the nominal impedance must be a minimum of 8 Ω or better when the transformer bypass mode is engaged. The power handling capacity shall meet a minimum of 300 W for long-term continuous operation and 1200 W peak or better to guarantee performance under demanding conditions. Sensitivity shall be no less than 90 dB SPL per watt at 1 meter or better. The transformer taps for 100V operation must include minimum settings of 40 W, 80 W, 150 W, and bypass or better, while 70V operation must include minimum taps of 20 W, 40 W, 80 W, 150 W, and bypass or better. The crossover frequency shall operate between a minimum of 80 Hz and 200 Hz or better via an active crossover implemented in the DSP. All specified parameters shall represent the minimum design requirements, and the Itemder must adhere to them without exception. Higher-performance alternatives exceeding these specifications shall be reviewed favorably. The Itemder shall submit a Manufacturer Authorization Certificate and a compliance statement on official letterhead. Non-compliance with the minimum requirements shall result in immediate rejection without prior notice approved Make - Bose / Fidelity / Electrovoice / Shure</p>	Each	2		
4	<p>Supply,Installation,Testing & Commissioning of Surround Sound Speaker shall conform to the minimum design specifications as outlined herein. The ingress protection rating must be a minimum of IP55 or better, ensuring suitability for outdoor or challenging environments. The frequency range of the equipment shall cover a minimum of 59 Hz to 20,000 Hz or better, measured at -10 dB, guaranteeing full- range audio reproduction. Horizontal and vertical coverage must provide a minimum of 125° conical dispersion or better to ensure uniform sound distribution in all directions. The calculated maximum sound pressure level at a distance of 1 meter shall not be less than 111 dB or better, meeting critical performance demands. The nominal impedance must be a minimum of 8 Ω or better in transformer bypass mode. The equipment shall exhibit a power handling capability of no less than 125 W for long- term continuous operation and a minimum of 500 W peak or better, ensuring reliability under varying conditions. Sensitivity shall be a minimum of 90 dB SPL per watt at 1 meter or better to guarantee efficient output. The crossover frequency shall operate at a minimum of 1.7 kHz or better using a passive 2-way crossover to ensure optimal frequency division. Compliance with these specifications is mandatory. Alternatives exceeding the minimum design parameters are encouraged. A Manufacturer Authorization Certificate and compliance statement on official letterhead must accompany the submission. Non- compliance with any minimum requirement shall result in immediate rejection without prior notice approved Make - Bose / Fidelity / Electrovoice / Shure</p>	Each	6		
5	<p>Supply,Installation,Testing & Commissioning of Atmos Speaker shall comply with the minimum requirements set forth herein. The frequency range must span a minimum of 65 Hz to 20,000 Hz or better, as measured at -10 dB, to ensure comprehensive audio reproduction. Horizontal and vertical coverage must provide a minimum of 120° conical dispersion or better, ensuring even sound distribution. The calculated maximum sound pressure level at 1 meter shall be a minimum of 105 dB or better, and the nominal impedance must not be less than 8 Ω or better in transformer bypass mode. The power handling capacity shall be no less than 50 W for long-term continuous operation and a minimum of 200 W peak or better to meet performance demands. Sensitivity shall be a minimum of 87 dB SPL per watt at 1 meter or better, ensuring compatibility with various installations. The crossover frequency shall operate at a minimum of 1.8 kHz or better, implemented using a passive 2-way crossover, ensuring precise frequency management. Compliance with these minimum specifications is mandatory, and higher-performance alternatives exceeding the stated parameters are strongly encouraged for consideration. The Itemder must provide a Manufacturer Authorization Certificate and a compliance statement on the Manufacturer's official letterhead. Non-compliance with these minimum requirements shall result in immediate rejection of the submission without prior notice approved Make - Bose / Fidelity / Electrovoice / Shure</p>	Each	4		

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6	<p>Supply,Installation,Testing & Commissioning of Controller shall must include a minimum of a 2-line by 40-character backlit LCD screen or better, providing clear and legible system feedback. The unit shall feature a minimum of 4 gain/selector control knobs that combine rotary and push functionality, each surrounded by LED indicator rings for visual status updates, or better. Additionally, the equipment must provide a minimum of 4 bank switch buttons enabling mapping of the gain/selector control knobs to at least 16 unique controls or better. A master scene/preset recall knob shall be included, offering rotary scroll and push-to-select capabilities as a minimum requirement or better. The device must support simplified drag-and-drop setup using ControlSpace Designer software or better, facilitating streamlined configuration and operation. Customizable on-screen wording must allow for enhanced ease of system operation, ensuring user-friendliness and adaptability. The system shall support programming of multiple scenes, enabling simplified recall of pre-configured room usage scenarios directly by end users. A maximum of 16 controllers must be supported per ControlSpace network or better, ensuring scalability and flexibility for larger installations. The unit must also include programmable software lock-out functionality as a minimum requirement, ensuring security and restricted access to critical configurations. Compliance with these specifications is mandatory, and higher-performance alternatives that exceed the minimum criteria shall be encouraged for submission. The Itemder must provide a Manufacturer Authorization Certificate along with a compliance statement on the Manufacturer's official letterhead. Submissions that fail to meet or exceed these minimum design requirements shall be subject to immediate rejection without prior notice approved Make - Bose / Fidelity / Electrovoice / Shure</p>	Each	1	
7	<p>Supply,Installation,Testing & Commissioning of Processor must adhere to the minimum requirements as specified herein. The channel separation (crosstalk) shall be less than a minimum of -105 dB at +4 dBu with a 1 kHz input signal or better, ensuring superior audio isolation. The dynamic range shall be no less than 115 dB, A-weighted, over a frequency range of 20 Hz to 20 kHz, measured from analog input to analog output, or better. The frequency response must range from a minimum of 18 Hz to 20 kHz, with tolerances of +0.8 dB/-0.2 dB at a 1 kHz reference or better. Total Harmonic Distortion plus Noise (THD+N) shall not exceed 0.003% at +4 dBu, A-weighted, over 20 Hz to 18 kHz, and shall not exceed 0.01% at +44 dBu, A-weighted, over the same frequency range, or better. The device shall include a minimum of 12 balanced mic/line input channels with an equivalent input noise level of -118 dB at 44 dB gain or better. Input impedance shall not be less than 12 kΩ at 1 kHz, with or without phantom power. Phantom power must be 48 VDC at 10 mA, software-selectable per input channel or better. Output channels shall include a minimum of 8 balanced line outputs, capable of a maximum output level of +24 dBu or better, with an output impedance of no more than 200 Ω. Integrated DSP shall support 48 kHz / 24 bit A/D and D/A conversion, with an audio latency not exceeding 1.05 ms from analog input to analog output, and delay capability up to 43 seconds. DSP shall support a minimum of 3.6 GIPS or better, powered by a 32-bit fixed/floating-point DSP at 456 MHz and an Arm Cortex-A8 processor at 600 MHz. All specified parameters represent minimum design requirements. Higher-performance alternatives are encouraged. A Manufacturer Authorization Certificate and a compliance statement on official letterhead must be submitted. Non-compliance shall result in immediate rejection without prior notice approved Make - Bose / Fidelity / Electrovoice / Shure</p>	Each	2	
8	<p>Supply,Installation,Testing & Commissioning of Amplifier must meet or exceed the following minimum design requirements. Channel separation (crosstalk) must be greater than 80 dB at 1 kHz and greater than 65 dB at 20 kHz or better, ensuring excellent audio channel isolation. The dynamic range shall be no less than 100 dB at rated power, A-weighted, or better, providing a high-fidelity audio experience. The frequency response must cover a minimum range of 20 Hz to 20 kHz with a tolerance of ± 1 dB at 1 W for 4-8 Ω loads and similarly at 1 W with a 50 Hz high-pass filter for 70V/100V operation or better. Gain specifications must include a minimum of 35 dB in 70V mode, 38 dB in 100V mode for high-impedance, and 32 dB for low-impedance or better. The system must deliver a symmetrical maximum peak power of no less than 600 W or better, with a rated symmetrical power of 300 W or better. THD+N values must remain below 0.04% at 1 kHz for 4-8 Ω and 70V/100V operation, ensuring minimal distortion or better. The equipment must include a minimum of 4 balanced analog audio input channels with an input impedance of no less than 10 kΩ and a maximum input level of no less than 22 dBu at 14 dBu sensitivity or better. Connectors must include at least two 6-pin Euroblock terminals. Sensitivity must be adjustable to -10 dBV, 4 dBu, and 14 dBu or better. Digital audio input/output capabilities shall support a minimum of 8 AmLink in and 8 AmLink thru channels, utilizing a minimum of two 6-pin Euroblock connectors or better. Analog audio outputs shall include no fewer than 4 channels, using at least one 8-terminal block connector or better. While DSP functionality is not required, compliance with these specifications is mandatory. Higher-performance alternatives exceeding these criteria are encouraged. The Itemder must provide a Manufacturer Authorization Certificate and a compliance statement on official letterhead. Non-compliance will result in immediate rejection without prior notice approved Make - Bose / Fidelity / Electrovoice / Shure</p>	Each	2	

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9	<p>Supply,Installation,Testing & Commissioning of Amplifier shall be required to provide a minimum of 80 dB channel separation at 1 kHz, and at least 65 dB at 20 kHz, with a dynamic range of no less than 100 dB at rated power, A-weighted, to ensure that the unit performs to the highest standards of audio clarity and signal isolation. The frequency response shall extend from 20 Hz to 20 kHz (± 1 dB) at 1 W with 4–8 Ω, and when utilizing a 50 Hz high-pass filter, the unit must still maintain this frequency response across the same range for both 70V and 100V configurations. The gain shall not fall below 35 dB in 70V mode and 38 dB in 100V mode for high-impedance setups, while low-impedance configurations must provide a minimum of 38 dB gain. Additionally, the unit must be capable of achieving a symmetrical peak power of 2000 W, with a rated symmetrical power of at least 1000 W, ensuring robustness and handling of high- demand audio signals. Total harmonic distortion plus noise (THD+N) shall be a maximum of 0.04% at 1 kHz under a 4–8 Ω load for 70V/100V applications, demonstrating an ability to perform with extremely low distortion and noise artifacts. The unit shall feature a minimum of two balanced analog input channels, connected via a 6-pin Euroblock, with an input impedance of no less than 10 kΩ, and capable of handling a maximum input level of 22 dBu at 14 dBu sensitivity, alongside sensitivity options of -10 dBV, 4 dBu, and 14 dBu. On the digital front, the amplifier shall incorporate 8 AmLink in and 8 AmLink thru channels via RJ-45 connectors, ensuring seamless digital audio network integration, as well as a 6-pin Euroblock for additional I/O flexibility. Finally, the analog audio outputs shall consist of a minimum of two channels connected via a 4-terminal block to ensure easy integration with other professional audio equipment. The Itemder must comply with these minimum design requirements, and failure to meet or exceed these specifications shall result in the rejection of the product without notice The equipment shall, in its entirety, meet or exceed the minimum technical specifications outlined below, or better, ensuring full compliance with the design criteria set forth. The specifications provided here must be strictly adhered to, and the Itemder shall be responsible for submitting the Manufacturer Authorization and a compliance statement on the Manufacturer's official letterhead along with the technical proposal. Any deviation from these specifications shall render the bid non-compliant and subject to rejection without prior notice approved Make - Bose / Fidelity / Electrovoice / Shure</p>	Each	1		
10	<p>Supply,Installation,Testing & Commissioning of Intractive kiosks shall have LED monitor with a screen size ranging from 46 inches to 55 inches, constructed from durable mild steel to ensure longevity and robustness. The operating voltage will be 230V AC, and each unit will come with a one-year warranty, providing assurance of quality and reliability. kiosks will have an aspect ratio of 16:9, equipped with a minimum of 4GB RAM and powered by an Intel Dual Core, i3, i5, or ARM Cortex processor to handle various applications efficiently. The brightness of the screens will exceed 300 nits, ensuring visibility in various lighting conditions, and each unit will offer a minimum of 1TB of HDD storage for ample data management Connectivity options will include WiFi, LAN, Bluetooth, USB 2.0, and USB 3.0, enabling seamless integration with other devices and networks. The kiosks will operate effectively in an environment with temperatures ranging from 0 to 45 degrees Celsius and humidity levels up to 85% Designed for standalone floor mounting, these kiosks will support multi-touch functionality, allowing multiple users to interact with the system simultaneously. The touch accuracy will be maintained at 99%, and feature a capacitive touch screen for a responsive user experience. The operating system will support both Windows 10 and Android, providing flexibility in software deployment The screen resolution will be 1920x1080, ensuring high-quality visuals. Additional features will include a printing facility and vandal- resistant glass to protect the display. Branding options will be available through vinyl, laser-cut logos, or backlighting, and the kiosks will accommodate peripherals as required will utilize customized software to enhance user experience and functionality. The enclosure will feature powder coating and should be available in any color to match the aesthetic requirements of the installation environment. The kiosks will be capable of handling various functions such as payment processing, service applications, information checks, document printing, and check-ins, thereby providing users with self service capabilities at any time approved Make -Molar / AHA / Geeken / Philips / Samsung / LG</p>	Each	5		

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11	<p>Supply,Installation,Testing & Commissioning of Height adjustable Podium Shall have Minimum display with a Minimum size of 21.5 inches or better, utilizing IPS technology and delivering a resolution of at least 1920x1080, with a refresh rate of 60Hz or higher and a color depth of 8 bits (16.7M). The touch system shall be based on P-Cap and EMR technologies, supporting a Minimum of 10 capacitive touch points and 1 EMR touch point, operable with a stylus or finger, ensuring a touch accuracy of ±0.5 mm. The supported stylus type shall include the SP08 Electro-magnetic Stylus with 1024 pressure sensitivity levels. The operating system must be Windows 10, powered by a Minimum Intel 8th Gen i5 8250U processor or better, with at least 8GB RAM and 128GB SSD storage capacity. Display connectors shall include one HDMI Out, one Audio Out, two USB 2.0 ports, one AC In, and one DC In port, complemented by four functional buttons (Power, Go Up, Go Down, and Microphone Switch). The wireless screen-sharing feature shall operate at a transmission delay of less than 133ms, with an operating distance of 12 meters, supporting 2.4GHz and 5GHz frequencies. The WiFi system must operate on both 2.4GHz and 5GHz bands. Audio capabilities shall consist of two integrated 3W speakers, along with two gooseneck microphones with a pickup distance of ≤20cm, a sensitivity of -40dB±2dB, input frequency response between 40Hz and 16kHz, and a sample rate of 30kHz. Approved Make - People Link / Molar / Maxhub / Bose / Shure</p>	Each	1		
12	<p>Supply,Installation,Testing & Commissioning of The flexible LED display shall possess a curvature of a minimum of 110°, which should be conducive to the creation of diverse and intricate artistic shapes, with flexibility to adapt to various configurations. The viewing angle shall not be less than 140° both horizontally and vertically, ensuring superior visibility under all viewing conditions. The display shall be capable of achieving a minimum of 13-14-bit grayscale and must support a refresh rate of 3840Hz or better to deliver optimal image quality and smooth transitions. The construction shall incorporate a magnetic design that permits effortless front installation and maintenance, ensuring ease of serviceability. The PCB shall be constructed using flexible boards, and the bottom shell shall be fabricated from rubber materials for enhanced durability. The pixel pitch shall be a minimum of 2.5mm, utilizing LED 2121 with a module resolution of 128x64 (Width x Height), achieving a minimum density of 160,000 dots per square meter. The module dimensions shall be a minimum of 320mm x 160mm x 8mm (Width x Height x Depth), with flatness tolerance not exceeding 0.3mm to ensure a smooth and level display surface. The system should support front maintenance, which shall be mandatory. The bottom shell shall be manufactured from rubber material to enhance overall durability and provide shock resistance. For optimal visual performance, the system shall support single dot brightness calibration as well as single dot color calibration to ensure precise and uniform color and brightness levels across the entire display. The display brightness shall range from a minimum of 450 nits to 500 nits or better, with adjustable color temperature between 3200K to 9300K or better to ensure adaptability to various environmental conditions. The display's contrast ratio shall not be less than 5000:1, and color and brightness uniformity must reach a minimum of 95% across the entire display area. The display shall be capable of supporting a horizontal and vertical viewing angle of 140°, ensuring consistent image quality from multiple angles.</p>	Each	1		
	<p>In terms of electrical parameters, the maximum power consumption of the system should not exceed 244W per square meter, with the average power consumption not exceeding 82W per square meter. The power supply should accept a voltage input within the range of 110-220VAC ±15% to accommodate varying power conditions. For signal processing, the system must utilize a drive mode of 1/32 constant current to ensure even distribution of power across the display. The frame rate should be no less than 60Hz, with a minimum refresh rate of 1920Hz, ensuring flicker-free and stable performance during operation. The color depth must be no less than 13-14 bits to deliver rich and vivid colors. The receiving card shall be of a minimum specification of 75, and the expected lifespan of the display shall be at least 100,000 hours, ensuring long-term reliability and operational stability. The operating temperature should range from a minimum of -10°C to a maximum of 45°C, while the storage temperature must be between 0°C and 40°C. The operating humidity must be between 10% and 65% relative humidity, non-condensing, while the storage humidity must range from 10% to 60% relative humidity, non-condensing. This display system must meet all the aforementioned technical parameters and provide reliable performance, flexibility, and durability under diverse environmental and operational conditions. Approved Make:- AET / Planner / Barco / Philips / Samsung / LG</p>				

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<p>13</p>	<p>Supply,Installation,Testing & Commissioning of Control system shall support a maximum output resolution of 1920x1200 at 60Hz or better, and it must comply with HDCP 1.4 standards while excluding support for interlaced signal output. In asynchronous mode, the system shall support output resolutions of 400x4096 at 60Hz and 480x4096 at 60Hz. Additionally, the system shall support custom resolution configurations, with the custom pixel width range being between 512 and 4096 (ranging from 512x512 at 60Hz to 4096x560 at 60Hz) and the custom pixel height range between 512 and 3680 (ranging from 512x512 at 60Hz to 512x3680 at 60Hz). The HDMI input shall feature 1x HDMI 1.3 input port with a maximum input resolution of 1920x1200 at 60Hz, ensuring the pixel clock does not exceed 153 MHz. It must also comply with HDCP 1.4 standards and exclude support for interlaced signal input. Custom resolutions are also supported for HDMI input with identical width and height ranges as the output resolution, and the HDMI input resolution can be customized via preset EDID, provided the external source supports custom resolutions. In synchronous mode, HDMI input shall allow video input and full- screen scaling, which will automatically adjust the image to fit the screen, with scaling requirements of a video source width and height ranging from 512 to 2048 pixels. The image can only be scaled down and not up, with the pixel dimensions of the video source being greater than or equal to the pixel dimensions of the screen. Wi-Fi connectivity shall be available via a 2.4 GHz Wi-Fi antenna connector, and the system shall support switching between Wi-Fi AP and Wi-Fi STA modes. A Gigabit Ethernet port shall be included for connection to a control computer, LAN, or public network for content publishing and screen control. The system shall also include a COM 2 GPS antenna connector and a USB 3.0 (Type A) port for USB playback, firmware upgrades, and storage expansion, supporting Ext4 and FAT32 file systems with a maximum single file size of 4 GB for FAT32 (exFAT and FAT16 file systems are not supported). Additionally, the COM 1 connector will support a 4G antenna, and an audio output connector will be available for OMTP headphones or compatible audio devices. The power input shall accept 100-240V~, 50/60Hz with a maximum current rating of 0.6A, and the system shall feature an ON/OFF power switch for easy operation Approved make as Per Recommended By OEM .</p>	<p>Each</p>	<p>1</p>		
<p>14</p>	<p>Supply, Installation,Testing & Commissioning of Digital Signage The refresh rate shall be no less than 100Hz, paired with a resolution of 3,840 x 2,160 to deliver ultra-high-definition imagery. The display must incorporate an anti-reflection matte display surface, supported by a Quantum Processor 4K for superior picture processing. The system shall offer a color range of one billion colors and a minimum PQI (Picture Quality Index) of 3500, complemented by Quantum HDR, certified HDR 10+ Adaptive, and HDR10+ GAMING capabilities. AI Upscaling must be included to enhance lower-resolution content, and the HLG (Hybrid Log Gamma) standard must be supported. The contrast shall be enhanced by Dual LED technology, ensuring deep and dynamic contrast levels. Color accuracy must meet 100% Colour Volume with Quantum Dot technology, and the viewing angle shall incorporate a wide-viewing-angle design for consistent image quality from all perspectives. The system shall feature brightness and color detection for optimized visual performance, supported by Supreme UHD Dimming and a Contrast Enhancer. Real Depth Enhancer functionality shall be provided to improve depth perception, while motion clarity shall be ensured through Motion Xcelerator Turbo+, Auto Motion Plus, and LED Clear Motion technologies. The display shall also include Film Mode and noise reduction capabilities for enhanced cinematic experiences. For advanced calibration, the system shall offer basic Smart Calibration functionality and support Filmmaker Mode (FMM) for content displayed as intended by creators. Audio performance must include Dolby Atmos technology and Dolby Digital Plus (MS12 5.1ch) for immersive sound. An Active Voice Amplifier and Adaptive Sound+ technology shall ensure audio clarity under varying environmental conditions, while Object Tracking Sound (OTS) and Q-Symphony features shall deliver a spatially immersive audio experience. The system shall have a minimum sound output of 40W, delivered through a 2.0.2CH speaker Approved Make :- Samsung / LG / Panasonic / Philips</p>	<p>Each</p>	<p>3</p>		

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15	Supply,Installation,Testing & Commissioning of 21" Digital Photo frame provisioned with a Minimum 21.5-inch or better Anti-Glare IPS display, which must be capable of delivering a resolution of no less than 1920 x 1080, defined as super high resolution or better. The integrated network capability shall be of Minimum 802.11 b/g/n WiFi, operating on the 2.4GHz band or superior. Internal memory specifications shall include a Minimum of 1GB RAM and a Minimum of 32GB ROM or better. The display unit must be equipped with a built-in G-Sensor to enable automatic rotation functionality. Photographic playback capabilities shall support modes such as slide show and step show, ensuring seamless transitions. Compatibility with application platforms shall be restricted to devices running Apple iOS 10.0 or higher and Android 5.0 or higher, with no exceptions. The audio output system shall consist of dual integrated speakers, each delivering a Minimum power output of 3W or higher.The equipment shall support external memory expansion through SD/SDHC cards with a Minimum capacity of 128GB or better, . These specifications are to be adhered to without deviation, ensuring optimal performance and compatibility across all intended operational environments. Approved Make AET / Molar / Samsung / Philips / LG	Each	16		
16	Supply,Installation,Testing & Commissioning of Control Processor Shall have minimum of 100/1000 Mbps Ethernet, offering full/half duplex modes with auto-switching, discovery, and negotiation. Support for TCP/IP stacks must include advanced protocols such as UDP/IP, CIP, and others, alongside FIPS 140-2 encryption. Compatibility shall extend to IPv4/IPv6 and additional configurations. USB functionality shall accommodate mass storage and console operation, ensuring device interfacing flexibility. Serial communication interfaces must provide bidirectional RS-232/422/485 capabilities, with rates of 115.2k baud, including software handshaking. The device must feature a minimum of 2 GB SDRAM and 8 GB Flash storage, along with external storage options for USB devices and SD/SDHC cards. Relay outputs shall comprise eight isolated relays, each rated for specific loads, while digital/analog ports must operate over versatile ranges with logic thresholds ensuring diverse use scenarios. Infrared and serial options will include support for controlled transmission ranges. The LAN interface must include a minimum of green/amber and amber LEDs to indicate Ethernet link status, connection speed, and activity. The system must comply with UL® Listed standards CE, IC, and FCC Part 15 Class B digital device requirements Essential LEDs and reset functionalities will provide clear operational indicators. Cresnet connectivity must deliver seamless system integration, conditional on power pack connections. LAN interfaces are required to offer status indicators for clear activity tracking. Compliance must align with relevant global standards for quality assurance. Specifications herein establish the minimum acceptable criteria for functionality, design, and performance. Higher-performance alternatives exceeding these baseline standards are welcome. Official compliance documentation is mandatory, ensuring adherence to all outlined requirements. Items failing to meet or surpass specified thresholds shall face rejection without notice Approved Make - Extron / Crestron / Lightware	Each	1		
17	Supply, Installation, Testing & Commissioning of display type shall be a TFT active matrix color LCD with a minimum diagonal size of 10.1 inches (257 mm), featuring a 16:10 WUXGA aspect ratio. The resolution must be no less than 1920 x 1200 pixels, delivering sharp, high-quality images. The system shall provide a brightness of at least 400 nits (cd/m ²) and a contrast ratio of no less than 1000:1, ensuring clear visibility in various lighting conditions. Color depth should be 24-bit, supporting a minimum of 16.7 million colors for vibrant display. The illumination system must use edge-lit LED technology with automatic brightness control to optimize visibility and conserve energy. Viewing angles must allow a minimum of ±80° horizontally and vertically, ensuring consistent image quality from different perspectives. The display shall include a projected capacitive touchscreen, supporting at least 5-point multitouch for responsive user interaction. The system shall feature six virtual buttons in a collapsible universal toolbar for ease of use, with preconfigured icons for Power, Home, Lights, Up, Down, and Microphone. Custom programming for additional functions via control systems is optional. Additionally, the device shall support Smart Graphics and an onscreen keyboard in a wide range of languages, including Arabic, Chinese, English, French, German, Spanish, and many others. Voice recognition functionality should support a minimum of 20 languages, including English, Mandarin, Spanish, and French. The web browser must support at least 40 languages, with room scheduling capabilities available in 17 languages. The device must include 2 GB LPDDR3 RAM and 16 GB eMMC pSLC storage for firmware and application data. For connectivity, the system shall feature 100 Mbps Ethernet and IEEE 802.11a/b/g/n/ac Wi-Fi, with security protocols such as WPA2-PSK and AES. It shall support H.265 and H.264 video formats, AAC stereo audio, and RTSP protocol. The system must also include built-in microphones and speakers, and Rava SIP intercom functionality. The manufacturer must provide authorization and compliance documents to ensure conformance to these specifications. Failure to meet the minimum requirements may result in rejection of the system without prior notice Approved Make - Extron / Crestron / Lightware	Each	1		

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18	<p>Supply,Installation,Testing & Commissioning of shall utilize advanced motion detection technologies, combining Passive Infrared (PIR) and Ultrasonic (US) sensors operating at a frequency of 40 kHz. These technologies are designed to cover a minimum area of 2,000 square feet and provide a 360-degree detection pattern for optimal coverage. For PIR detection, the system will be equipped with a red LED, which will illuminate to indicate that PIR motion has been detected. The ultrasonic sensor will include a green LED to indicate ultrasonic motion detection. In the event of no LAN connection to the host, a yellow LED will light up, signaling a loss of network connectivity. The system's power and firmware status will be monitored using a bi-color LED (yellow/green). This LED will remain hidden during normal operation but will light yellow if the firmware fails to load, and green when the device is functioning normally. A blue LED will be integrated into the device to indicate when the host sends an identity command. The setup process will involve a pushbutton located behind the front cover. This button is used to acknowledge the identity command sent by the host. Additionally, if the button is pressed and held for seven seconds, the device will be reset. For network connectivity, the system will feature an RJ-45 connector, providing a female 8-wire Ethernet port, capable of 10/100 Ethernet speeds. This port is compliant with IEEE 802.3af Power over Ethernet (PoE). The device will be classified as an IEEE 802.3af PoE Powered Device, with a maximum power consumption of 4 W. It will be certified and listed by Intertek® for use in the US and Canada and will meet FCC, CE, C-Tick, and IC regulations. Additionally, the system will be plenum rated, ensuring it can be installed safely in air handling spaces without compromising the air quality or fire safety. All technical specifications outlined above must be strictly adhered to without modification Approved Make - Extron / Crestron / Lightware</p>	Each	1		
19	<p>Supply,Installation,Testing & Commissioning of shall include two 4-pin 3.5 mm detachable terminal blocks, paralleled, specifically for server communication. The system must support the ability to interface with external systems with the specified connections and must meet the minimum power and communication standards required for operation. The OVERRIDE port shall consist of two 2-pin 3.5 mm detachable terminal blocks, paralleled, with the capacity to accept low-voltage contact closure inputs. The override mechanism must be activated by a contact closure and shall force all connected drivers into their respective defined System Failure Levels. The closure rating of the system shall be a minimum of 10mA per module at 24 V, or better. The LAN PoE port shall be equipped with a single 8-wire RJ-45 connection featuring two LED indicators. The Ethernet port must support 10BaseT/100BaseTX Ethernet communication and must be compliant with IEEE 802.3af Power over Ethernet (PoE) standards. The green LED shall indicate the link status, while the yellow LED shall indicate Ethernet activity. The DALI1 port shall include two 2-pin 5 mm terminal blocks for DA+ and DA- and shall control a single DALI loop. Each DALI loop shall control up to a minimum of 64 drivers, and the isolation between the Cresnet/Ethernet ports must be rated at 3kVAC or better. The wire gauge for connections shall range from a minimum of 28 AWG to 12 AWG, or better. Similarly, the DALI2 port shall have two 2-pin 5 mm terminal blocks for DA+ and DA-, supporting control for a second DALI loop with identical specifications for driver control and isolation. The COMPUTER port shall consist of a single USB Type-B female connection for USB 1.1 computer console interface.9. When set to EXT, the system must source power from an external supply, which shall be provided separately and must comply with the necessary operational standards. Additionally, the OVR section shall contain a red LED and a miniature pushbutton for enabling override mode and saving override presets in conjunction with the control processor. The entire system shall be in compliance with the applicable standards and certifications, including Intertek listing for US and Canada, CE certification, and CEC Title 24 2013 compliance. The system must operate fully within the specifications outlined and meet the necessary standards without deviation. Any product submitted for consideration that fails to meet these minimum specifications shall be rejected immediately, without prior notice on and a compliance statement on the Manufacturer's official letterhead as part of the technical submission Approved Make - Extron / Crestron / Lightware</p>	Each	1		

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20	<p>Supply,Installation,Testing & Commissioning of Power Supply shall provide a regulated output of 24 Volts DC, delivering a minimum of 60 Watts (2.5 Amps), ensuring that the output is a limited power source under all conditions, with an output ripple/noise of no greater than 1%. The efficiency of the unit at full- rated output shall be no less than 85%, guaranteeing optimal energy conversion. The power supply shall accept line power within the range of 100 to 277 Volts AC, operating at 50/60 Hz, with a maximum input current of 1.1 Amps at 120 Volts AC, 0.65 Amps at 230 Volts AC, and 0.57 Amps at 277 Volts AC under full load conditions. The unit shall consume a maximum of 70 Watts when operating at full output. The power input shall be connected through a set of three captive screw terminals, capable of handling a maximum wire size of 12 AWG (2.5 mm²) for the line power input and ground connections. The unit shall incorporate six 4-pin 3.5 mm detachable terminal blocks, paralleled, for Cresnet power output and data pass-through, supporting wire sizes up to 14 AWG (1.5 mm²). The power supply shall include a T3.15AH fuse, a 5x20 mm, 250 Volts, 3.15 Amps, time-lag ceramic cartridge to protect the output against overcurrent conditions. The unit shall meet the applicable Class II power supply standards, ensuring no earth ground is required. The Itemder is strictly required to adhere to these minimum design specifications. However, higher-performance alternatives will also be considered and are encouraged. The Itemder shall submit the Manufacturer Authorization along with the technical Item, accompanied by a compliance statement on the Manufacturer's official letterhead. If the product does not meet or exceed the minimum design requirements, the Item shall be subject to rejection without prior notice. Approved Make - Extron / Crestron / Lightware</p>	Each	1		
21	<p>Supply,Installation,Testing & Commissioning of dual-gang size unit, adhering to the minimum specifications outlined below, which include a configuration of eight buttons that are fully configurable. Each position within the device must be capable of accommodating a single pushbutton or a horizontal rocker button as per the design. Additionally, the device shall support the option of vertical rocker buttons in two distinct sizes, with flexibility to occupy any three contiguous positions or utilize all five positions of the unit. The unit must support the capability of ganging up to four units in sequence, allowing for seamless integration and scalability. Communication must occur over a 4-wire network bus, with the inclusion of a dual port for easy daisy chaining, ensuring the device can interface effectively with other connected components within the control system. The unit must also feature auto-dimming day/night backlight modes, providing dynamic visual adjustments to the backlighting based on ambient lighting conditions. Furthermore, the multi-color RGB LED backlighting is required to ensure high customization and visibility. A provision for custom backlit laser-etched engraving shall be incorporated, enabling personalized and functional button labeling. The device must include an addressing option, ensuring that multiple units of the same kind can be controlled through a single communication port within the control system. To facilitate external interfacing, the unit shall have a built-in 2x digital/analog input port, designed specifically for connecting external sensors. Each individual button on the device shall be capable of multi-function support, responding to single-tap, double-tap, and press-and-hold events, offering flexible interaction for end-users. The unit shall be available in black colors, and it must be supplied with a matching faceplate. Additionally, the device must be supplied with customized laser engraving for a minimum of eight buttons. These specifications are outlined to ensure the product meets or exceeds the minimum requirements for functionality and performance, with higher-performance alternatives being encouraged. The bidder shall submit the Manufacturer Authorization and a compliance statement on the Manufacturer's official letterhead along with the technical item. Failure to meet the minimum design requirements shall result in rejection without prior notice Approved Make - Extron / Crestron / Lightware</p>	Each	3		
22	<p>Supply,Installation,Testing & Commissioning of 24V DC power Adapter Should provide 24 VDC, 1.25 A, power on 2.1 mm jack should have changeable pins to support various power socket Should be CE, UL Listed for US & Canada Should be wall mountable adapter. Approved Make - Extron / Crestron / Lightware</p>	Each	1		

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23	<p>Supply,Installation,Testing & Commissioning ofThe display system shall incorporate a Minimum screen size of 98 inches or better, leveraging IPS panel technology with DLED backlight and offering a Minimum brightness of 500 cd/m² or better. The native resolution must be no less than 3840 x 2160 (16:9) UHD, with a Minimum contrast ratio of 1200:1 (typical) and a dynamic contrast ratio of 40000:1 or better. The panel lifetime shall not be less than 30000 hours or better, with a response time of 8 ms or lower. The active area dimensions shall be a Minimum of 2158.8 mm horizontally by 1214.4 mm vertically or better, and the viewing angle must provide a Minimum of 178 degrees vertically and horizontally (89U/89D/89L/89R) @ CR>10. The display shall support a Minimum color value of 1.07 billion colors (8 bits + FRC) with a Minimum color gamut of 72% NTSC or better and a haze level of 25%. The refresh rate shall be no less than 60 Hz, with the orientation limited to landscape mode. The operational capability shall be maintained for 16 hours per day, seven days per week, making it suitable for indoor usage environments. The built-in system shall feature a 17MB400VS mainboard model and operate on a custom OS built on Android AOSP. The system must include a Minimum of 2 GB DDR4 memory and 16 GB eMMC storage or better, expandable via Micro SD up to 1TB. The CPU shall be a Quad-Core ARM Cortex-A55, paired with an ARM Mali-G31 MP2 GPU. Wired connectivity shall support 10/100 Mbps Ethernet with IEEE 802.1X authentication, while wireless connectivity shall include WiFi 5 (802.11 a/b/g/n/ac) via USB dongle and Bluetooth 5.1 via USB dongle, both with IEEE 802.1X authentication. The system shall include a Vewd HTML5 browser and wireless display functionality through Miracast. Monitor connectivity must include a Minimum of 4 HDMI 2.0 video inputs, 1 HDMI 2.0 video output, 1 USB-A 3.0 port, 2 USB-A 2.0 ports (one internal), and 1 Micro USB port. Audio output shall feature a headphone jack and Optic SPDIF. External control must include RS232 (3.5mm jack green), Fast Ethernet (RJ45), and Service (RJ12) ports, while an external sensor shall be supported via RJ12. Continue...</p>	Each	2		
	<p>Key features must include HTML5 CMS Launcher, Android CMS Launcher, Open Content Management Support, Scheduler, USB-Autoplay, Auto-Launch, HDMI-CEC, HDMI-Wakeup, Auto-switch on Failover, Panel Lock, OSD and UI Rotation, Video Rotation, NoSignalPowerOff, Pixel shift, Videowall support, Remote control via LAN, Real Time Clock, and SNMP. Mechanical features shall include a joystick, rocker switch, detachable power cable, detachable logo, and internal USB cover. The system shall also feature integrated speakers with a Minimum output of 2x12 W or better. END. Approved Make - Vestel / Barco/ Christie / Philips / Samsung / LG</p>				

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24	Supply, Installation, Testing, and Commissioning (SITC) of Analogue Addressable Multi- Sensor for below ceiling which is fully compatible with Analogue Addressable Protocol, having removable high performance chamber with Twin fire LED's allow 360 degree veiwng, User selectable sensitivity modes 1% to 4.5% obs/m, Incorporate Optical and dual Heat elements, lock mechanism (sensor to base), Electronically addressed, Pulsing/non-pulsing controlled from panel Should have Vds/ EN54/ UL & FM Certification multi-sensor should be capable of monitoring two different sensing elements: Photoelectric Thermal o The design of the point-type multi-sensor photoelectric smoke detector sensing chamber shall be optimised to minimise the effect of dust deposit over a period.The detector should also incorporate a locking mechanism, so that the detector can only be removed with a special removal tool. The point-type multi-sensors shall incorporate screens designed to prevent all but the very smallest of insects from entering the sensing chamber, (50 holes per square centimetre or more).The multi-sensors shall be designed to have high resistance to contamination and corrosion and shall include RFI screening to minimise the effect of radiated and conducted electrical interference. The sensor should be able to operate in the following modes: Combined Mode The sensor should also be able to signal to the FACP if the thermal sensing element exceeds a fixed temperature threshold. Thermal Mode The sensor should be able to return the analogue value for the thermal element during a normal polling sequence. The sensor should also able to signal to the FACP if the photoelectric sensing element exceeds a pre-defined threshold. The multi-sensor shall incorporate two LEDs, clearly visible from the outside, to provide indication of alarm actuation. The LEDs should be controlled from the FACP if the LEDs flash during the normal polling sequence.The modes of the multi-sensor should be controlled by the FACP, when the FACP changes from one mode to another the FACP should re-calibrate the multi-sensor. In locations where the detector is not readily visible, remote indicator units shall be provided. The multi-sensor should have the capability of monitoring either sensing elements, if either or both elements fail it should be reported and displayed at the FACP.	Each	25		
25	Providing and Fixing of All Required Hardware Mount Accessory's System Interconnect Video Wall Support Structure as On required on Site	Lot	1		
				Total	

(Rupees _____)

(NOTE: The rates should be inclusive of all taxes, duties, fees, cess etc and all incidental charges; but exclusive of Goods & Service Tax).

**Seal & Signature
of Contractor**

Sd/-
**Executive Engineer (E)
Deendayal Port Authority**