



TERMS OF REFERENCE
FOR THE SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF
VARIOUS PLANETARIUM EQUIPMENT FOR VISAYAS AND MINDANAO PLANETARIA

A. OVERVIEW

PAGASA will establish the Visayas Planetarium in Mactan, Cebu and Mindanao Planetarium in Molugan, El Salvador, Misamis Oriental as part of its modernization program. The pieces of equipment and accessories, office furniture and fixtures that are essential for these Planetaria to be in full operation will be procured. Once operational, the new Planetarium in the respective region will provide the students, teachers and the general public as well, the latest astronomical information and events through planetarium lectures/shows. It will also have an additional facility which is the astronomical gallery that will surely enhance the awareness of the young students, science teachers in astronomy. It is the main goal of this project to encourage the different schools and other institutions to make the planetarium and museum visits be part of their school activities. It will be a good catalyst to build a bridge between science course and planetariums on teaching of subjects and concepts of astronomy. Thus, these planetaria will make a significant contribution to raise new generations who are scientifically literate and mold them to become future scientist of the region.

- B.** The approved budget for the contract is **FIFTEEN MILLION FORTY THOUSAND AND THREE HUNDRED TWENTY PESOS (Php15,040,320.00)** inclusive of Value Added Tax (VAT) and other government taxes.

C. QUALIFICATIONS OF BIDDERS

(Please refer to Instructions to Bidders, the Bid Data Sheet and Checklist of Eligibility Requirements).

D. BID PROPOSAL CONTENTS

Bidders shall respond paragraph by paragraph to the following specifications/scope of work and shall clearly indicate compliance (please see Section VII. Compliance Matrix). The bidder should include additional materials and activities he deems necessary to properly complete the project. Use additional sheets, if needed. The bidder should include in this proposal descriptive literatures of all equipment/ materials to be supplied in original format, plans, drawings and diagrams/ configurations. These details permit PAGASA to fully evaluate cost tradeoffs.

E. BID VALIDITY

The bid shall remain valid for a period of one hundred twenty (120) calendar days from the date of opening bid.

F. DELIVERY PERIOD AND PLACE OF DELIVERY

The winning bidder shall supply, deliver, install and test the various planetarium equipment at the Visayas PAGASA Regional Services, Mactan, Cebu and Mindanao Planetarium in Molugan, El Salvador City, Misamis Oriental within the period of sixty (60) days, commencing from the date of the issuance of the Notice to Proceed (NTP). The items will be divided into two (2), one part will be delivered to Visayas PAGASA Regional Services Division (VPRSD) in Mactan, Cebu and the other half will be delivered to Mindanao PAGASA Regional Services Division (MPRSD).

G. TESTING NEEDS

The winning bidder shall explain the procedure of the operation and demonstrate the same to the end user and make sure that the items delivered are working properly. Furthermore, the winning bidder shall demonstrate the proper maintenance of the item in order to preserve it in its good operating condition.

H. TECHNICAL SPECIFICATIONS

Unit	Quantity	Description
Unit	2	<ul style="list-style-type: none"> DLP Laser Projector with Fisheye <p>Specifications:</p> <ul style="list-style-type: none"> Brightness: 10,000 lm (Center) Resolution: 1920 x 1200 pixels Contrast Ratio: 10,000:1 Lamp Life: Laser diodes (Class 1) light source life: 20,000 hours (Normal Mode) / 24,000 hours (Eco Mode) <p>Features:</p> <ul style="list-style-type: none"> Dual-Drive Laser Optical Engine groups laser diodes into two discrete modules. A redundancy circuit works to minimize brightness- and color-uniformity loss should a laser diode fail, making supported products ideal for applications where picture presentation must be maintained. Detail Clarity Processor Quick Start and Quick Off Early Warning Software monitors the status of projectors and displays connected to an intranet, and informs the operator when an abnormality is detected or predicted, or when there

are symptoms of trouble. This minimizes downtime to provide more stable operation.

FISHEYE LENS, Hemistar

Focal Length 3.00mm MTF Center 66% @ 66 lp/mm
Image Circle 9.072mm MTF Edge 60% @ 66 lp/mm
Max Half-Angle 92° Lateral Color R-G < 4µm
F/# F/2.5 Lateral Color B-G < 2µm
Focus Range 600mm – Inf. F-Theta Distortion -6.0% Max
Transmittance 81-89% Relative Illum. >95%

Unit

2

2. Three Input Multi-Format Switcher with Integrated DTP Transmitter and Audio Embedding

Transmits DisplayPort, HDMI, or VGA plus control and analog audio up to 230 feet (70 meters) over a shielded CATx cable
Inputs: One DisplayPort, one HDMI, and one VGA on 15-pin HD, one 3.5 mm stereo mini jack for audio

Output: One DTP® 230 twisted pair output on RJ-45

Auto-switching between inputs — Auto-switching allows for simple, unmanaged installation in locations such as in a lectern or under a conference table. When multiple inputs are active, the switching priority is configurable.

Supports computer and video resolutions up to 4K

Analog stereo audio embedding — Analog stereo audio signals can be selectively embedded onto the digital video output signal and transported over DTP. The DisplayPort and HDMI inputs can be set to pass the embedded digital audio, embed the analog audio, or to automatically embed the analog audio when no digital audio is detected.

Remote powering of DTP receiver — For simplified installation, the transmitter can supply power to a DTP receiver over the twisted pair connection.

Compatible with CATx shielded twisted pair cable — Shielded twisted pair cabling with solid center conductor sizes of 24 AWG or better is recommended for optimal performance.

Accepts additional analog stereo audio signals for simultaneous transmission over the same shielded twisted pair cable.

Audio input assignment — The analog audio input can be assigned to any video input, or it can be set to follow the input switch.

Supports DisplayPort SST - Single Stream Transport data rates up to 10.8 Gbps

Supported HDMI specification features include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, and HD lossless audio formats

DTP output is compatible with HDBaseT-enabled devices — The DTP output can be configured to send video and embedded audio, plus bidirectional RS-232 and IR signals to an HDBaseT-enabled display.

Supports multiple embedded audio formats —compatible with a broad range of multi-channel audio signals, providing reliable operation with DisplayPort and HDMI sources.

Bidirectional RS-232 and IR pass-through for AV device control — Bidirectional RS-232 control and IR signals can be transmitted alongside the video signal, allowing remote AV devices to be controlled without the need for additional cabling.

Digital conversion of analog input signals — Analog video signals up to 1920x1200 are digitized, ensuring that a reliable, high quality digital video signal is sent to the output destination.

HDCP compliant — Ensures display of content-protected media and interoperability with other HDCP-compliant devices.

User-selectable HDCP authorization — Allows individual inputs to appear HDCP compliant or non-HDCP compliant to the connected source, which is beneficial if the source automatically encrypts all content when connected to an HDCP-compliant device. Protected media is not passed in non-HDCP mode.

EDID Minder® automatically manages EDID communication between connected devices — EDID Minder ensures that all sources power up properly and reliably output content for display.

HDCP authentication and signal presence confirmation — Provides real-time verification of HDCP status for each digital video input. This allows for simple, quick, and easy signal and HDCP verification through front panel LEDs, RS-232, or USB, providing valuable feedback to a system operator or helpdesk support staff.

HDCP Visual Confirmation — When HDCP-encrypted content is transmitted to a non-HDCP compliant display, a full-screen green signal is sent to the display for immediate visual confirmation that protected content cannot be viewed on that display.

Output muting control — The video and audio output may be muted independently.

HDMI to DVI Interface Format Correction — Automatically enables or disables embedded audio and InfoFrames, and sets the correct color space for proper connection to HDMI and DVI displays.

Automatic color bit depth management based on the display EDID, preventing color compatibility conflicts between source and display.

Front panel security lockout — This feature locks out all front panel functions; all functions however, are available through USB or RS-232 control.

RS-232 control port — Enables the use of serial commands for integration into a control system.

Contact closure remote control with tally output — Allows for remote selection of an input channel, while a tally output provides +5 VDC to light an LED to indicate the currently selected input.

Front panel USB configuration port — Enables easy configuration without having to access the rear panel.

LED indicators for signal presence, HDCP, and power — Provides visual indication of system status for real-time feedback and monitoring of key performance parameters.

RJ-45 signal and link LED indicators for DTP port — Provides a means for validating signal flow and operation, allowing quick identification of connectivity issues.

Easy setup and commissioning with Product Configuration Software — Conveniently configure multiple products using a single software application.

Regulatory compliance: CE or c-UL or UL

Unit

2

3. DTP Receiver for HDMI

- Receives HDMI plus control and analog audio up to 230 feet (70 meters) over a shielded CATx cable
- Input: One twisted pair input on RJ-45
- Outputs: One HDMI, stereo audio on captive screw
- Supports computer and video resolutions up to 4K
- Supported HDMI specification features include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through
- HDCP 2.2 compliant — Ensures display of content-protected 4K video media and maintains interoperability with earlier versions of HDCP.
- Remote power capability — For simplified installation, the receiver can be remotely powered by a DTP-enabled product over the twisted pair connection.
- Compatible with CATx shielded twisted pair cable — Shielded twisted pair cabling with solid center conductor sizes of 24 AWG or better is recommended for optimal performance.
- Accepts additional analog stereo audio signals.
- Bidirectional RS-232 and IR for AV device control — Bidirectional RS-232 control and IR signals can be transmitted alongside the video signal, allowing remote AV

devices to be controlled without the need for additional cabling.

- Supports multiple embedded audio formats —compatible with a broad range of multi-channel audio signals, providing reliable operation with HDMI sources.
- Supports EDID and HDCP transmission — DDC channels are actively buffered, allowing continuous communication between source and display.
- LED indicator for signal presence and power — Provides visual indication of system status for real-time feedback and monitoring of key performance parameters.
- RJ-45 signal and link LED indicators for DTP port — Provides a means for validating signal flow and operation, allowing quick identification of connectivity issues.

Unit 12 4. Wallmounted Loudspeaker

- Frequency Range (-10 dB) : 62 - 20000kHz
- Coverage (Nominal -6 dB) H : 100°
- Coverage (Nominal -6 dB) V : 80°
- HF Power Handling : 1-inchWatts
- HF Transducer : 1-inch
- Input Connections : Spring Terminal
- Internal Crossover : Yes
- LF Power Handling : Two 6-inchWatts
- LF Transducer : Two 6-inch
- Max. SPL/1m (calc): 122dB
- Minimum Impedance : 6Ω
- Nominal Impedance (Passive) : 8Ω
- Power Rating : 600W
- Sensitivity 1 W/1 m : 94dB
- Speaker Type : Full-Range, Mid-High, Two-Way
- System Power Handling (Continuous/Program/Peak) : 150//600Watts
- Transformer Taps (Transformer Version Only) : 70 V/100 V: 15 W, 30 W, 60 W, 8ω Bypass

Unit 4 5. 10" Subwoofer Cabinet Speaker

- Frequency Range (-10 dB) : 33 Hz – 500kHz
- Connector Type : Two removable locking 4-pin connector (Euroblock) – Input and output. Max. wire size 12 AWG (2.5 mm).
- Environmental Specs:IP-54 (per IEC-60529); IP-65 with port covers
- LF Transducer: Two 10 inch (254 mm)

- Max. SPL/1m (calc) : 120dB
- Nominal Impedance : Stereo Mode: (2) 8 ω ; Mono Mode: (1) 4 Ω
- Power Handling (Continuous / Peak) : 400W/1600W
- Recommended High-Pass Frequency : 40Hz
- Sensitivity 1 W/1 m : 94dB

Unit 4 6. 2x210W Commercial Power Amplifier, 4/8 Ω or High-Power 70V

Audio (Typical of 2 mono amplifier channels)

- Input Signal Type: Balanced or unbalanced analog line-level
- Output Signal Types: 4/8 Ohm or 70 Volt
- Output Power: 120 Watts at 8 Ohms; 210 Watts at 4 Ohms; 420 Watts at 8 Ohms bridged; 210 Watts at 70 Volts[1]
- Damping Factor : >100
- Protection: Over Current, Over/Under Voltage, Over Temperature, DC Offset
- Frequency Response: 20Hz to 20kHz \pm 0.5 dB at 4/8 Ohms; 80Hz to 20kHz \pm 0/-3 dB at 70 Volts
- THD: 0.05% @ 1kHz, full rated power at 4/8 Ohms, 8 Ohms Bridged, or 70/100 Volts;
 - 0.1% @ 20Hz to 20kHz, 120W at 8 Ohms;
 - 0.2% @ 20Hz to 20kHz, 210W at 4 Ohms;
 - 0.1% @ 20Hz to 20kHz, 420W at 8 Ohms Bridged;
 - 0.1% @ 80Hz to 20kHz, 210W at 70 Volts
- S/N Ratio: >103 dB, A-weighted
- Crosstalk: >70 dB @ 1kHz
- Gain: 23 dB with INPUT LEVEL control set at 12 o'clock nominal position
- Input Sensitivity : 2.22 Vrms for rated output power with INPUT LEVEL control set at 12 o'clock nominal position
- Input Detection Threshold: 40 mV RMS @ 1 kHz
- Input Level Adjustment: \pm 10 dB from nominal

Connectors

- G : 6-32 screw, chassis ground lug
- INPUT CH 1 – 2 (2) 3-pin 3.5mm detachable terminal blocks; Balanced/unbalanced line-level audio inputs;
- Input Level: 5.3 Vrms maximum with INPUT LEVEL control set at minimum position;

- Input Impedance: 24k Ohms balanced, 12k Ohms unbalanced
 - SPEAKER OUTPUT CH 1 – 2 (2) 4-pin 7.62mm 15A detachable terminal blocks;
- 4Ω/8Ω and 70V power amplifier outputs;
- Wire Size: Terminals accept up to 14 AWG
- REMOTE: (1) 6-pin 3.5mm detachable terminal block; Provides (2) remote control inputs; enables independent power control of each channel via local jumpers or remote contact closures; inputs may be safely paralleled for global control
- FUSE T6.3AH 250V: Main fuse holder; 5x20 mm, 250V, 6.3AH, time-lag, high-rupture rated

Controls & Indicators:

- PWR: (1) dual-color LED, green indicates ACTIVE state, yellow indicates STANDBY state
- INPUT 1 – 2, SIGNAL: (2) green LEDs, indicate signal presence on each corresponding channel
- OUTPUT 1 – 2, CLIP: (2) amber LEDs, indicate a clipping condition on each corresponding channel
- OUTPUT 1 – 2, FAULT: (2) red LEDs; indicate over-temperature, over-current, over or under power supply voltage, or DC offset condition on each corresponding channel
- INPUT CH 1 – 2 LEVEL (rear) (2) Rotary input boost/attenuate adjustments w/center detent at nominal
- SPEAKER OUTPUT CH 1 – 2, 70V / 4/8Ω (rear) (2) 2-position slide switches, select the output configuration for each corresponding channel
- ON/REMOTE/OFF (rear): (1) 3-position slide switch; selects between all channels powered on, all channels powered off, or remote control of each individual channel

Unit	2	7. 2x210W Commercial Power Amplifier, 4/8Ω or 70/100V <ul style="list-style-type: none"> • Input Signal Type : Balanced or unbalanced analog line-level • Output Signal Types : 4/8 Ohm, 70 Volt, or 100 Volt • Output Power : 120 Watts at 8 Ohms; 210 Watts at 4 Ohms; 420 Watts at 8 Ohms bridged; 120 Watts at 70 or 100 Volts (Transformer isolated) • Damping Factor : >100 • Protection : Over Current, Over/Under Voltage, Over Temperature, DC Offset
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- Frequency Response : 20Hz to 20kHz ± 0.5 dB at 4/8 Ohms; 80Hz to 20kHz +0/-3 dB at 70/100 Volts
- THD : 0.05% @ 1kHz, full rated power at 4/8 Ohms, 8 Ohms Bridged, or 70/100 Volts;
 - 0.1% @ 20Hz to 20kHz, 120W at 8 Ohms;
 - 0.2% @ 20Hz to 20kHz, 210W at 4 Ohms;
 - 0.1% @ 20Hz to 20kHz, 420W at 8 Ohms Bridged;
 - 0.1% @ 80Hz to 20kHz, 120W at 70/100 Volts
- S/N Ratio : >103 dB, A-weighted
- Crosstalk : >70 dB @ 1kHz
- Gain : 23 dB with INPUT LEVEL control set at 12 o'clock nominal position
- Input Sensitivity : 2.22 Vrms for rated output power with INPUT LEVEL control set at 12 o'clock nominal position
- Input Detection Threshold : 40 mV RMS @ 1 kHz
- Input Level Adjustment : ± 10 dB from nominal

Unit 2

8. Digital Audio Processor

- Analog-To-Digital Conversion: 24-bit 48 kHz
- Digital-to-Analog Conversion: 24-bit 48 kHz
- Frequency Response : 20 Hz to 20 kHz ± 0.5 dB
- THD : 0.001%, 20 Hz to 20 kHz, 0 dB gain, +4 dBu input; 0.01%, 22 Hz to 22 kHz, 54 dB gain, -50 dBu input
- EIN: -125 dBu, 22 Hz to 22 kHz, no weighting
- Dynamic Range: 110 dB, 22 Hz to 22 kHz, 0 dB gain
- Crosstalk: -85 dB, 1 kHz, +4 dBu input, channel to channel; -75 dB, 1 kHz, -50 dBu input, channel to channel
- Latency : 3.0 ms (analog in to analog out)

unit 2

9. Mixer with Mic Preamps & Compressors, Multi-FX Processor and USB/Audio Interface

- Premium 16-Input 2/2-Bus Mixer
- Premium ultra-low noise, high headroom analog mixer
- 4 state-of-the-art, phantom-powered Mic Preamps comparable to stand-alone boutique preamps
- 4 studio-grade compressors with super-easy "one-knob" functionality and control LED for professional vocal and instrumental sound
- 3-band EQs for warm and musical sound
- New studio-grade FX processor with 16 editable presets including reverb, chorus, flanger, delay, pitch shifter, multi-effects, Tap function and storable user parameter settings
- Built-in stereo USB/Audio Interface to connect directly to your computer. Free audio recording, editing and

podcasting software plus 150 instrument/effect plug-ins and ultra-low latency driver downloadable at manufacturer website.

- 7-band stereo graphic EQ allows precise frequency correction of monitor or main mixes
- Revolutionary FBQ Feedback Detection System instantly reveals critical frequencies
- Breathtaking XPQ 3D stereo surround effect for more vitality and enhanced stereo image
- Voice Canceller function for easy-to-use sing-along applications
- 4 fully equipped stereo input channels featuring 2 additional mic inputs on channels 5/6 and 7/8, 3-band EQ and input trim control
- Channel inserts on each mono channel for flexible connection of outboard equipment
- 2 aux sends per channel: 1 pre fader for monitoring, 1 post fader (for internal FX and/or as external send); 2 multi-functional stereo aux returns
- Balanced main mix outputs with gold-plated XLR connectors, headphone/control room output and stereo rec outputs
- Long-wearing 60-mm logarithmic-taper faders and sealed rotary controls

unit 6 10. Wireless Handheld Microphone (Single Channel Receiver + Handheld Wireless Microphone Transmitter)

- Operating Range: 300 ft (91 m) line of sight
- Audio Range: 60 – 15,000 Hz
- Audio Output Connector: XLR and 1/4" (6.3 mm) unbalanced
- Maximum Output Level: -27 dBV (XLR, mic level), -13 dBV (1/4")
- Battery Life: Up to 14 hours
- Dynamic Range: 100 dB A-weighted
- System Distortion: 0.5% THD typical (ref. +/- 38 kHz deviation, 1 kHz tone)
- Operating Temperature Range: -18°C (0°F) – +50°C (122°F)
- Power Requirements: 2 AA alkaline or rechargeable batteries

unit 2 11. Desktop Microphone Stand

- 5" desktop microphone stand

- Weighted die-cast metal base (6.25" width) for stable positioning
- 5/8"-27 mic clip threading
- Compatible with any standard microphone/mic clip

- unit 2 12. Sequenced Output Power Conditioner** (*8 relay O/P ports + 1 loop out) with Europe Power Cord, 16A, 2.5meter
- Sequenced Output Power Conditioner distribution unit offering protection to all valuable rack-mounted equipments. Sequenced power up of a complete power audio system from just a push of a switch that eliminates the loud "POP" sound which may damage speakers and other equipments connected.
- Multi-Stage surge protection
 - Linear Filtering Technology
 - Front panel power status LEDs
 - External I/O allow remote operation
 - 8 switched outlets (rear) and one pass through un-switched outlet (front)
 - 12VDC supply (BNC) allow any gooseneck lamp or LEDs that provides a cool running source for the rack.
 - MAX CURRENT RATING: 16 AMP (2400 Watts at 240 VAC)
 - INPUT VOLTAGE: 185 to 275 VAC without damage
 - DELAY INTERVALS: Total elapsed ON delay time adjustable from 1-60 seconds, with RS-232 for precise timing and sequence order
 - ON SEQUENCE: Respective relay goes ON base on programmed sequence/ order and delay time for each relay.
 - REMOTE SWITCH: Screw type terminal block, LED, Switch and GND
 - SPIKE PROTECTION MODES: Line to neutral, zero ground leakage
 - SPIKE CLAMPING VOLTAGE: 188 Vpk @ 3,000 amps, (133 VAC RMS)
 - RESPONSE TIME: 1 nanosecond
 - MAXIMUM SURGE CURRENT: 6,500 amps
 - RELAY RATING: 30Amps @ 240VAC
 - POWER CONSUMPTION: 4.5 Watts (standby), 14 Watts (all relay ON)
 - OVER VOLTAGE SHUT DOWN:185V ±1% (Low), 265 ±1% (High)
 - OPERATIONAL: 220/240V

- unit 2 13. Desktop Computer with 23" FHD Monitor**

- Processor : Intel Core i7-7700 3.60GHz Processor (8M Cache, up to 4.20 GHz)
- Operating System : Windows 10
- Graphics : NVIDIA GeForc GT 730, 2GB VRAM
- Memory : 8GB DDR4
- Storage : 2TB HDD
- Optical drive : Super Multi-Burner DVD±RW SATA
- Dimensions : 394 x 195 x 494 mm
- Audio support : 5.1 Channel surround sound
- Ethernet : Gigabit Ethernet
- Media reader : 7-in-1 media reader (SD, SDHC, SDXC, MMC, MMC plus, MS, MS Pro)
- Front ports : 2 x USB 2.0, mic (stereo, 3.5mm), headphone (stereo, 3.5mm)
- Rear ports : 2 x USB 3.0, 2 x USB 2.0, Ethernet (RJ-45), VGA, HDMI, Line-in, line-out, mic-in
- Display : 23" FHD Monitor

unit

2

14. UPS 5000VA 230V Rackmount/Tower

Output

- Output power capacity: 4.0 KWatts / 5.0 kVA
- Max Configurable Power (Watts): 4.0 KWatts / 5.0 kVA
- Nominal Output Voltage: 230V
- Output Voltage Note: Configurable for 220 : 230 or 240 nominal output voltage
- Efficiency at Full Load: 96.0 %
- Output Voltage Distortion: Less than 5% at full load
- Output Frequency (sync to mains): 47 - 53 Hz for 50 Hz nominal
- Other Output Voltages: 220, 240
- Topology: Line Interactive
- Waveform type: Sine wave
- Output Connections: (4) IEC Jumpers (Battery Backup); (2) IEC 320 C19 (Battery Backup); (8) IEC 320 C13 (Battery Backup)
- Transfer Time: 2ms typical : 4ms maximum

Input

- Nominal Input Voltage: 230V
- Input frequency: 50/60 Hz +/- 3 Hz (auto sensing)
- Input Connections: Hard Wire 3-wire
- Input voltage range for main operations: 160 - 286V
- Input voltage adjustable range for mains operation: 151 - 302V

- Efficiency at Full Load: 96.0 %

Batteries

- Battery type: VRLA
- Typical recharge time: 3hour(s)
- Replacement Battery: RBC55
- Expected Battery Life (years): 3 - 5
- RBC Quantity: 2

Communications & Management

- Interface Port(s): DB-9 RS-232 , SmartSlot
- Pre-Installed SmartSlot Cards
- Control panel: LED status display with On Line : On Battery : Replace Battery and Overload indicators
- Audible Alarm: Audible and visible alarms : configurable delays

Surge Protection and Filtering

- Surge energy rating: 480Joules
- Filtering: Full time multi-pole noise filtering : 0.3% IEEE surge let-through : zero clamping response time : meets UL 1449

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|-------------|----------|---|
| unit | 2 | 15. Equipment Rack: 4FTx600mmx450mm w/ two Trays <ul style="list-style-type: none"> • Size: 4ft x 600mm x 6000mm • With 2 trays, Power Strip, 2 Exhaust Fan and Lockable Caster Wheels |
|-------------|----------|---|

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|-------------|----------|---|
| unit | 2 | 16. Integrated Remote Control Unit |
|-------------|----------|---|

Key Features

- Enterprise-class control system
- 3-Series® Control Engine — substantially faster and more powerful than other control systems
- Exclusive modular programming architecture
- Onboard 512MB RAM & 4GB Flash memory
- Expandable storage up to 1TB
- Rear panel memory card slot
- High-speed USB 2.0 host port
- Industry-standard Ethernet and wired communications
- XPanel with Smart Graphics computer and web based control
- SNMP remote management support
- One RS-232/422/485 COM port with hardware and software handshaking
- Two RS-232 COM ports with software handshaking only
- Eight IR/serial, eight relay, and eight I/O ports

- Programmable event scheduling with astronomical time clock
- Installer setup software or web browser
- Full Unicode (multi-language) support
- Increased network throughput and security
- Secure access through full user/group management or Active Directory integration
- Hardware level security using 802.1X authentication
- TLS, SSL, SSH, and SFTP network security protocols

unit 2 17. 7" Touch Control Panel with table-top mounting kit

Key Features

- Ultra clean, modern appearance
- Thin profile and small footprint
- Affordable and easy to install
- 7" (178 mm) widescreen active-matrix color display
- 1024 x 600 WSVGA display resolution
- Capacitive touch screen technology
- Multi-touch capable
- Smart Graphics performance
- Backlit soft-touch capacitive buttons
- Any/all button hide feature
- Auto-brightness control
- Voice recognition capability
- H.264 or MJPEG streaming video display
- Built-in 5 MP H.264 IP camera
- Built-in microphone and speakers
- Zoom Rooms conferencing control mode
- Room scheduling mode
- Customizable audio feedback
- Built-in web browsing
- Multi-language support
- On-screen keyboard
- Customizable screensaver
- Single-wire Ethernet connectivity
- PoE or PoE+ network powered (refer to specifications)
- Enterprise grade security
- Web based configuration
- Cloud-based provisioning and management

unit 2 18. 5 Port POE Switch

Key Features

- 5-port managed Ethernet switch
- All ports support 1000Base-T Gigabit Ethernet
- Provides PoE (802.3af) on 4 ports
- Auto-negotiating and auto MDI/MDIX

set

6

19. Computer, Desktop for the Office

- Processor: Intel Core i7-7700 (8MB Cache, Quadcore Processor 3.6 GHZ Max Frequency 4.20 Ghz)
- Memory: 8GB DDR4 2133 MHz
- Storage: 1 TB 3.5 inch 7200 RPM
- Graphics: NVIDIA GeForce GTX 1050,
- 2 GDDR5 (supporting: DVI-D, HDMI, DP)
- Optical Drive: 8x Super Multi Drive, 9.0 slim, tray load
- Connectivity: 802. 11ac/a/b/g/n wireless
- Gigabit LAN and Bluetooth 4.0 LE
- Front/ Side Ports: Card Reader: Yes
Audio Jack(s) : 2
USB 3.0 Ports: 2
- Rear I/O Ports: HDMI port(s): 2 (out)
LAN Port: 1
- Audiojacks: 3
USB 2.0 ports: 4
USB 3.0 port: 1
Number of PCIe x 16 (slot(s): 1
Number of PCIe x 1 slot(s) : 1
M.2 slot (for (SSD):1
M.2 slot (for WL:AN: 1
Power Supply: 300W CR
- **Accessories:** Wired Keyboard and mouse
- **Display port:** DVI to D-sub
- **Monitor:** 23" Monitor VGA + DVI + HDMI
- **Operating System:** Windows 10 Prof 64 Bit
- **MS Office Prof 64 bit**
- **UPS:** BX1100LI-MS : Back-UPS 550 Watts / 1100VA, 230V, AVR, Universal and IEC Sockets1100 VA, 230V, AVR, Universal and IEC Sockets
- **Printer:** Print, Scan, Copy, Fax with ADF
Compact Integrated tank design
Print speeds up to 15 ipm for black and 8.0ipm for colour/ Auto-duplex printing Fax and ADF capability/
Ethernet & Wi-Fi Direct/Borderless Printing up to A4 size/
Spill Free ink refilling

unit 6 20. Computer, Laptop

- CPU: 8th generation Intel Core i7-8550U
- 1.80 GHz Processor (8M Cache, up to 4.00 GHz)
- 4.00 GHZ)
- HDD: 256GB PCIeNVMeSolid State Drive
- RAM: 8GB DDR4 2400 Mhz onboard
- Graphics: Intel® UHD Graphics 620 with shared graphics memory
- Screen: 13.3 inch FHD (1920 x 1080)
- Camera: Infrared camera supports Windows Hello
- Keyboard: Backlit, spill-resistant keyboard, Multi-touch gesture-enabled precision touch pad with integrated scrolling
- Wireless: 802.11ac + Bluetooth 4.2*, Dual Band 2.4 & 5 GHz, 2x2
- Card Reader: USB 3.1 Gen 1 Type-C (1), HDMITM 2.0, Noble lock, 3 in 1 SD Media Card Reader (SD,SDHC,SDXC), USB 3.1 Gen 1(1), Usb 3.1 Gen 1 with Powershare (1)
- Battery: 30Whr, 3 cell Battery (Integrated) Quick Change Enabled; 45 watt AC Adapter, Up to 9 hours 31 mins
- OS: Windows ® 10 Single Language (64 bit) English
- O/P ports: (2) tuned speakers with audio processing by Waves MaxxAudio®Pro, (1) combo headphone/ microphone jack
- Carry Case: Essential Briefcase
- Mouse: wireless

unit 2 21. Multimedia Projector

- Technology: 3LCD projector
- Brightness: 3600 Lumens
- Contrast Ratio: 16000:1
- Panel Size: 0.59"
- Resolution: 1280 x 800 (WXGA)
- Lamp Life: 10,000 hours
- HDMI In
- 1.2 x zoom Lens
- USB Memory Viewer
- USB Display
- 10W Built in Speaker

- Features: Daylight View Lite activated from the remote control for easy and comfortable viewing during presentations and lectures in a bright room, Direct Power Off right after use

unit 3 22. Motorized Projector Screen 100" Diagonal (16:9 Aspect Ratio) with RF Remote Control

set 2 23. 1 set Wall Patch: HDMI, VGA, Audio

Specifications:

- HDMI Female to HDMI Female Connector on 10" pigtail
- CVGA Female to VGA Female Connector on 6: Pigtail
 - mm Stereo Mini Jack to Captive Screw
- RJ-45 Female to Female Barrel -CAT 5e Barrel
USB A Female to USB A Female on 10: pigtail

unit 2 24. HDMI/ Display Port VGA to HDBaseT auto-switching scaler transmitter (up to 70m) with Europe Switching Power Adaptor 24VDC/1A

Features:

- Automatic input detection & selection (Based on manual selection or last connected input)
- Supports up to 4K 2K resolutions
- Scaled video output to 1080p @ 60Hz
- Extends HDMI / VGA up to 70m
- Supports bi-directional IR and RS-232
- Support POC (power over cable)

Technical Specs:

Input: 1x HDMI; 1 x Display Port; 1 x VGA

Output: 1 x RJ45

Control: Front Panel & 8 pin external control

HDMI COMPLIANCE : HDMI Deep color, Full 3D & 4K 2K

SCALED VIDEO SUPPORT : 1080p @ 60Hz 36-bit color

MAX VIDEO SUPPORT : 1920 x 1200, 4K 2K @ 60Hz 36-bit color

AUDIO SUPPORT : Surround sound (up to 7.1ch) or Stereo Digital Audio

TRANSMITTER RANGE : Full HD (1080p) up to 70m through HDBaseT

unit 2 25. HDMI/ Display Port VGA to HDBaseT auto-switching scaler receiver (up to 70m)

Features:

- Automatic input detection & selection (Based on manual selection or last connected input)
- Supports up to 4K 2K resolutions
- Scaled video output to 1080p @ 60Hz
- Extends HDMI / VGA up to 70m
- Supports bi-directional IR and RS-232
- Support POC (power over cable)

Technical Specs:

Input: 1 x RJ45

Output: 1 x HDMI

Control: Front Panel & 8 pin external control

HDCP COMPLIANCE : HDMI Deep color, Full 3D & 4K 2K

SCALED VIDEO SUPPORT : 1080p @ 60Hz 36-bit color

MAX VIDEO SUPPORT : 1920 x 1200, 4K 2K @ 60Hz 36-bit color

AUDIO SUPPORT : Surround sound (up to 7.1ch) or Stereo Digital Audio

TRANSMITTER RANGE : Full HD (1080p) up to 70m through HDBaseT

Unit 8 26. Ceiling Mounted Speaker

Specifications:

- Open back, infinite baffle design
- 3" (76 mm) full-range driver
- 165° conical dispersion provides wide coverage and allows for flexible speaker placement
- 8 ohm direct or 70/100 volt operation on a 6 position, behind-the-grille selector —
- 8 ohm direct
- 70 volt: 16, 8, 4, 2, and 1 watt selectable
- 100 volt: 16, 8, 4, and 2 watt selectable

- 16 watts continuous pink noise
- 32 watts continuous program
- Internal driver overload protection
- Thin bezel and magnetically attached grille
- Spring-loaded locking arms for quick installation

8 ohm direct or 70/100 volt operation on a 6 position, behind the grille selector ---

70 volt: 16,8,4,2 and 1 watt selectable

100 volt: 16,8,4 and 2 watt selectable
16 watts continuous pink noise
32 watts continuous program
Internal driver overload protection

Unit 2 27. Power Amplifier

Specifications:

- Input Signal Types: Balanced or unbalanced
analog line-level
Output Power: 200 watts @ 100 volts nominal
Frequency Response: 200HZ to 20KHZ \pm 0.5 dB

Audio

- Input Signal Types Balanced or unbalanced analog line-level
- Output Power,
- AMP-1200-70 200 Watts @ 70 Volts nominal
- Frequency Response 200 Hz to 20 kHz \pm 0.5 dB
- High-Pass Filter -3 dB @ 80 Hz, 12 dB per octave
- THD+N <0.1% [1]
- S/N Ratio >100 dBA, 20 Hz to 20 kHz, balanced
- Input Sensitivity 1.23 Vrms, +4 dBu, balanced;
0.316 Vrms, -10 dBV, unbalanced;
- For full rated output power
- Go To Sleep Time 25 minutes with no signal present
- Wake Time 0.5 second typical
- Wake Threshold 5 to 20 mV typical
- Protection Clip limiter, over current, under voltage, over temperature, DC offset, extreme high frequency

Connectors

- SPEAKER OUT (1) 2-pin 7.62 mm reversed gender 20A detachable terminal block;
- Power amplifier output;
- Wire Size: Terminals accept up to 12 AWG (3.31 mm²);
- Note: Output is direct-coupled, not transformer isolated
- AUDIO IN L/R
- (unbalanced) (2) RCA connectors, female;
- Unbalanced line-level audio inputs (summed);
- Maximum Input Level: 2.24 Vrms, +7 dBV (+9.2 dBu)
- AUDIO IN L/R
- (balanced) (1) 5-pin 3.5 mm detachable terminal block;
- Balanced line-level audio inputs (summed);

- Maximum Input Level: 7.75 Vrms, +20 dBu;
- Input Impedance: 20k Ohms
- G (1) 6-32 screw;
- Chassis ground lug
- 100-240V~1A 50/60 Hz (1) IEC 60320 C14 main power inlet;
- Mates with removable power cord, included

Controls & Indicators

- PWR (1) Bi-color green/amber LED, indicates operating power supplied from AC line power, turns green while operating and amber when in standby
- FAULT (1) Red LED; indicates an over-temperature or over-current fault
- SIGNAL (1) Bi-color green/red LED, green indicates input signal presence and red indicates input signal clipping
- Input Level (1) Screwdriver-adjustable rotary control, adjusts the input attenuation level, tamper-preventive magnetic cover included

Power

- Main Power 1 Amp @ 100-240 Volts AC, 50/60 Hz
- Power Consumption 45 Watts, driven at 1/8th output power; 16 Watts, idle;
- <0.5 Watt, standby (sleep)
-

Unit 2 28. Digital Audio Processor

Specifications:

- 4 x 4 line level audio matrix mixer
- DSP audio signal processing - Fixed, low latency DSP processing
- 24 bit/48 kHz analog to digital and digital to analog converters
- DSP Configurator Software for fast configuration
- Live and emulate operation mode
- Intuitive Graphical user Environment
- keyboard navigation
- Three digital input ports for remote triggering

Audio

- Gain Unbalanced output: -6 dB; balanced output: 0 dB
- Frequency response 20 Hz to 20 kHz, ±0.3 dB

- THD + Noise <math><0.02\%</math> @ 1 kHz, at maximum output level
- S/N >100 dB, 20 Hz to 20 kHz, at maximum output, unweighted
- Crosstalk <math><-90</math> dB @ 1 kHz, fully loaded
- CMRR >60 dB @ 1 kHz

Audio input

- Number/signal type 4 mono, line, balanced/unbalanced
- Connector (2) 3.5 mm captive screw connectors, 6 pole
- Impedance >10k ohms unbalanced/balanced
- Nominal level +4 dBu when level is set to 0 dB gain; adjustable from -20 dBu to +4 dBu
- Maximum level +21 dBu, balanced, when input gain is set to 0 dB
- Volume range -18 dB to +24 dB, line input, adjustable per input
- NOTE 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV \approx 2 dBu

Audio processing

D/A conversion: 24 bit, 48 kHz sampling

Audio output

- Number/signal type 4 mono, line, balanced/unbalanced
- Connectors (2) 3.5 mm captive screw connectors, 6 pole
- Impedance 50 ohms unbalanced, 100 ohms balanced
- Gain error ± 0.2 dB channel to channel
- Maximum level (Hi-Z) >+21 dBu balanced, >+15 dBu unbalanced

Control/remote — audio processor

- Serial host control port 1 bidirectional RS-232: 3.5 mm captive screw connector, 6 pole (uses 3 poles) (shared with digital input)
- Baud rate and protocol 9600 to 115200 baud (38400 baud = default), 8 data bits, 1 stop bit, no parity, no flow control
- Serial control pin configuration Pin 1 = Tx, 2 = Rx, 3 = GND
- USB control ports 1 front panel female mini USB B
- USB standards USB 2.0, low speed
- Program control control/configuration program

Control — digital input ports

- Number/type 3 digital input (configurable)
- Connector (1) 3.5 mm captive screw connector, 6 pole (shared with RS-232 port, uses 4 poles)
- Pin configuration 3 = GND; 4, 5, 6 = digital inputs 1, 2, 3
- Digital inputs
 - Input voltage range 0-24 VDC
 - Input impedance 10k ohms
 - Threshold low to high >2.0 VDC
 - Threshold high to low <0.8 VDC

unit 2 29. Analog Mixer with 8 channels

Features:

- Premium, ultra-low noise, high headroom analog mixer
- Two high-quality, mic preamps comparable to stand-alone boutique preamps
- Studio-grade compressors with super-easy one-knob functionality and control LED for professional vocal and instrumental sound
- Built-in stereo USB/Audio Interface to connect directly to your computer. Free audio recording, editing, and podcasting software plus 150 instrument/effect plug-ins downloadable at behringer.com
- Neo-classic "British" 3-band EQs for warm and musical sound
- One post fader FX send per channel for external FX devices
- One stereo aux return for FX applications or as separate stereo input
- Main mix outputs plus separate control room, headphones, and 2-Track outputs
- 2-Track inputs assignable to main mix or control room/phones outputs

Specifications:

- Total # Of Inputs Total: 8
- Mono: 2
- Stereo: 2
- USB 2-in / 2-out
- Mix / Effect Buses 1 Mix Bus
- 1 Effect Bus
- Mic Preamps Mic Preamps: 2

- Phantom Power +48 V
- EQ Section Mono Channel: 3-band
- Stereo Channel: 3-band
- Compressor 2
- AUX Sends 1
- AUX Returns FX Returns: 1 stereo
- Metering 4 segment LEDs

Unit 2 30. Wired Handheld Microphone

Specifications:

- Type: Dynamic
- Frequency response: 50 to 15,000 Hz
- Polar Pattern: Cardoid
- Polarity: Positive pressure on diaphragm
- produces positive voltage on pin 2 with respect to pin 3.
- Connector; 3 pin professional audio connector
- With integrated on/off switch

unit 2 31. Sequenced Output Power Conditioner (*8 relay O/P ports + 1 loop out) with Europe Power Cord, 16A, 2.5 meter

Specifications:

Sequenced Output Power Conditioner distribution unit offering protection to all valuable rack-mounted equipments. Sequenced power up of a complete power audio system from just a push of a switch that eliminates the loud “POP” sound which may damage speakers and other equipments connected.

- Multi-Stage surge protection
- Linear Filtering Technology
- Front panel power status LEDs
- External I/O allow remote operation
- 8 switched outlets (rear) and one pass through un-switched outlet (front)
- 12VDC supply (BNC) allow any gooseneck lamp or LEDs that provides a cool running source for the rack.
- MAX CURRENT RATING: 16 AMP (2400 Watts at 240 VAC)
- INPUT VOLTAGE: 185 to 275 VAC without damage
- DELAY INTERVALS: Total elapsed ON delay time adjustable from 1-60 seconds, with RS-232 for precise timing and sequence order
- ON SEQUENCE: Respective relay goes ON base on programmed

- sequence/ order and delay time for each relay.
- REMOTE SWITCH: Screw type terminal block, LED, Switch and GND
- SPIKE PROTECTION MODES: Line to neutral, zero ground leakage
- SPIKE CLAMPING VOLTAGE: 188 Vpk @ 3,000 amps, (133 VAC RMS)
- RESPONSE TIME: 1 nanosecond
- MAXIMUM SURGE CURRENT: 6,500 amps
- RELAY RATING: 30Amps @ 240VAC
- POWER CONSUMPTION: 4.5 Watts (standby), 14 Watts (all relay ON)
- OVER VOLTAGE SHUT DOWN: 185V ±1% (Low), 265 ±1% (High)
- OPERATIONAL: 220/240V

unit 2 32. Equipment Rack:

Specifications:

- Size: 3 ft. x 600 mm x 600 mm with two trays
- With 2 trays, Power Strip, 2 Exhaust Fan and Lockable Caster Wheels

lot 2 33. General Services: (Planetarium chamber and Conference Room)

Cables, connectors, customized projector stand, projector bracket, cable pulling, installation, termination, programming, configuration, testing and commissioning and miscellaneous items exclusive of electrical works and items related to electrical. (provision of conduit layout to the building contractor)

I. WARRANTY

The items shall be warranted by the winning bidder for one (1) year. If the item fails to provide satisfactory operation during the warranty period, the item shall be replaced at the supplier's expense. While the equipment is undergoing repair, a spare unit shall be supplied to PAGASA to maintain the continuous operation of the equipment. Remedial action within seven (7) calendar days shall be taken, In case. The supplier failed to act within the said period, the winning bidder will be charge of an equivalent amount, to be deducted from the warranty bond.

All materials and labor expenses incurred during the warranty period shall be paid by the winning bidder.

J. AFTER SALES SUPPORT

Hardware/parts replacement should be available five (5) years after warranty period. The prospective bidder shall include in its bid a commitment for a dependable long term support to PAGASA for the repair and maintenance of the equipment to be supplied.

It shall include in its commitment a provision of a reliable, swift and efficient on-site-support and ensure quick and readily available supply of spare replacement parts.

Prepared by:

MA. ROSARIO C. RAMOS

Chief, Planetarium Unit

Recommending Approval:

FLAVIANA D. HILARIO , Ph.D.

Deputy Administrator, R & D

Approved by:

VICENTE B. MALANO, Ph.D.

Administrator