Statement of Work

Full Mission Ship Simulator Projection System Life Cycle Replacement
SPECIFICATIONS

U.S. Merchant Marine Academy

Steamboat Road

Kings Point, NY 11024

FULL MISSION SHIP SIMULATOR PROJECTION REPLACEMENT SYSTEM
AT THE
U.S. MERCHANT MARINE ACADEMY

SECTION 1 – OBJECTIVE

The United States Merchant Marine Academy (USMMA), hereafter referred to as the *Academy* or the *Government*, is seeking quotes for the life-cycle replacement of currently installed the Full Mission Ship Simulator (FMSS) 4k Digital Light Projectors (DLP) laser projectors. This must meet Section 889 certification. The FMSS is located in Samuels Hall, 300 Steamboat Road, Kings Point, NY 11024.

SECTION 2 – INTRODUCTION

The 300º Full Mission Ship Simulator projection system currently consists of nine (9) visual channels (seven (7) forward 240º, 2 aft 30º each). Kongsberg Digital Simulation Inc (KDSI) is the manufacturer of the FMSS both hardware and software and USMMA is utilizing their K-Sim navigation platform. Vendor's solution must be able to work with Kongsberg's hardware and software. They provide the video input to the projectors. The FMSS operates 5 days per week, 12 months per year for the training midshipman in preparation for service as licensed deck officers in the U.S. Merchant Marine.

SECTION 3 – SCOPE

The Vendor shall design and build a single chip DLP 4k laser projection system that will project a forward-looking image 240º onto the Academy's fixed curved screen, 30º port aft facing, and 30º starboard aft facing. The images shall fill the existing screens. The forward-facing image shall be seamless.

Vendor shall supply all necessary projectors, mounts, cabling, software, and hardware. The vendor shall not use any existing i/o cables from previous installation.

As built drawings and facility, plans are not available. Vendors must plan on a site visit to collect measurements.

SECTION 4 – PROJECTORS AND RELATED ITEMS

4.1 Projectors

Projectors shall be New - OEM Panasonic PT REQ12LBU or equivalent. Each projector shall meet or exceed the following minimum specifications:

- Projector Single chip DLP 0.8 diagonal (16:10 aspect ratio)
- 3840x2400 pixels resolution
- 12,000 lumens
- 0.68-0.95:1 zoom lens (7)
- 0.38:1 fixed lens
- Projector contrast 20,000:1 (Full On/Full O_, Dynamic Contrast [3])
- Minimum DisplayPort™ x 1 (Deep Color, compatible with HDCP 2.3, 4K/60p signal input)
- Minimum HDMI™ x 2 (Deep Color, compatible with HDCP 2.3, 4K/60p signal input)
- Minimum RJ-45 x 1 for network connection, PJLink™ (Class 2) compatible, 10Base-T/100Base-TX, Art-Net compatible
- Minimum USB connector (Type A) x 1 for optional AJ-WM50 Series Wireless Module/USB memory
- Motorized optical masking to prevent overlap during night scenarios
- 5 year warranty (Can be a combination of OEM original and extended warranty)

In addition to the seven (7) projectors required for the 240º forward facing field of view and the two (2) 30º aft facing projectors, the proposal shall include two (2) additional spare projectors. All supplied projectors must be of the same type and model number, meet the minimum specifications listed above, and be interchangeable.

The projection system must be securely mounted to the simulator projector platform and include and necessary hardware.

4.2 Projection Mapping Software: Blending, Warping

Provide and configure camera feedback based projection mapping software to a automatically calculate warp & blend for multiple projector array supporting projection to curved screen.

Ability to schedule calibrations without user intervention.

Support for NVDIA GPUs.

Software shall automatically warp and blend multiple forward facing projectors together into one seamless display,

Edge blending for all brightness levels, including black level ***NOTE* 40 percent of USMMA's simulator exercises are at night. Nighttime edge blending is required whether it's achieved via hardware or software or a combination of both.**

Laptop should be provided for screen calibration and maintenance including blending, warping, color matching, brightness adjustment etc. Include all required software and adapters to setup, maintain and program system. Provide all hardware, software and training necessary to setup, install and support the above.

4.3 System Controller

A touchpad programmable system controller shall be installed on the Simulator Control Room to permit one button startup and shutdown of all the installed projectors.

SECTION 5 – Kongsberg Compatibility Statement

All proposals shall have documented compatibility with the K-Sim Navigation full mission ship simulator available from Kongsberg Maritime.
https://www.kongsberg.com/maritime/products/simulation/k-sim-navigation/

For the purpose of this Requirements Statement, "*compatible"* shall be construed to mean that neither the full mission ship simulator nor the projector system shall require any hardware modification, software modification, or any software "add-on" or "add-in" to provide the full capabilities of the simulator.

SECTION 6 – ADDITIONAL REQUIREMENTS

6.1 Wiring

Vendor shall supply all required wiring & cables, including but not limited to control and signal wiring.

All network cabling shall be plenum rated. All equipment, wiring, and installation shall comply with the National Electrical Code (NEC).

6.2 Spare Parts

Proposal shall include an option to purchase recommended spare parts.

6.3 Power and Heat, Venting, Air Conditioning (HVAC) Requirements

The selected vendor shall provide USMMA a detailed listing of electric power requirements for equipment, including the number and location of power.

The vendor shall assist in determining the HVAC load of the simulation space and the equipment required to keep the space within the recommended environmental parameters.

6.4 Maintenance and Support

Vendor to submit copy of standard maintenance contract with proposal.

6.5 Trade Agreement Acts (TAA)

System shall be Trade Agreement Acts (TAA) compliant.

SECTION 7 - PROPOSALS SHALL INCLUDE:

7.1 Installation Plan

Pre-installation CAD drawings showing location of proposed equipment with description on how it will provide the required image shall be provided with the proposal. Drawings shall be in an electronic format (PDF or AutoCAD format).

7.2 Construction and installation timeline

Vendors shall include a construction and installation timeline, including the lead time required to deliver the proposed solution.

SECTION 8. - DELIVERY, INSTALLATION, SET-UP, AND CALIBRATION

The vendor shall ship/deliver, unpack/uncrate, inventory, install, set-up, and calibrate all equipment, hardware, and software at vendor's cost and with vendor's labor. These activities shall be performed in accordance with all applicable labor laws and regulations, must meet all occupational safety and health regulations, and all work must be judged by the Academy to meet the standards of good workmanship.

All shipping and packing materials must be collected and properly disposed by the vendor. Academy personnel will designate nearby dumpsters for use by the Vendor. Vendor will comply with Academy electronics recycling program.

Vendor will remove old projector mounts, wiring and associated hardware.

Work should be completed on site in period lasting no more than Seven (7) consecutive business days.

All work must be completed by personnel trained and or certified in the installation and operation of the equipment they are installing.

SECTION 9 - SYSTEM ACCEPTANCE TESTING

The selected vendor shall provide an Acceptance Test plan. The Acceptance Test plan that shall include test procedures.

The test shall consist of a series of operational demonstrations including system features and calibration per the specifications.

SECTION 10 - WARRANTIES

The projected life cycle of this system is five (5) years. Proposals shall include warranties, extended warranties, maintenance agreements to cover all hardware and software for the five (5) year lifecycle.

Vendor shall include a 5-year warranty and a 5-year maintenance agreement including support during normal business hours Monday through Friday 9am through 5pm EST.. Include availability and response times for support personnel. Proposal shall include at least two (2) site visits per year to tune-up the system (i.e. recalibration of all channels for geometry and color matching).

Proposal should include a general pricelist for spare parts, ad-hoc support and follow on training.

SECTION 11 - TRAINING

The vendor shall provide on-site hands-on training in the operation and maintenance of all supplied equipment and software. 2 days estimated.

SECTION 12 - DOCUMENTATION – POST INSTALLATION

12.1 Technical Support Package

The contractor will provide a Technical Support Package (TSP) that will include:

- Operations and Maintenance Manual for all supplied equipment
- User level operational instructions
- System Interconnection diagram and cable run diagrams
- Electronic as-built drawings of system (in either Adobe PDF or AutoCAD formats) to include all equipment and the actual layout of the projectors.
- Vendor shall provide copies of all software.