Technical Requirements Package (TRP)
26-JSE-127

TRP

F-35 HOTAS Desktop

Quantity Required: 5 Pairs (Throttle and Stick)
Equipment Type: F-35 HOTAS (Hands On Throttle-And-Stick) suitable for desktop mounting

1.0 General & System Requirements

- **Plug and Play:** The devices must feature true plug-and-play functionality upon connection, utilizing standard USB Human Interface Device (HID) drivers without requiring proprietary low-level system drivers.
- **Operating System Compatibility:** The systems must be natively compatible with Windows, FENIX, SUSE, and Red Hat Enterprise Linux (RHEL) environments, supporting both x86_64 and arm64 system architectures.
- **Compliance & Origin (NDAA/TAA):** The units and all internal electrical components must be NDAA (National Defense Authorization Act) Section 889 compliant and TAA (Trade Agreements Act) compliant, ensuring suitability for deployment in secured US military/defense simulation programs.

2.0 Connectivity & Power

- **Interface Options:** The systems must support data connection via USB or Ethernet.
- **USB Specifications:** The USB connection must utilize a ruggedized USB Type-B port on the HOTAS device side, connecting to a standard USB Type-A port on the host machine.
- **Power Requirements:** The units must be fully powered through the USB connection (5V bus powered), with no external power bricks or alternative power sources required.
- **Cabling:** Each unit must include high-quality, shielded USB cables of at least 1.8 meters (approx. 6 feet) in length, integrated with inline ferrite beads to minimize electromagnetic interference (EMI).

3.0 Hardware, Materials & Maintenance

- **Physical Mounting:** Both the throttle and stick must support Desktop Use: Heavy-duty, weighted, non-slip baseplates.
- **Button Security & Replacement:** All interactive buttons, switches, and multi-way hats on both the throttle and the stick must be secured using set screws to facilitate easy maintenance and rapid component replacement.
- **Spare Parts:** The vendor must offer a dedicated spare parts package for purchase alongside the main units to support ongoing localized maintenance. This package must include replacement potentiometers/sensors, spare buttons, and set screws.

4.0 Sensor Technology & Precision

- **High-Precision Sensors:** Standard analog potentiometers prone to friction wear are not acceptable. The stick and throttle must utilize contactless magnetic sensors (e.g., Hall Effect) or solid-state force-sensing technology to prevent physical degradation over time.
- **Resolution:** All primary axes (Pitch, Roll, and Throttle) must feature high-resolution tracking of at least 12-bit (4,096 steps per axis) or 16-bit (65,536 steps per axis) with zero physical dead zones.
- **Stick Force & Sensitivity:**
    - If force-sensing stick bases are supplied, they must feature adjustable force sensitivity (e.g., adjustable between 2 lbs and 13 lbs of applied force for maximum deflection).
    - If mechanical gimbals are supplied, they must utilize a progressive dual-spring centering mechanism to ensure clean return-to-center performance.

5.0 Flight Controls & Mechanical Detents

- **F-35 Grip Replication:** The stick and throttle grips must be 1:1 scale high-fidelity replicas of the real F-35 aircraft controls, matching all physical button locations, triggers, and ergonomic dimensions.
- **Throttle Detents:** The throttle base must feature mechanical, tactile detents over its travel range (minimum 9-inch travel) to realistically delineate the **Afterburner** and **STOVL (Short Take-Off and Vertical Landing)** physical positions.
- **Engine Cutoff Latch:** The throttle must include an operational mechanical lift-to-release cutoff latch to transition cleanly between the "Idle" and "Cutoff" states.

6.0 Environmental & Durability Standards

- **Operational Lifespan:** Crucial switches and buttons must be rated for a minimum of 1,000,000 operations (MTBF) and ideally conform to US military specifications (such as MIL-PRF-8805E).
- **Temperature Ranges:** Devices must operate reliably within a standard temperature envelope of 0°C to 50°C (32°F to 122°F) and survive storage conditions of -20°C to 70°C.

7.0 Calibration & Software Utilities

- **Software Suite:** The vendor must supply easy-to-use GUI calibration and diagnostic tools compatible with the target operating systems (SUSE/RedHat) for adjusting deadzones, response curves, and button mapping.

8.0 Security, Compliance & Support

- **Sanitization Procedures:** The vendor must provide officially documented instructions for wiping the units. These procedures must meet the standards required to safely sanitize and remove the hardware from classified spaces (e.g., wiping non-volatile memory).

- **Letter of Volatility:** The vendor must have a formal Letter of Volatility on file for the provided units, detailing all onboard memory components (SRAM, EEPROM, Flash) and data retention characteristics.
- **Warranty & Support SLAs:**
  - Minimum of a 2-year professional/commercial hardware warranty.
  - Guaranteed hardware repair or replacement lead times (e.g., turnaround within 10 business days of RMA receipt).
  - Access to dedicated enterprise-level technical support for integration troubleshooting.

Technical Requirements

The contractor shall ensure that all applicable Commercial-Off-The-Shelf (COTS) IA and IA-enabled products comply with AFI 17-130, *Air Force Cybersecurity Program Management*. All IT hardware, firmware, and software components or products incorporated into DoDIN must comply with evaluation and validation requirements in DoDI 8500.01 and CNSSP-11, *National Policy Governing Acquisition of IA Products*. Refer to CNSSP No. 11 for the latest process and policy guidance on this subject.