CM21／M113 履帶型甲車駕駛訓練模擬器

CM21/M113 Tracked Armored Vehicle Simulator

Introduction

分系統功能簡介 *Description of Sub-system*

主要特色

提供CM21及M113兩種履帶型裝甲運兵車之駕駛模擬訓練。

- 提供2X2平方公里共15種地形之虛擬場景，供基礎駕駛訓練用。
- 提供10X16平方公里之台灣視效場景，供戰鬥駕駛、夜間駕駛和夜視鏡駕駛訓練之用。
- 提供不同的環境變化(能見度、天候、晨昏)等模擬環境。
- 具中/英文人機操作界面，系統操作簡便。
- 具30套多車連網功能，可提供各式戰鬥演練。

主計算機系統

具分時、即時、多人多工及多處理器(SMP)等功能，滿足模擬器系統即時程式管理能力。

- 一部工業型伺服器電腦含2顆 3.0 GHz Pentium-IV處理器。
- 1 GB的系統記憶體及80 GB磁碟儲存容量。
- 2個1 Gbps乙太網路埠。
- Linux開放式作業系統，設計具可擴充性。

教官台系統

提供教官同時執行15套模擬器系統功能操控、訓練課目選擇、乘員監控及通話等功能。

- 工業級主控電腦具中/英文操作顯示畫面，提供教官操作訓練及地理圖資顯示。
- 提供目標物產生及運算之工業級伺服電腦。
- 模擬系統操作、訓練設定、乘員監控。
- 觸控式電力系統控制電腦。
- 可同時監控15套模擬器之火警監控系統。
- 教官可同時對15位學員進行通話。
- 三台19吋彩色液晶顯示器。
- 彩色雷射印表機。

Main Features

Provide driving simulation for CM21 and M113 armored personnel carriers.

- Provide a 2×2 square-meter virtual database with 15 types of training terrains for basic driving training.
- Provide a 10×16 square-meter database in Taiwain for combat, night and NVG training.
- Provide variant environment simulation (visibility, weather,day/night)
- With Chinese/English user interface and system is easy operation.
- Provide combat training for 30 sets of simulators with HLA networking.

HOST computer System

With time sharing, real time, multi-user/multi-task functions and able to manage the real time programs of the simulator system.

- One industrial server computer with two 3.0 GHz Pentium-IV processors
- 1 GB system memory and 80 GB Hard Disk
- Two 1 Gbps Ethernet network ports
- Linux open operation system, easy upgrade for the future

Operator Control System

Instructor can simultaneously perform training setup, system control and communication for 15 sets of simulators.

- One master industrial computer with Chinese/English user interface provides training control and GIS display.
- One industrial server computer for targets generating and computing.
- System control, training setup, crew monitoring.
- Embedded touchscreen computer for power system control.
- Fire alarm system for monitoring 15 sets of simulators.
- Instructor can simultaneously communicate with 15 trainees.
- Three 19" Color LCD monitors.
- Color laser printer.

乘員艙系統

提供學員高逼真度之艙內元件配置與操作空間及功能之模擬環境。

- 採模組化設計、易安裝、易維護。
- 艙體外型採高科技流線型設計，同時考量維修便利性與裝備散熱性。
- 仿真鑄造之內艙元件，反應真實件之觸感與力感。
- 艙體預留整合動感平台之擴充性。

輸出入界面系統

提供模擬器系統間類比及數位訊號之處理與轉換等功能。

- 整合於主計算機電腦。
- 標準工業型輸出入控制界面卡。
- 支援Linux驅動程式。

視效系統

提供模擬器系統訓練操作所需之三維地形、地貌、戰場景像和目標物等功能。

- 1片PXI架構之工業級單板主電腦。
- 5片PXI架構之工業級單板視效電腦。
- 1片4對1或2對1之影像同步訊號卡供影像混合之用，以產生反鋸齒效果。
- 1片24埠10/100Mbps網路交換器。
- 提供2×2平方公里15種訓練地形之虛擬駕駛訓場。
- 提供戰鬥駕駛、夜間駕駛與夜視鏡駕駛等訓練之10×16平方公里台灣區視效資料庫。
- 四台高解析度彩色液晶顯示器。
- 影像解析度為1280 ×1024像素，影像更新率為30 Hz。

Cockpit System

Provide trainees the realistic operation environment.

- Modulized design, easy installation, easy maintenance
- Streamlined design with high technology, have considered the maintainability and heat dissipation.
- High-fidelity simulated mechanism and force feedback in cockpit.
- Reserve the flexibility in integrating motion platform in advance.

Input/Output Control System

Data conversion and processing between analog and digital signals.

- Integrated in host computer.
- Industrial input/output control cards with PCI bus.
- Support Linux drivers.

Visual System

Provide the image of 3D topography, war field terrains and targets.

- One industrial single-board visual host computer with PXI architecture.
- Five industrial single-board computers with PXI architecture for image generating.
- One 4-to-1 or 2-to-1 image synchronizer card for image antialiasing.
- One 24-port 10/100Mbps Ethernet switch.
- Provide a 2 X 2 square-meter virtual database with 15 types of training terrains.
- Provide a 10 X 16 square-meter visual database in Taiwain for combat, night and NVG training.
- Four high-resolution color LCD monitors
- 1280 X 1024 pixel image resolution and 30 Hz image refresh rate.