

# SIMULATORE DI VOLO

n.1

Firenze 12 Giugno 2023

Spett.le :  
**I.I.S. "L. da Vinci – Fascetti" - PISA**

C.A. DS/DSGA

Oggetto: Preventivo SIMULATORE DI VOLO

Si rimette come richiesto, seguente preventivo:

Sedia Racing Flight Simulator Cockpit cockpit dedicato al volo progettato appositamente per la comunità aeronautica in collaborazione con The Boeing Company



Pedaliera Thrustmaster TPR - Sistema di Timone Esperto  
Thrustmaster per Simulazione di Volo



Turtle Beach VelocityOne Flight Sistema di comandi  
universale



Workstation ASUS WINBLU con le seguenti caratteristiche:

I9 INTEL CORE I9-13900KF 5.8 GHZ LGA1700

64 GB RAM DDR5

Scheda Video Nvidia RTX 4090

M.2 1tb SSD EVO

Sistema raffreddamento a liquido

Tastiera Mouse Monitor windows 11 pro



Oculus Quest 2, 128 GB, con cavo Link



## Software

Il software realizzato da Italia 3d Academy di Pisa, sita in via Palermo 5,  
Sviluppato su motore Unreal Engine 5.2, con fisica realistica,  
sarà fornito in nelle seguenti modalità:

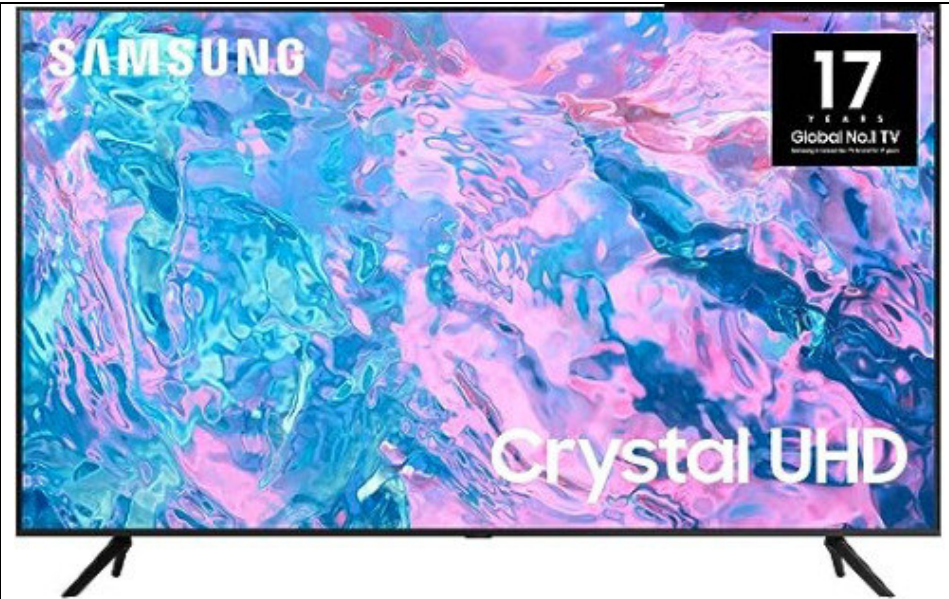
1. Consegna al 15 ottobre 2023, con aereo Macchi C.205 Veltro ad elica e pista di decollo ed atterraggio all'aeroporto di Pisa. La versione sarà solo in VR.



Samsung Monitor Gaming Odyssey G5 (C34G55), Curvo  
(1000R), 34", 3440x1440 (Ultra WQHD)



Samsung Crystal UHD UE75CU7190UXZT, Smart TV 75" Serie CU7000, Crystal UHD 4K, BLACK , 2023, DVB-T2



### Formazione

10 ore di formazione docente sul simulatore, come usarlo, settarlo e come configurarlo.

### Assistenza

Assistenza software in loco, data effettuata da 3d Academy via Palermo 5 Pisa, su richiesta del committente.  
Assistenza Hardware 2f Multimedia.

### Garanzia

2 anni di garanzia su tutto l'hardware e il software.

PREZZO COMPLESSIVO DELLA FORNITURA EURO 21.572,00 + IVA 22% (26.317,84 EURO IVA INCLUSA)

**CODICE MEPA: FLSIM2F**

NB:

Saranno consegnati entro il 31 maggio 2024 I seguenti aggiornamenti:

N° 2 aeroporti Firenze Peretola e Roma Fiumicino

N° 2 nuovi modelli di aereo Cessna Ad elica \*e Cessna Reazione\*\*



Validita' 15 gg

Cordiali saluti

**2F MULTIMEDIA SRL**

DIREZIONE EDUCATIONAL

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[2fmultimedia@pec.it](mailto:2fmultimedia@pec.it) Telefono: 055 7477924



# SIMULATORE DI VOLO

n.2

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Spett.le

**I.I.S. "L. da Vinci – Fascetti"**

Via Contessa Matilde, 74

56123 PISA

Alla cortese Attenzione del Dirigente scolastico

Tipo doc. : OFFERTA COMMERCIALE  
Prot. Nr. : OPW-OFF-615-23/fb  
Data : 5 settembre 2023  
Oggetto : Fornitura simulatore di volo inerziale  
Rif. : /

In riferimento alla vostra indagine esplorativa siamo a rimettere nostra offerta tecnico commerciale.

Non esitate a contattarci per eventuali informazioni aggiuntive e/o chiarimenti.

## **1 DESCRIZIONE FUNZIONALE DEL SIMULATORE**

Il Simulatore di volo "OPW.SIM.FLIGHT MOD. 801" è un sistema di simulazione "Entry Level" compatibile con il software di simulazione "Microsoft Flight Simulator" ed è composto da seguenti moduli riepilogati nella Tabella 1.

PAR.	MODULO	DESCRIZIONE	Q.TA'
1.1	VISIONE	Si tratta di un sistema di proiezione composto da un telo di colore bianco installato su un supporto metallico e da un proiettore ad alta efficienza con il relativo supporto meccanico (opzione 1)	1
1.2	SEDUTA	La seduta è del tipo aeromobile con Cloche, manetta e pedali	1
1.3	PROCESSO	L'unità di processo è composta da una Workstation grafica con CPU Intel I5 13s con scheda Nvidia 3070 Ti e 32 Gb di RAM.	1
1.4	MOVIMENTO	La movimentazione della seduta è ottenuta utilizzando una piattaforma inerziale triassiale (+/- 3°)	1
1.5	TRASPORTO	compreso	1
1.6	MONTAGGIO	compreso	1
1.7	CONFIGURAZIONE	compreso	1
1.8	ADDESTRAMENTO	Vedi paragrafo	1
1.10	CERTIFICAZIONE	Vedi paragrafo	1

Tabella 1 - Fornitura

## 1.1 VISIONE

Vi proponiamo due soluzioni di visualizzazione statica degli scenari di volo.

### 1.1.1 OPZIONE 1

Il sistema di visione statico è composto da un proiettore laser 4K alta luminosità a proiezione orizzontale (vedi Figura 1) e da un telo piano di colore bianco ad alta brillantezza con supporto metallico a pavimento da 100”.



Figura 1 – Es. Proiettore laser

## 1.1.2OPZIONE 2

In alternativa ed in sostituzione del telo è possibile corredare il sistema di visione statico con 3 monitor/TV 4K 43" e relativo supporto a pavimento (vedi Figura 2)

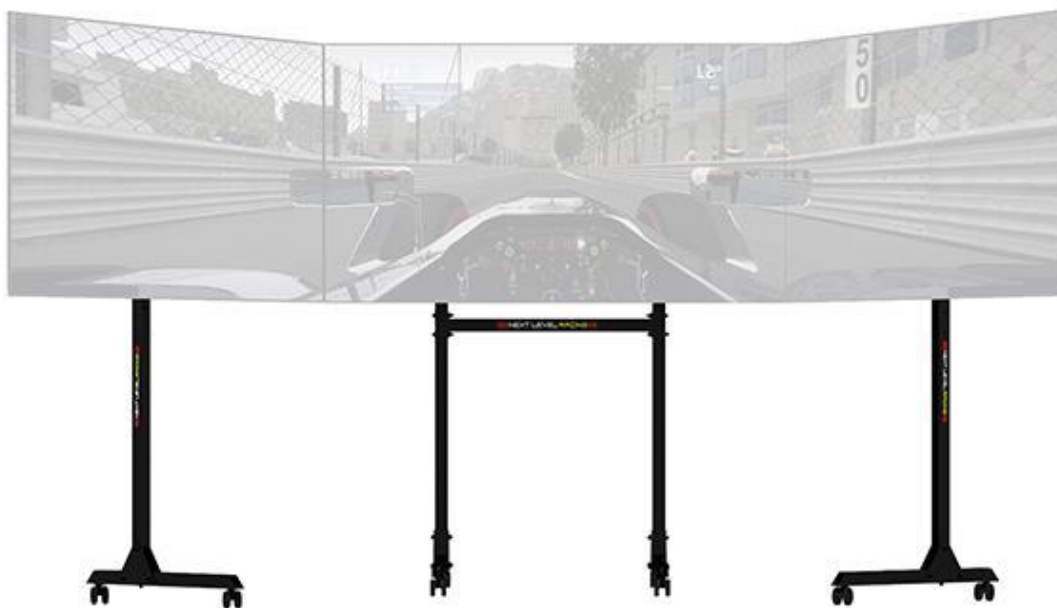


Figura 2 – Es. Sistema con 3 monitor/TV

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## 1.2 SEDUTA

La seduta è del tipo aeronautica brandizzata BOEING con supporto per cloche, manetta e pedaliera.

Il sedile è regolabile con cinture di sicurezza.



Figura 3 – Es. di postazione senza sistema di visione

### 1.2.1 CLOCHE/MANETTA

Quadrante manetta su licenza ufficiale Boeing

17 pulsanti azione e tecnologia magnetica per ciascuno dei 3 assi del TCA

Resistenza lineare e progressiva, che riproduce le stesse sensazioni di spinta del vero quadrante manetta. Le leve della manetta possono essere scambiate con le leve dei flap e dell'aerofreno (sono accluse 4 leve in totale), vedi Figura 4



Figura 4 - TCA Yoke

## 1.2.2 PEDALI

Tecnologia Thrustmaster PENDUL\_R™: esclusivo meccanismo sospeso, per movimenti fluidi e progressivi. Unitamente a dei sensori magnetici, questo meccanismo assicura una perfetta precisione, anche nelle più piccole correzioni.

Due freni differenziali estremamente precisi, per frenate perfettamente progressive.

Struttura totalmente in metallo.



Figura 5 - Pendular Rudder

## 1.3 PROCESSO

Il simulatore è dotato di una postazione grafica avanzata con le caratteristiche riportate nella Tabella 2.

Descrizione	Q.tà
Cabinet sharkoon m25-v	1
Alimentatore ATX Sharkoon wpm 650W	1
Scheda madre intel B760 Express LGA	1
Intel core i5-13s	1
Thermal Right LGA1700-BCF intel 12A	1
Dissipatore ad aria cooler xilence performance A+	1
DDR5 32GB kit 2x16GB	1
Wd black sn850x 1 TB nvme	1
Scheda video RTX 3070 Ti o superiore	1
Logitech kit tastiera mouse MK120 black USB	1

Tabella 2 - Workstation grafica - caratteristiche



Tabella 3 – Workstation



## 1.4 MOVIMENTO

La seduta è azionata inerzialmente da una piattaforma triassiale collegata e gestita dalla workstation in condivisione con il software di simulazione Msft Flight Simulator.

La postazione pilota inerziale è adeguata ad alloggiare la seduta (vedi Figura 3). La piattaforma aggiunge alla seduta il beccheggio, imbardata e rollio all'interno di un range di +/- 3°.

### 1.4.1 CARATTERISTICHE DELLA PEDANA:

- Pedana con n. 3 motori e pretensionatori per le cinture 4 Punti
- Misure H.35cm P.110cm L.77cm peso 95kg circa
- Carico massimo supportato dalla pedana 230kg
- La BASE funziona solo su PC, si collega tramite n.2 cavi USB e una presa 220V/110V
- Il PC deve avere semplici caratteristiche:
- La trasmissione dei dati viene fatta tramite un software, che permette di regolare l'intensità della sollecitazione/movimento per ogni suo asse e salvare profili a seconda del gioco

La base di movimento funziona con due motori da 12V con motoriduttore, corrente 220V/110V, con pedana attiva continua 0.5 Kw/h, il tutto gestito da una scheda elettronica della Simulator/Opiware.

Il sistema è certificato per l'utilizzo in pubblico e ha necessità di una verifica ispettiva di legge ogni anno.



Figura 6 - Es. piattaforma inerziale triassiale

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## 1.5 TRASPORTO

A nostro carico compreso nell'importo di fornitura

## 1.6 MONTAGGIO

A nostro carico compreso nell'importo di fornitura

## 1.7 CONFIGURAZIONE

A nostro carico compreso nell'importo di fornitura

## 1.8 ADDESTRAMENTO

Compreso nell'importo di fornitura è previsto un corso di 3 ore al personale docente per l'uso e la manutenzione del simulatore. Il corso per l'utilizzo di Msft Flight Simulator non è incluso.

Al termine del corso sarà rilasciata la documentazione di formazione

## 1.9 ASSISTENZA

Compresa nella fornitura viene fornita un'assistenza di 12 mesi esclusivamente sul simulatore e non sul software Msft Flight Simulator tramite il nostro Help Desk che risponde via e-mail e/o contatto telefonico 7 giorni su 7 dalle ore 9:00 alle ore 18:00.

Eventuali attività di assistenza software (Msft Flight Simulator) saranno erogate tramite applicativi di assistenza remota e quotate separatamente ad un costo orario di € 40/h

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## 1.10 CERTIFICAZIONE

A norma di legge i sistemi inerziali devono subire una ispezione annuale con un costo di € 850,00 per postazione.

## 2 COLLABORAZIONE

Ci rendiamo fin d'ora disponibili a collaborare alla stesura del documento di layout per individuare la migliore disposizione spaziale delle postazioni e per le indicazioni da indicare riguardanti gli impianti di alimentazione e di comunicazione (LAN). Inoltre, in accordo al vostro personale IT, configureremo il sistema in modo da integrarsi con la vostra infrastruttura informatica.

## 3 ESCLUSIONI

Sono escluse dalla presente offerta le attività riguardanti le opere edili, opere di impiantistica elettrica e di comunicazione LAN.

## 4 LICENZE SOFTWARE SIMULATORE

La licenza di Microsoft Flight Simulatore è esclusa dalla presente offerta ed è a vostro carico in quanto le licenze EDU per gli istituti hanno una forte scontistica.

## 5 SISTEMA OPERATIVO

Le workstation sono dotate del sistema operativo Microsoft Windows 11 Pro licenza digitale

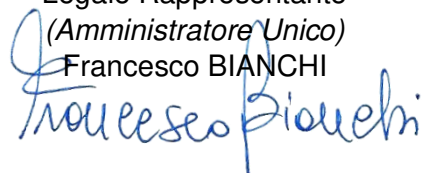
## 6 COLLAUDO DI ACCETTAZIONE

Le attività di collaudo di accettazione saranno condotte presso il vostro Istituto in collaborazione con il vostro personale entro e non oltre il 15 ottobre 2023. Al termine delle attività sarà rilasciato certificato di conformità e verbale di collaudo.

## 7 CONDIZIONI DI FORNITURA

IMPORTO (OPZIONE 1)	26.650,00
IMPORTO (OPZIONE 2)	18.150,00
IMPORTO CERTIFICAZIONE ANNUA	850,00
VALUTA	Euro
IVA	Esclusa
VALIDITÀ	7 gg.
PAGAMENTO	Termini di legge
CONSEGNA	30gg. d.r.o
GARANZIA	Di legge
MODALITA' DI ACQUISTO	Diretto e/o MePA

In attesa di un vostro riscontro porgo cordiali saluti.

**OPIWARE S.R.L.**  
Legale Rappresentante  
(Amministratore Unico)  
Francesco BIANCHI  


# SIMULATORE DI VOLO

n.3

## SIMULATORE DI VOLO – ELITE – S311 G1000 XP AATD

**COD. PRODOTTO AVIATRONIK: S311-G1000-XP-AATD**

### CONFIGURAZIONE E DETTAGLIO COSTI DEL PRODOTTO OFFERTO

Item	Descrizione	Codice	Q.tà	Prezzo Unitario	Prezzo Totale
1	S311 G1000 XP AATD Offer based on Technical Offer document Delivery scope: Cockpit: Fully enclosed single pilot cockpit & pilot seat Dynamic control loading on Yoke & Rudders Aircraft/Instrumentation: Garmin G1000 High fidelity replica Garmin GFC700 replica autopilot Standby instruments (location t.b.d.) Aircraft systems software & initial NavData 1 SEP or 1 MEP aircraft configuration IG: Industrial grade computers & graphics card X-Plane 11 Professional Visual Engine Instructor Station: One iOS Touchscreen Monitor Adjustable iOS table Operational Training at ELITE HQ following factory acceptance tests	100055	1	93.000,00 €	93.000,00 €
2	Trasporto		1	compreso	
3	Installazione on site		1	9.000,00 €	9.000,00 €
<b>OPZIONI INSTALLATE</b>					
4	Curved Visual - S - 3.0 m Includes Structure & Screen Installation Professional Laser Warping Service 3 HD Projectors	100026	1	17.300,00 €	17.300,00 €

6	Upgrade to 3 Laser Projectors Up to 20'000 hrs usage time	100068	1	7.200,00 €	7.200,00 €
7	Instructor Station Cabin	100048	1	7.100,00 €	7.100,00 €
8	MEP/SEP switches panel conversion kit - S311 models incl. one addition aircraft & Throttle	100063	1	5.100,00 €	5.100,00 €
9	Vernier Controls Throttle 2 lever variant 311 models	100064	1	1.100,00 €	1.100,00 €
10	Vernier Controls Throttle 3 lever variant 311 models	100065	1	1.200,00 €	1.200,00 €
11	MEL Throttle	100066	1	700,00 €	700,00 €
12	Additional Aircraft Software add-on S311 G1000 XP one each (C172R Skyhawk, C172S Skyhawk, T182T Skylane, C206 Stationair, T206 Stationair, Beech G36 Bonanza, Beech Baron G58)	100067- 100073	1	1.300,00 €	1.300,00 €
				<b>TOTALE</b>	<b>143.000 ,00 €</b>
				Sconto incondizionato	4.1000,00 €
				<b>TOTALE</b>	<b>138.900,00 €</b>

**IN ALLEGATO OFFERTA TECNICA DEL PRODOTTO**

# Technical Offer

## ELITE S311 G1000 XP AATD





## ISSUE / REVISION LOG

ISS	REV	DATE	CHANGES DESCRIPTION	PREPARED/CHECKED/ APPROVED
iss00	rev00	2022-07-26	First version	CR
Iss01	Rev01	2022-12-09	Revision 01	RH
Iss02	Rev02	2023-06-08	Revision 02	RH



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## **About ELITE Simulation Solutions**

ELITE Simulation Solutions is a leading global provider of IFR training software, flight controls and flight training devices since 1987. We build and support EASA, FAA, CASA, ANAC, South African CAA and Indian DGCA approved flight training devices and offer custom development and programming to both private and government entities.

Our hallmark is quality and our creed is excellent customer service.

Since 1987, ELITE has provided flight training solutions for pilots worldwide. Quantum leaps in computer technology have allowed us to be aggressive in product improvement in both software and flight control engineering.

This evolutionary process has resulted in open and flexible flight training systems for personal and institutional training programs. Our flight simulator devices with multi-channel visual systems are now considered industry standard.

We are committed to continuous improvement and superior value-for-money pilot training solutions and all related professional services.

As a talented systems integrator, we add the most-proven technologies and products available on the markets to our own solutions portfolio, creating overall solutions that provide the perfect fit to our customer's individual needs.

Our extensive experience in simulator qualification and certification comes embedded with your ELITE solution: we take care that you will receive and support you to maintain your national civil aviation authority's certification.

## 1 WHY BUY ELITE

### ELITE ISO 9001 Certification

On November 27th, 2017 ELITE Simulation Solutions AG successfully completed the certification audit carried out by Consulant AG, accredited by ASCB (Europe) in London. ASCB oversees the ISO standards in over 70 countries worldwide. This standard for quality management systems is recognised worldwide. Achieving certification guarantees our customers that ELITE's full service for flight training technology, including programming and testing meets ISO 9001:2015 pursuant to the EN 9100, the quality management system for the aerospace industry.



ELITE strives constantly to satisfy our customers, therefore being certified at ISO 9001:2015 standard means that we can assure our customers a constant, high level of reliability from our Swiss workmanship at ELITE here at ELITE HQ in Dübendorf, Switzerland. Our mission outlines that we constantly build on our business relationship with customers and vendors with the same innovation & integrity as we use to develop our software and build our training devices.

The International Register of Quality Assessed Organisations (IRQAO) was established in 1997 to provide a reference to organisations that hold certification, thus validating the quality of their processes, products and services.

## Why buy an ELITE FSTD?

- ✓ **Best Value on the market:** We focus on excellent training capabilities and ROI for our customers. Training as it should be.
- ✓ **Cost Effectiveness:** Savings in crew time, fuel, maintenance to the real aircraft and environmental impact are achieved by using the training device.
- ✓ **Risk Free Investment:** Elite Guarantees money back if certification is not achieved.
- ✓ **Environmentally friendly:** Train without fear, and save on CO2 emissions with your economical training solutions.
- ✓ **Cutting of training costs:** Many of the training and recurrent costs can be reduced by using the training device.
- ✓ **Availability:** The training device is not dependent on particular environmental conditions or availability of the actual aircraft.
- ✓ **Generation of Particular Conditions:** The training device makes it possible to generate particular conditions without having to sought a real-world situation.
- ✓ **Risk Free Challenges:** Challenges such as systems problems, difficult or unusual flight maneuvers and poor weather conditions can be practiced risk free in the training device.
- ✓ **Risk Free Emergencies:** Provision for emergencies and systems failures to be practiced.
- ✓ **Instructional Features:** Recorded flight data can be replayed to allow matching against set criterion.
- ✓ **Risk free Development:** Allows Pilots to learn from mistakes in a risk-free environment.
- ✓ **Relieves Instructors:** Relieves instructors from flight duties and safety considerations.
- ✓ **High Risk Activities:** Pilots can practice high risk activities and procedural tasks in a safe environment.
- ✓ **Improvement of Skills:** Pilots can improve pilotage skills and learn from errors.
- ✓ **Effective communication:** Pilots can practice effective communication techniques with crew.
- ✓ **Honing of Skill set:** Pilots and crew can hone their skill set.
- ✓ **Real World Database:** The training device has a real-world Jeppesen Navigation database allowing flights to be undertaken from any location Worldwide (limited to purchased/contracted areas).

## 2 ELITE S311 G1000 XP PROFESSIONAL AATD INTRODUCTION

### 2.1 Device Application

The proposed S311 G1000 XP Advanced Aircraft Training Device (AATD) covers the following training applications:

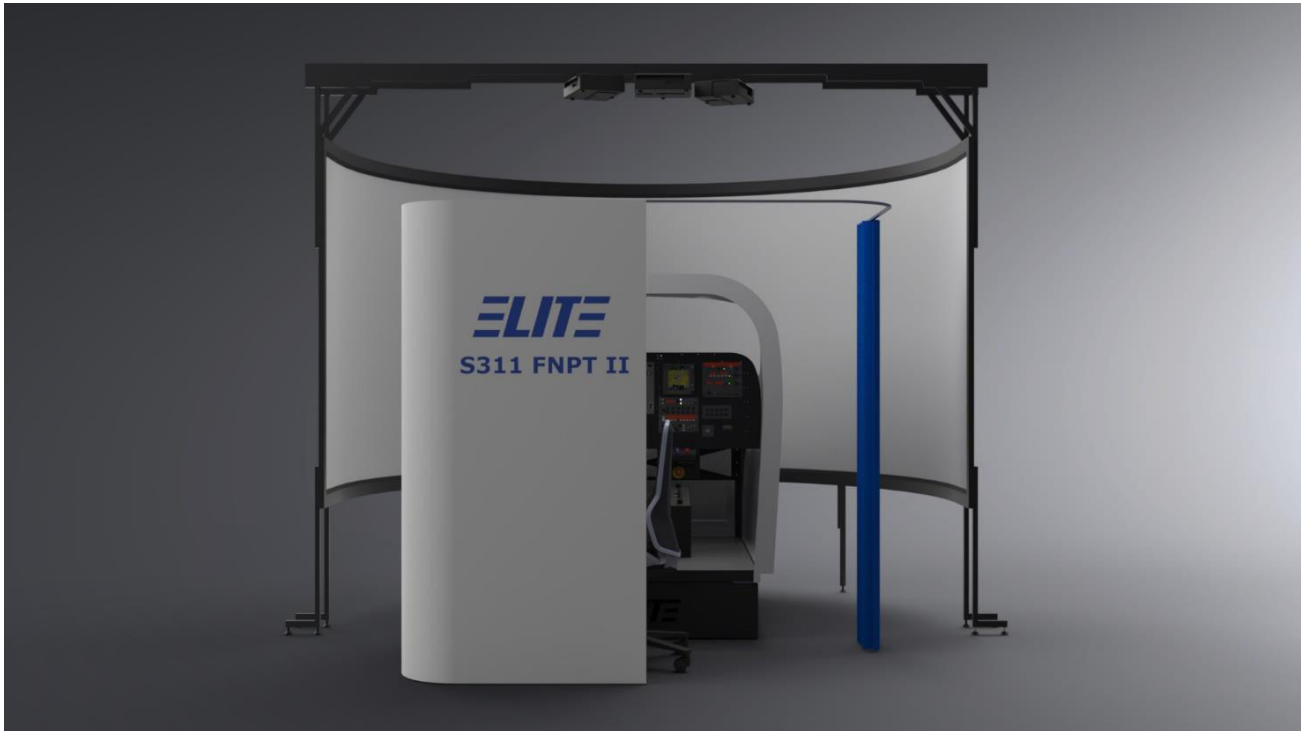
- Basic and advanced instrument training
- Navigation and procedural training
- Procedural and SOPs training
- Garmin G1000 familiarization
- Systems Familiarization
- Practice of instrument approaches not commonly used by particular crews
- ILS, VOR and NDB approaches
- PBN / RNP approaches (LNAV – LNAV/VNAV – LPV) – if GPS Option is chosen
- Hand flying and instrument scans
- Autopilot operation
- Familiarization of instruments and Panels
- Emergency procedures and drills
- VFR Emergency Training

In addition, it supports

- Skill proficiency tests
- Screening purposes
- Pinch Hitter Training
- Risk assessment prior to training flight

## 2.2 Key Devices Features

- The ELITE S311 G1000 XP Flight Simulation Training Device is a single seat, autopilot, replica G1000 equipped Flight Simulation Training Device capable of representing almost all aspects of the operational envelope.
- The type representative nature, combined with the accuracy of the hardware and software, allows for comprehensive aircraft training to be conducted in the device using in most cases the factory Operating Manual for flight and ground training as well in most cases the actual checklists and Quick Reference Handbooks.
- The provided Instructor Operator Station is ergonomically laid-out to allow observation of flight deck activity. The Instructor Operator Station software allows for an intuitive manipulation of aircraft systems and failures with customizable event triggers. The instructor can trigger an event immediately, after a predetermined interval of time, or based on certain conditions.
- With systems simulation and integration, practically all phases of ground and flight operations, including normal, abnormal, and emergency scenarios can be trained in detail.
- A detailed and accurate global Navigation database greatly enhances the mission capability of the device.
- These features are ideal for IFR and partial VFR training (full VFR training enhanced by adding of optionally available scenery packages).



*S311 G1000 XP overall view –curved screen display. 3D rendering for analog instrumentation version*



## 3 TECHNICAL PROPOSAL

### 3.1 General Description

- The offered ELITE S311 G1000 XP Flight Simulation Training Device is a generic depiction featuring generic SEP or MEP aircraft models, with all basic functionalities covered. One Single Engine Piston or one Multi Engine Piston aircraft model with one set of switches panels are included in the basic package.
- Relevant Flight Deck controls, panels, knobs, switches and other components found in the actual aircraft are generically depicted in size, look, feel and functionality in the Training Device. In addition to aircraft hardware, the aircraft systems and avionics are simulated to ensure the ability to represent and train all phases of flight under normal, abnormal, and emergency conditions. Behind the Training Devices Flight Deck is an Instructor Screen.
- Installed in front of the device is either an optionally available large curved visual projection screen or a TV screen setup, which displays the synthetic world. Additional visual portrayal options are available. The result is a compact Flight Deck and visual system which provides an immersive training environment and puts pilots in a realistic simulated environment where they can learn aircraft flying skills that are, in some cases, impossible to train using actual aircraft.
- In addition, ground operations training can be executed by utilizing the highly accurate 3D airport add-on sceneries. By adding this option, the actual airport being replicated is closely matched, so that actual airport diagrams can be used in training. Pilots will find runways, taxiways, buildings, pads, hangars, etc. correctly placed. Runway and taxiway signs, as well as airport markings, are also detailed and accurate. Rehearsal and familiarization training of a specific airport is possible by adding either of these options, hereby greatly increasing the transfer of learning to the real world.
- The Training Device will be fixed-mounted. All pictures included in this offer are non-contractual and for illustration purposes only. All Simulators offered by ELITE are based on existing models, without any affiliation to any supplier, constructor or any brand mentioned.

### 3.2 Flight Deck Specification:

The S311 G1000 XP Flight Deck contains the following:

- Replica G1000 Instrumentation with integrated GFC700 Autopilot
- Generic SEP or MEP switches panels, accurate in size and placement with accurate buttons and knobs, replicating the actual aircraft environment.
- Professional grade Control Yoke and Pedals with Dynamic Control Loading
- Flight console with generic power levers, rudder trim wheel, elevator trim wheel, parking brake, simulator freeze button and others
- Generic style Flap levers complete with annunciator light
- Pilot seat capable of fore and aft adjustment

### 3.3 Simulation Specification

The main simulation features for the S311 G1000 XP are:

- **Flight Dynamics:** Advanced flight dynamics which have been developed with the aid of actual Pilots who have tested our flight models based on the SEP and MEP aircraft models.
- **Audible Devices:** Communication, navigation and other warning devices resemble the equipment installed in the actual aircraft.
- **Lighting:** Interior lighting is sufficient to enable adequate visibility in the Cockpit.
- **Environmental Sounds:** Relevant environmental sounds are emulated in the software and replicated via the built-in speaker system, featuring speakers located in positions within the cockpit frame.
- **Cockpit:** The cockpit skin is Fiberglass based. The compact cockpit enables the instructor to move in and out of the cockpit. A heavy-duty metal base ensures rigidity of the Training Device.
- **Instructor Station:** One 21,5" Instructor screen will be supplied, as well as mouse and keyboard. The system also comes with a laser printer, Hobbs meter and automatic start-up buttons (via software interface) so that the system, once powered up, can be totally controlled from the Instructors Workstation.
- **Footprint:** The offered device requires only l 3,5 m x w 3,5 m x h 2.5 m simulator room, please refer to our installation requirements document for more information.

### 3.4 Aircraft models featured

The S311 G1000 XP offers flight models for the following aircraft:

- Cessna 172R
- Cessna 172S
- Cessna 182T
- Cessna T182T
- Cessna 206
- Cessna T206
- Beechcraft Baron G58

Although all aircraft models may be used, the S311 G1000 XP is best used with the Baron G58, due to the twin engine flight controls panel which is supplied as standard.

### 3.5 Optional equipment

The S311 G1000 XP simulator can optionally be equipped with various options:

- Upgrade to Laser Projectors (up to 30'000 hrs usage time)
- Select additional aircraft models from the list above, charged per aircraft model
- Custom built 3D Airport Models (charged per airport)
- Free of charge digital or analogue standby instrument position (bottom right or top left)

### 3.6 Visual System

There are multiple options for a visual system. In this document we offer standard solutions; other options for the visual system are available on request.

Main features:

- Single- or multiple channel display to create a high definition (HD) visual environment that simulates frontal and side window visual effects (3-channel only)
- Warping and Edge Blending (curved visual only)
- Structure for projector support or durable monitor mount mechanism
- Provides very high degree of immersion during the training session

### 3.6.1 Single Channel TV System

Single channel forward LCD television covering approximately 40° x 30° of pilot's field of view



*Sample of a typical cockpit layout with single-channel TV setup*

### 3.6.2 Three-Channel Curved Projection System

Three channels curved forward projection utilizing three overhead LCD projectors covering approximately 200° x 45° field of view. The visual channels are projected from overhead onto a canvas projection surface. The system includes image projectors, image generators and projection screen. The advantage of this projection system is the very large FOV and low ceiling height requirements.



*Sample of curved screen – shown here with regular S311*

### 3.6.3 Three-Channel LCD TV screen System

Three channels 65" LCD TV screen setup covering approximately 120° x 40° field of view. The visual channels are displayed directly on the LCD Screens. The system includes TV screens and image generators. The advantage of this projection system is the very small footprint and crisp images.



Sample of a typical LCD TV screen curved screen layout (standard FNPT II cockpit shown here)



### 3.7 Synthetic World Representation

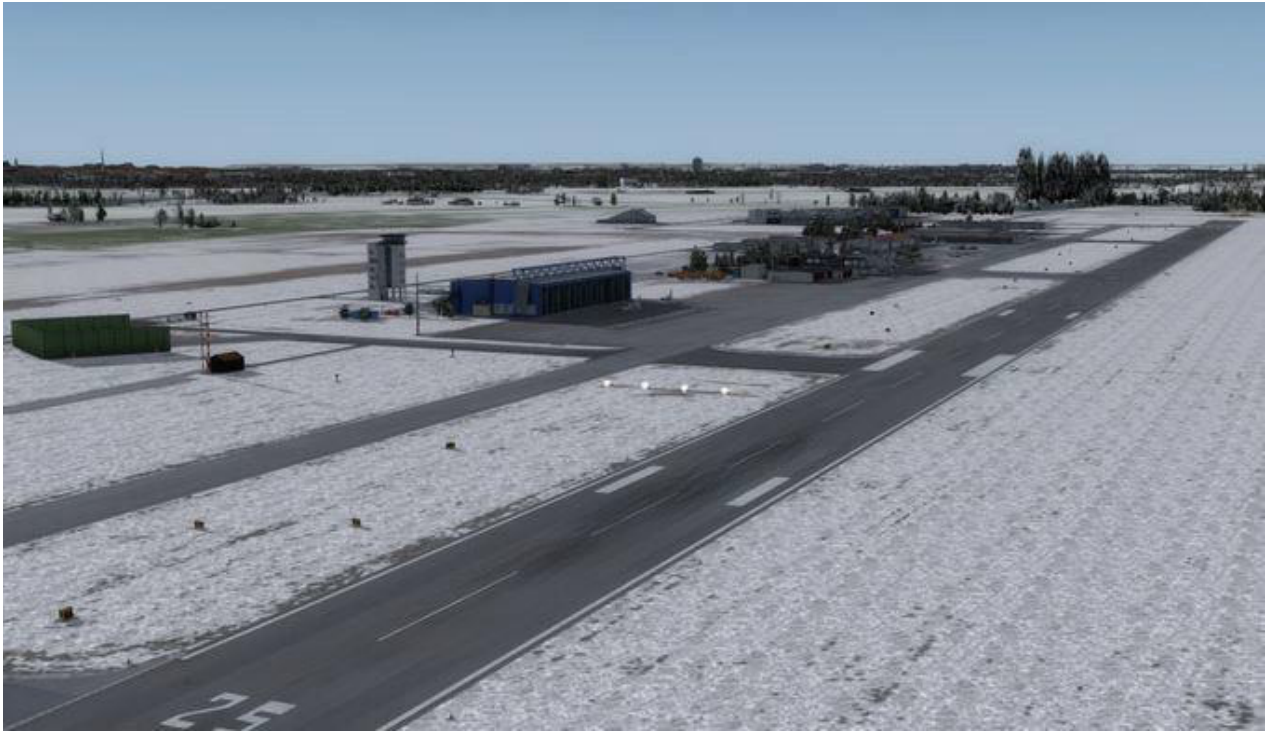
The Synthetic World Representation for the Flight Simulation Training Device will be done with X-Plane Professional 11 VFR enhanced simulation/visual engine.

The X-Plane Professional 11 VFR enhancement environment features VFR training visual scenery environment features:

- Global database including detailed runways, taxiways, terminal buildings, gates, and ground equipment. Dynamic 3-D Immersion realism which includes buildings, landmarks, navigational aids, and accurate geographical landscapes, if you select the option.
- AutoGen technology which provides geo-typical object and texture coverage over the whole surface of the earth.
- Landscapes with moving vehicles.
- Dynamic weather with control over winds, barometric pressure, cloud layers, precipitation from light rain or snow to heavy rain or snow and thunderstorms
- Optionally hundreds of detailed add-on sceneries are available. Please contact your ELITE sales rep.



*Sample 3D add-on scenery California USA*



*Sample 3D add-on airport winter scenery Augsburg, Germany*

### 3.8 Digital Sound Environment

ELITE provides a Digital Environmental Sound Environment with the following key features:

- Stereo Sound Package includes engine and environmental sound effects:
- Cockpit alerts and warnings including
  - radio altimeter call-outs
  - configuration warnings TCAS alerts
  - EGPWS warnings
  - ATC Program and Live ATC Chatter
- Speakers and Volume knob



### 3.9 Optional Intercom System

The optionally available ELITE Intercom System provides two (2) place intercom capacities with volume and squelch control, Line in capability and Line out capability.

- Compatible real aircraft intercom ports to allow students to plug in their own headphones
- Transmission of
  - Ident sounds
  - ATIS
  - Warning sounds as applicable

### 3.10 Instructor Operator Screen

The Instructor Operator Screen by ELITE provides the following components and functionalities:

- Instructor station Software capable of
  - easily repositioning the aircraft to a variety of ground and Flight positions instantly
  - adjusting the time to include dawn, day, dusk, night
  - adjusting the weather such as: winds, cloud cover, visibility, rain and snow
  - activating Pause, Reposition and playback
- Loading saved scenarios include: aircraft position, aircraft configuration and weather parameters
- Track and Departure/Approach plots are recorded, displayed, stored and printable
- Simulation of a variety of failures which include, but are not limited to: engine failures, receiver failures, gear malfunctions, electrical failures as well as minor system faults
- Display of a moving map that shows aircraft position, surrounding airports, and navigational aids

### 3.11 Computer Hardware

The ELITE Training Device offered will include a high-end PC as well as a standby instrument screen.

### 3.12 Simulation Software

The ELITE S311 G1000 XP AATD utilizes X-Plane 11 software which has been continually further developed its inception in 1995. ELITE utilizes X-Plane 11 as a simulation platform and has, in close cooperation with its cooperation partners, developed its own aircraft aero models, flight dynamics as well as system and instrument configurations. ELITE uses a third-party proprietary software platform that replicates the G1000's features and functionality with exacting detail.

## 4 DOCUMENTATION

ELITE will provide the following documentation in English with the offered flight training device:

- ✓ Maintenance & Operational Manual
- ✓ Instructor Station Manual
- ✓ Site installation requirements brochure
- ✓ User acceptance sheet (factory acceptance & final acceptance forms)
- ✓ Systems Description

## 5 SYSTEM ACCEPTANCE TEST

Once ELITE has finalized all internal system testing, the customer should nominate a competent test person. This individual will receive an initial briefing about the device status and features and is encouraged to do a series of integrated test flights and other functional checks at ELITE's premises. Upon completion of said tests the customer will sign a factory acceptance protocol to confirm the FSTD is fully operational before shipping of the device takes place.

## 6 DELIVERY AND INTEGRATION

ELITE will deliver, install and integrate the Flight Simulation Training Device at the customer's location according to specifications in your offer.

ELITE will consult with the customer at an early stage of the project on the necessary Infrastructure Requirements. These are documented in the ELITE Installation Requirements document.

The installation and final integration of the device will be done by experienced ELITE staff. The Customer shall support with appropriate support staff on site.

Once the integration is completed, ELITE will perform extensive subsystem and system functional and operational testing. This will be documented in a final acceptance test protocol and handed over to the customer to counter sign.

## 7 INSTRUCTOR – FIRST LEVEL MAINTENANCE TRAINING

The initial instructor training, which is included in the sales price, will cover all steps on how to start and shutdown the simulator, operate the Instructor Operating Station, aircraft normal and abnormal SOPs including familiarization of aircraft systems (if required), the completion of QTG tests and how to maintain the flight simulation training device. It will take place at ELITE's Headquarters.

## 8 MAINTENANCE SERVICES

ELITE prides itself on providing first class after-sales service and support. We have incorporated several unique features into our device design to increase reliability and minimize down time. Support of software is accomplished via remote internet access (suitable high-speed internet connection should be provided by the customer).

The vast majority of hardware components installed on the device are modular plug and play, requiring no more than a Flat-Head and Philips screwdriver to remove and re-install.

This modular plug and play design of hardware components in most cases completely eliminates the need for a technician from ELITE to be on site to service the unit. If a component fails or malfunctions, the component can simply be removed, shipped to ELITE, serviced, returned, and then be re-installed.

### **8.1 Short to Mid-Term Maintenance Service**

For the Warranty covered phase of the Flight Simulation Training Device, ELITE offers a professional Hot-Line Service Support via ELITE's dedicated ticket system (during Swiss office hours, based on Zürich time zone).

This includes the guaranteed access of the customer's technical staff to a competent and experienced service technician at ELITE. Depending on the nature of a reported issue or the question raised, he may be able to help immediately, or he will initiate the necessary next steps within ELITE. In any case, response and help will be provided at no extra cost during the warranty period, for all warranty related topics. Any additional training, support or assistance that is not covered by a specific maintenance contract, will be charged to the customer.

### **8.2 Long-Term Maintenance Service**

ELITE offers a variety of Long-Term-Maintenance Services packages. Details on these services and what is included can be found in the separately handed over ELITE Warranty & Maintenance services document.

## **9 WARRANTY**

ELITE Flight Simulation Training Devices are guaranteed to be free from manufacturers defects to the original Purchaser for the duration of 24 months from the date of Purchasers execution of the Final Acceptance Test. ELITE will repair or replace any part or parts manufactured by ELITE that are deemed defective in material or workmanship or both, however, on-site installation or visits are not included.

This Limited Warranty does not apply if, in the sole judgement of ELITE, the Device damage occurred due to an accident, misuse, abuse, unauthorized parts/service/repair, improper or unreasonable use, neglect, theft, vandalism, casualty, or other cause not within the control of ELITE. Similarly, this Limited Warranty is void if the device has been modified or altered in any way, including alteration or removal of serial numbers.

## 10 LIST OF MAJOR CLIENTS

ELITE has been in business since 1987. For over 35 years the Group supplied and built over 1800 approved flight simulation training devices of various kinds ranging from full replica FTD's to a 6DOF motion platforms to Desktop Training devices. Over this time period, it has also achieved over 700 accreditations worldwide. Its major clients include the following;

- ❖ Pilatus Aircraft Ltd, Switzerland
- ❖ ESSO (Exxon Mobil), Australia
- ❖ Italfly, Italy
- ❖ Awan Inspirasi, Malaysia
- ❖ BAE Systems, UK, Australia
- ❖ HeliCzech, Czech Republic
- ❖ CHC Helicopter Services, Australia, Nigeria, Malaysia
- ❖ TL Aviation, Germany
- ❖ Starspeed (Lux Aviation), UK
- ❖ Aerocontractors, Nigeria
- ❖ Abu Dhabi University, UAE
- ❖ UAEU United Arab Emirates University, UAE
- ❖ Horizon International Aviation Academy, UAE
- ❖ BHS, Brazil
- ❖ European Helicopter Centre, Norway
- ❖ TAS, Thailand
- ❖ Bristow Helicopters, UK, Nigeria, Australia
- ❖ Qatar Emiri Air Force, Qatar
- ❖ DSA a.s., Czech Republic
- ❖ Victoria Police Air Wing, Australia
- ❖ Aeronaves TSM, Mexico
- ❖ UNPAC, Panama
- ❖ Starlite Aviation Academy, South Africa
- ❖ Embry Riddle Aeronautical University, USA
- ❖ AVIC International Flight Training Academy (AIFA), South Africa
- ❖ FH Joanneum, Austria
- ❖ Pratt & Whitney Aero Engines, Switzerland
- ❖ Air Espace Flight Academy, Switzerland
- ❖ Qualityfly, Spain
- ❖ Panamedia Escuela de Pilotos, Spain
- ❖ Global Aviation SA, Greece
- ❖ ARDEX Flugschule, Germany
- ❖ Politechnika Slaska, Poland
- ❖ Mission Aviation Fellowship Training Center, Netherlands
- ❖ Bucks New University, UK
- ❖ University of Limerick, Ireland
- ❖ Gulf Air Academy, Greece

- ❖ JetForTrip, Czech Republic
- ❖ Mactan Aviation Flying School, Philippines
- ❖ Island Aviation Services, Maldives
- ❖ Telangana State Aviation Academy, India
- ❖ Blue Sky Aviation, Czech Republic
- ❖ GFD, Germany
- ❖ KSAO, Finland
- ❖ Heli Air, Sweden
- ❖ Aviaticky Klub, Czech Republic
- ❖ Novaviation, Cambodia