

# EXAMPLES OF MISSIONS

URBAN COMBAT IN A HOSTILE ENVIRONMENT

PROGRESSION IN ISOLATED MOUNTAIN TERRAIN

DEEP NIGHT CLANDESTINE RECONNAISSANCE

INFILTRATION AND SABOTAGE OF ENEMY POSITIONS

COORDINATED NIGHT ASSAULT

UNDER FIRE WOUNDED SOLDIER EVACUATION

CROWD CONTROL IN ZONES OF INSTABILITY



DEFENCE OF A FIXED STRATEGIC POINT

OPERATION IN CBRNe ENVIRONMENT

SET A TEMPORARY BASE

TARGET INTERCEPTION (CONVOY OR PERSON)

DETECTION AND NEUTRALIZATION OF BOOBY TRAPS, IMPROVISED EXPLOSIVE DEVICES (IEDS) AND ANTI-PERSONNEL MINES

RESCUE & RECOVERY OF CRITICAL INFORMATION



## eSAS XR-TAK

# NIGHT VISION SITUATIONAL AWARENESS FOR SOLDIERS

Cutting-edge situational awareness system and soldier's health thanks to 35 embedded sensors

**A concentration of technologies !**

- HMSD (Helmet Mounted Sight & Display)
- OST (Optical See Through)
- Dark night vision (NATO level 5)
- Wide (80°) & unobstructed field of view (minimum blind spot)
- Thermal/visible fusion
- 360° threat detection
- Lightweight and more balanced than NVGs
- 10 hours mission capability



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# FEATURES

## Features related to ENVIRONMENTAL PERCEPTION

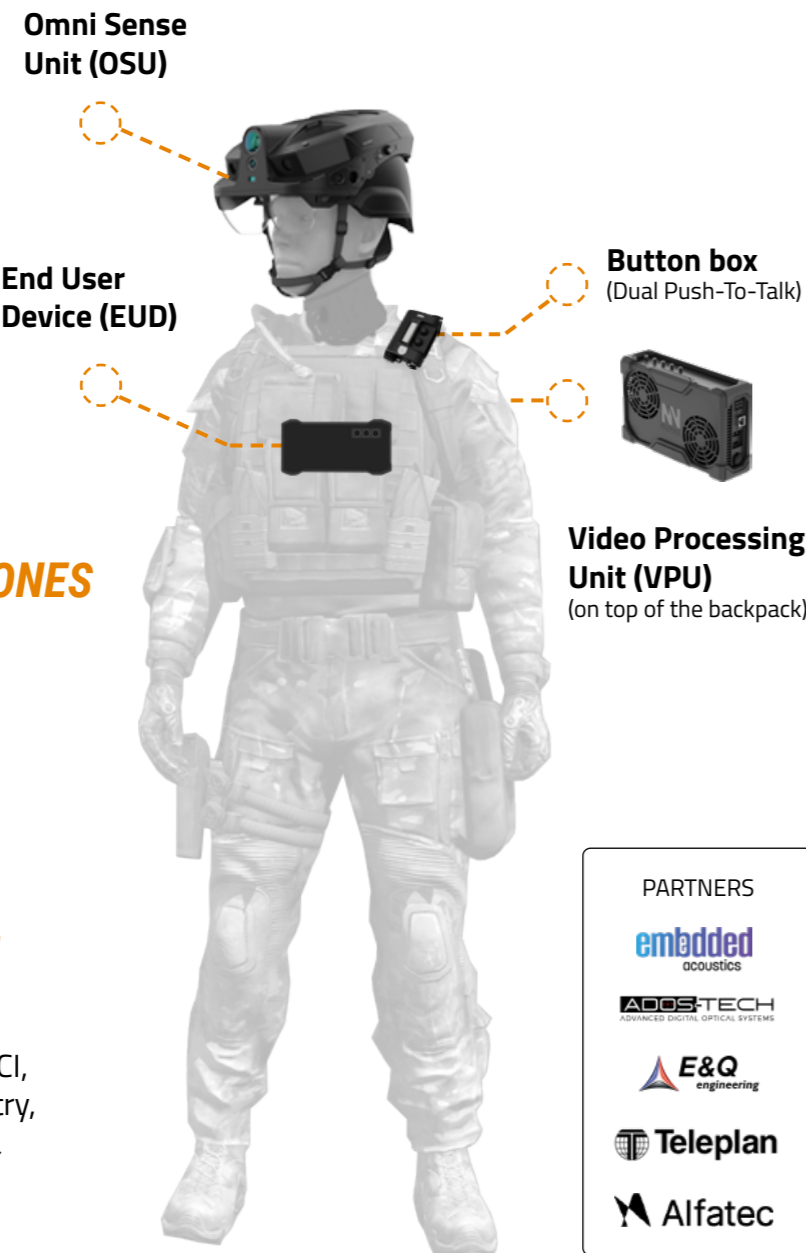
- Night + LWIR/Thermal + 3D vision
- Blue force localization (avoid blue-on-blue)
- Navigation (GNSS)
- Others sensors : temperature, pressure, humidity, toxic gaz, particulate matters

## Features related to INTERCONNECTION WITH TEAMMATES, RIFLESCOPES & DRONES

**Vision of remote tactical optronics**  
(Vis/IR cam embedded on a weapon/UAV/UGV, wireless spy cam)

## Features related to THE SOLDIER'S STATE OF HEALTH

- Health monitoring & predictive status**
- External body temperature, brain activity / BCI, soldier's attention (gaze tracking), pupillometry, heart rate variability, blood oxymetry, head & body movement, perspiration



**PARTNERS**

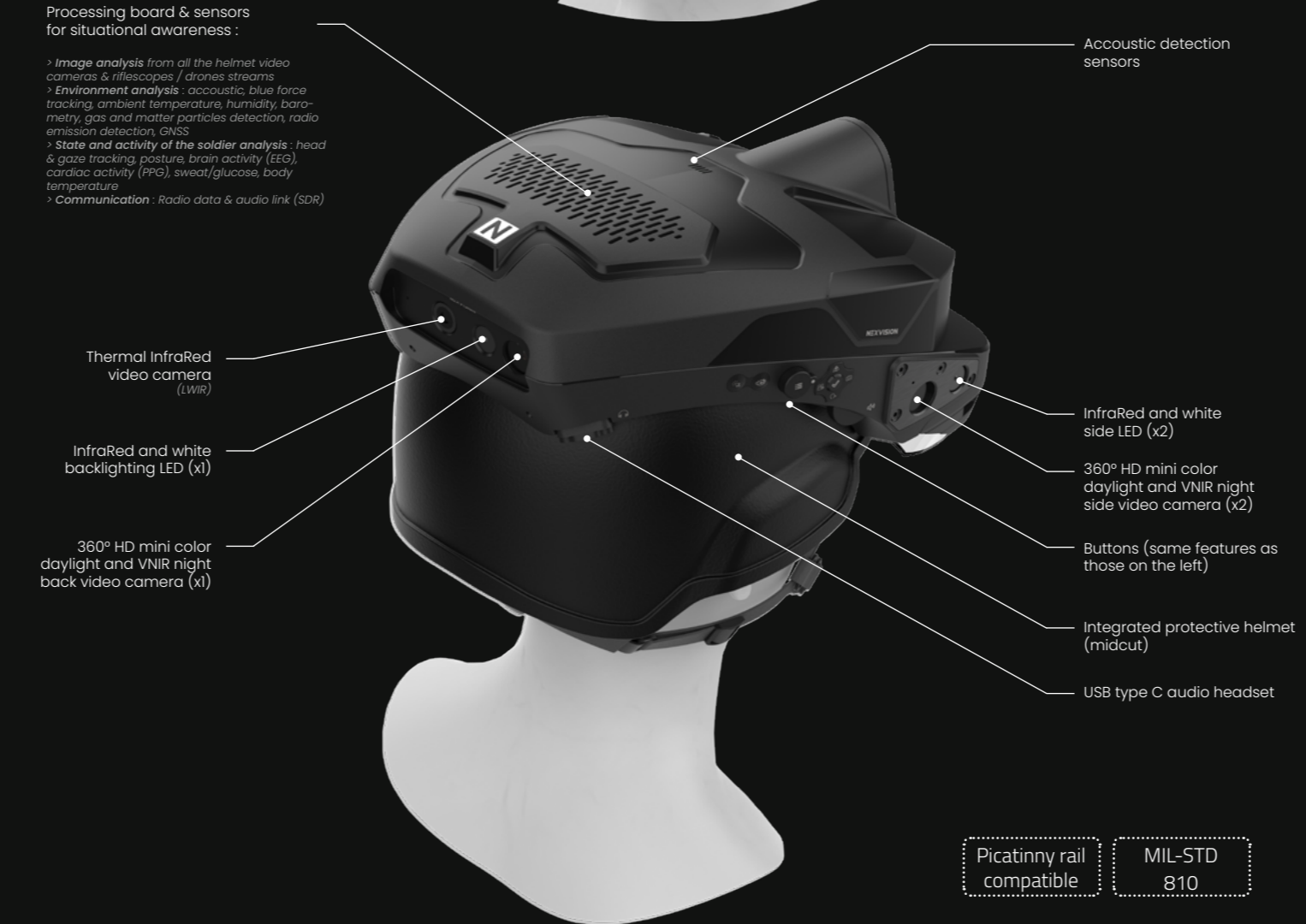
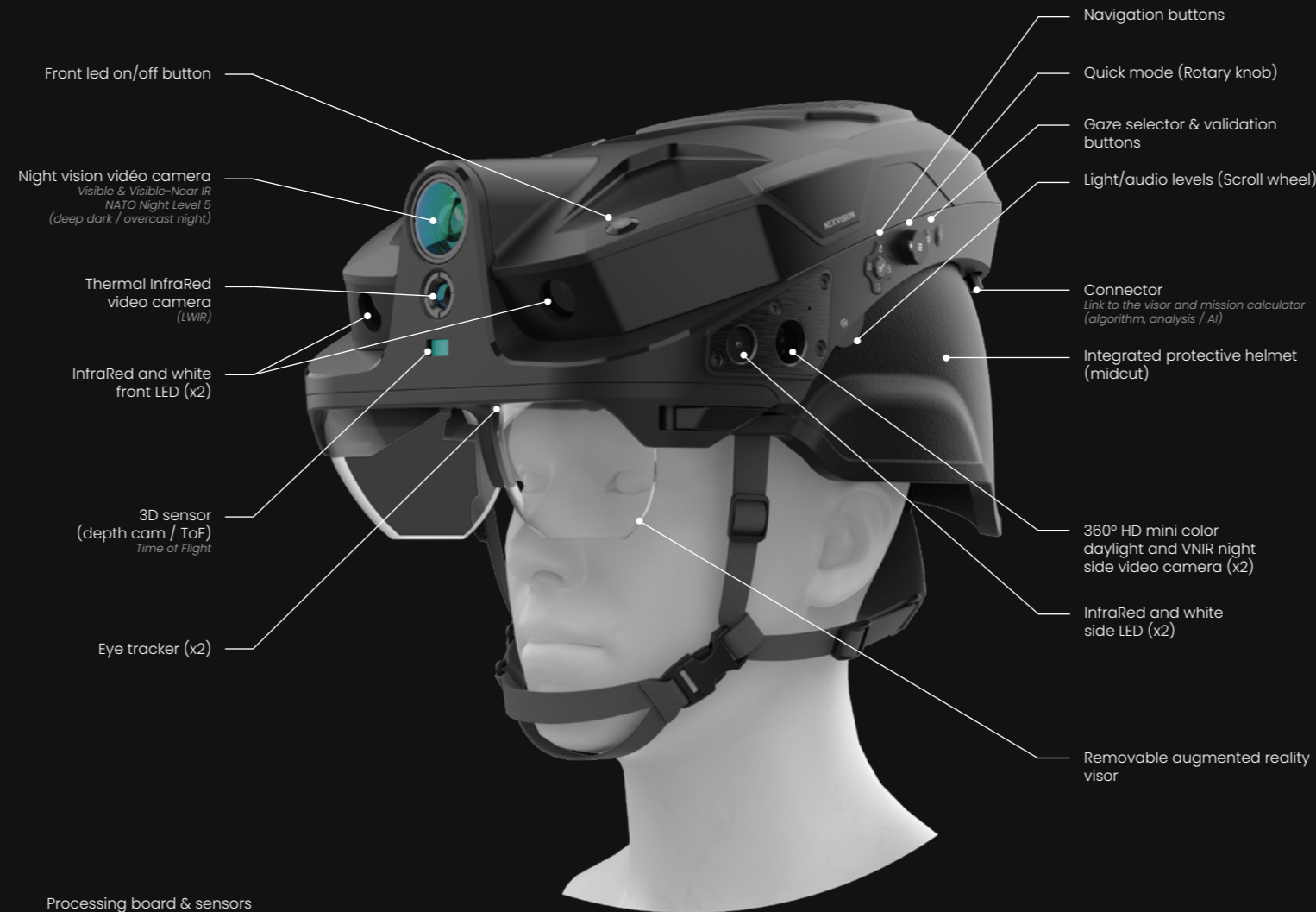
**embedded acoustics**

**ADDS-TECH**  
Advanced Data, Decision, Control Systems

**E&Q engineering**

**Teleplan**

**Alfatec**



Picatinny rail compatible

MIL-STD 810

# CHARACTERISTICS

## OMNI SENSE UNIT (OSU)

### ENVIRONMENT

- 1) Scene view sensors**
  - > Night vision 1.3Mpx (NATO level 5), 80° HFoV
  - > Thermal IR 640x480px, 80° HFoV
  - > 3x Color/VNIR 5.1Mpx : 360° threat detection
  - > 3D : scene depth sensing
- 2) Atmosphere**
  - > Temperature
  - > Pressure
  - > Humidity
  - > Toxic gaz
  - > Particulate matters
  - > Barometer
- 3) Microphones**
  - > Gunshoot and threat sound detection & localization
- 4) Navigation**
  - > GNSS, IMU

### SOLDIER'S PHYSIOLOGY

- 1) Eye**
  - > Gaze tracking : target, scene designation, soldier's attention
  - > Oculometry : pupil diameter, eyelids positions and blinking
- 2) Cardiac**
  - > Heart : heart pulse rate, Heart Rate Variability [HRV]
  - > Respiratory : blood oxymetry
- 3) Brain**
  - > Electrical brain activity : cognitive charge, fatigue, stress
  - > Brain Control Interface (BCI)
- 4) Body**
  - > Head : global orientation & head movement
  - > Torso : body movement
  - > Body skeletal posture
  - > Temperature : external body temperature
  - > Glucose

## DIMENSIONS, WEIGHT & POWER SUPPLY

<b>Dimensions</b> VPU : 16cm x 11.5cm x 4cm	<b>Autonomy</b> 10h
<b>Weight (OSU + VPU)</b> OSU : 2.5kg (including protection helmet) VPU : 900g (including 170Wh battery pack) Power extension battery pack : 650g (500Wh)	<b>Connector type</b> Waterproof MIL-STD
	<b>Operating temperature</b> -20°C <-> +50°C

## VIDEO PROCESSING UNIT (VPU)

- Image analysis processor**  
1000Tops SoC (CPU+GPU+NPU)
- Image processor and data stream muxer**  
FPGA SoC
- Operating system**  
Linux based
- Memory - storage**  
Embedded SSD : 4TByte
- RF communication / GNSS**  
Embedded WIFI/BT RF link  
Ultra wide Band (UWB)  
Optional : GNSS, 4G broadband, MANET mesh SDR (beamforming Tx, multi simultaneous frequencies, fast frequency hopping)
- Links**
- IP Network link : ethernet type | 1Gbits/s
  - USB link to any USB device : USB3.2 gen.2 speed | 10Gbits/s
  - High speed link with HeadZone OST-HMSD : RX/ TX serdes differential link NVType-C | 10Gbit/s (bidirectional)
  - Power input (Type-C & XT60)

