

THALES



Sophie Ultima

THE 4-IN-1 TARGET LOCATOR IN 2.5KG FOR
EXTENDED RANGES

ULTIMATE SUPERIORITY NIGHT AND DAY

TVN 37-00

www.thalesgroup.com

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Choosing Thales is choosing a system of optronic capabilities: the eyes of the frontline units

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The Sophie Brand history

Inventor of the concept
“Hand-Held Thermal Imager”
with the first Sophie in 1996

Real **success story** around Sophie
Inventor of **Target Locators**

Generation 2



Sophie-LR



Sophie-MF

Always at the **state of the art** of
the technology, Thales adapts its
Sophie family to **better serve its**
customer

More than
16,000 Sophie

has been sold
in **55 countries**

Generation 3



Sophie-ZS



Sophie Lite

Thales is committed to **co-design your**
future with you

The new Sophie family integrates **new**
decisive operational differentiators



Sophie-XF



Sophie-XF/VGA



Sophie, The experience for superiority since 1996

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Our Understanding of Operational Needs

NEW EXTENDED RANGE-XR SEGMENT



Surveillance,
Intelligence, JTAC &
Specialised squad
leaders



TI range
6km tank
recognition



Weight
under
3kg



Day image
quality
enhanced
(DVO)



Accurate
target
location



Connectivity
&
Cybersecurity



Adaptability



GNSS
denied
resilience

LONG RANGE-LR SEGMENT



Platoon leaders



TI range
3km tank
recognition



Volume &
Weight
Reduction
(<3kg)



Day image
quality
enhanced
(DVO)



Target
location



Connectivity
&
Cybersecurity



Optimized
cost
through life



GNSS
denied
resilience



Special & Specialised
roles



Sophie Ultima

New eXtended
Range-XR segment



Platoon leader



Sophie Optima

Long Range-LR
segment

Sophie Family Portfolio evolution

Range

eXtended
Range

MWIR (3-5 μ m)
for longer range
In smaller volume
and hot+wet
climates

OBSERVATION



Sophie-ZS



Sophie-LR

Long
Range

LWIR (8-12 μ m)
for the "obscured
battlefield"
and insensitivity to
sunlight and hot spots

Tactical
Range

LWIR (8-12 μ m)
Only LWIR available
due to uncooled
technology

TARGET LOCATION

Sophie-XF/VGA



Sophie-XF



Sophie-MF



Sophie Lite

Uncooled

Technology

The new
Sophie Family



Sophie Ultima
Night & Day
Cooled



Sophie Optima
Night & Day
Uncooled

[The widest offer in the world, **in-service** in over 55 countries]

Sophie Ultima: a Thales new worldwide standard

ULTIMATE SUPERIORITY NIGHT AND DAY

Detect sooner

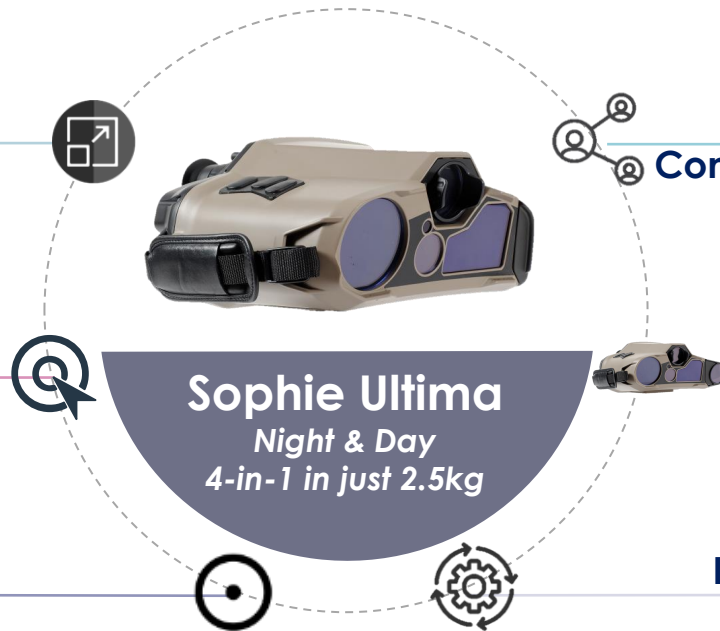
**Enable Collaborative
Combat and Cyber secured**

**Identify further,
Engage sooner**

**Modular, scalable,
open**

**Detect & Identify further
by day**

**Lower through-life costs
with a new family**



Decisive technology for decisive moments

Sophie Ultima: a Thales new worldwide standard

ULTIMATE SUPERIORITY NIGHT AND DAY

Detect sooner

A Thales new worldwide standard

Enable Collaborative
Combat and Cyber secured

Identify further
Engage sooner

Direct View Optics Augmented Vision and Collaborative Combat

Modular, scalable,
open

You can rely on it **Night & Day** for your **Tactical Superiority**

Detect & Identify further
by day

Lower through-life costs
with a new family

Decisive technology for decisive moments

Sophie Ultima: 4 functions in 1 solution in 2.5kg



Sophie
Ultima

For same
performance

Including:

- ✓ Wide FoV IR 20°
- ✓ Extended IR range with Continuous optical zoom
- ✓ Glass day channel with back-up reticle + TV channel for recording & transmission
- ✓ Laser Pointer
- ✓ SeeSpot / seepointer
- ✓ eXtension capacity
- ✓ Battery 4h

Day & Night
Tank ID
3km



Sophie Ultima
2.5kg with battery

Day Observation

Coordinate
extraction by day

Night Observation

Coordinate
extraction by night



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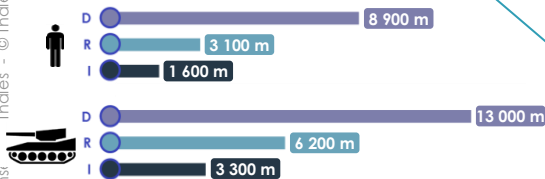
Sophie Ultima – Technical Characteristics

IR channel

IR FoV

Continuous zoom 20° - 3°
Optical boost 2.1°

IR ranges



GNSS

DMC

4-in-1 functions for 2.5 kg

4 functions in 1 unique product :

- Observation by night
- Observation by day
- Target location by night
- Target location by day

Battery

4 hours battery life

Ready for collaborative combat

Digital connectivity

Augmented Reality

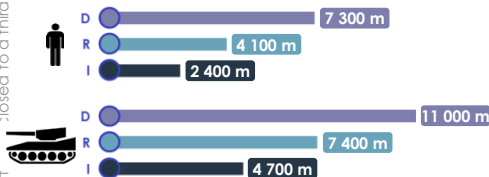
Cybersecurity

Direct View Optics

DVO FoV

6°

DVO ranges



Laser Pointer

As an option

TV channel

TV channel FoV

3°

For pictures and videos

LRF

LRF ranges

5 km or 7.5 km

10 km as an option

eXtensions concept

Scalability

Modularity

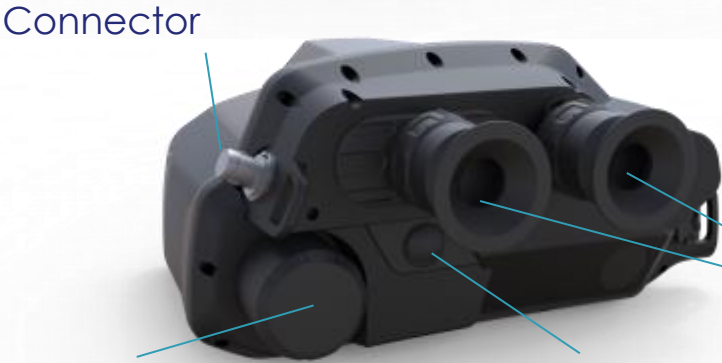
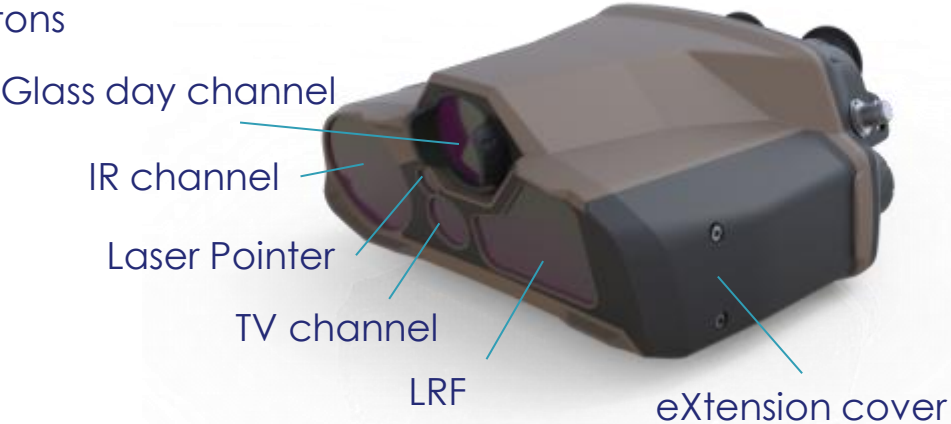
DVO/IR fusion

Seespot/Seepointer

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Sophie Ultima



On / Std By / Off

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Detect sooner

with IR extra large field of view 20°



20° Ultima

13.5° current Market

Detection in 20° FoV

- ✓ Man 1.2 km
- ✓ NATO Tank 2.4 km

With extra large field of view of **20°**, detect sooner a potential target **at a glance** even in urban canyon

Identify further, engage sooner

with 2° narrow FoV



Detection in 20° FoV

- ✓ Man 1.2 km
- ✓ NATO Tank 2.4 km



Positive ID in 2° FoV

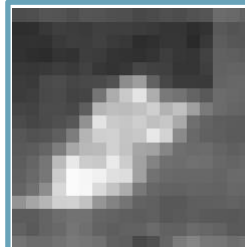
- ✓ Man 800 m
- ✓ NATO Tank 1.7 km

- ✓ Identify further, when others can only recognise
- ✓ Identify positively at the range of the weapons of a battlegroup (600-800m)

to engage sooner

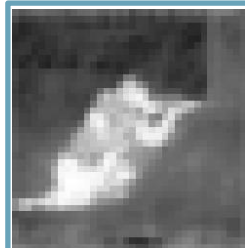
Never losing sight on the target with continuous optical zoom

Range performance 2x compared to current market offer



Recognition
"It is a person"

Sophie Ultima (2°): 3 km
Market offer (4°): 1.5 km



Identification
"He probably (50%) has a weapon"

Sophie Ultima (2°): 1.5 km
Market offer (4°): 800 m



Positive Identification
"He surely (90%) has a weapon"

Sophie Ultima (2°): 800 m
Market offer (4°): 400 m

Detect and identify further by day

with glass day channel 7x35



Compared to TV channel:

Range (3.5km NATO Tank ID) x Field of View (6°)

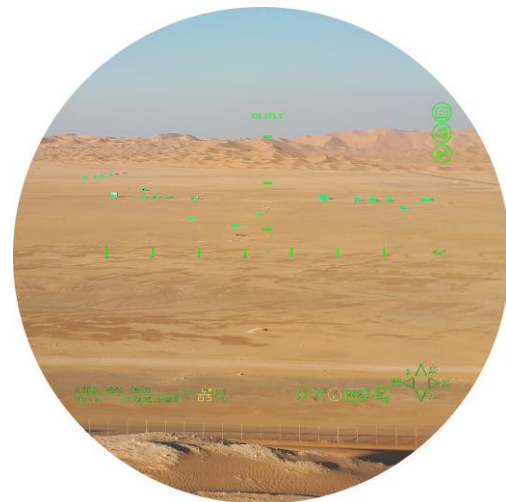
- ✓ Performances largely above current TV offer, **equivalent to 4K TV performance**
- ✓ But with
 - ✓ Better color restitution
 - ✓ Better depth perception
 - ✓ Better image under high contrast

Compared to glass day channel:

Day performances similar to Vector, but with also:

- ✓ An **increased detection** thanks to **IR image fusion**
- ✓ A **capacity of recording** (on extractible SD card) / **transmission** with integrated TV channel

Back-up mode with engraved reticule

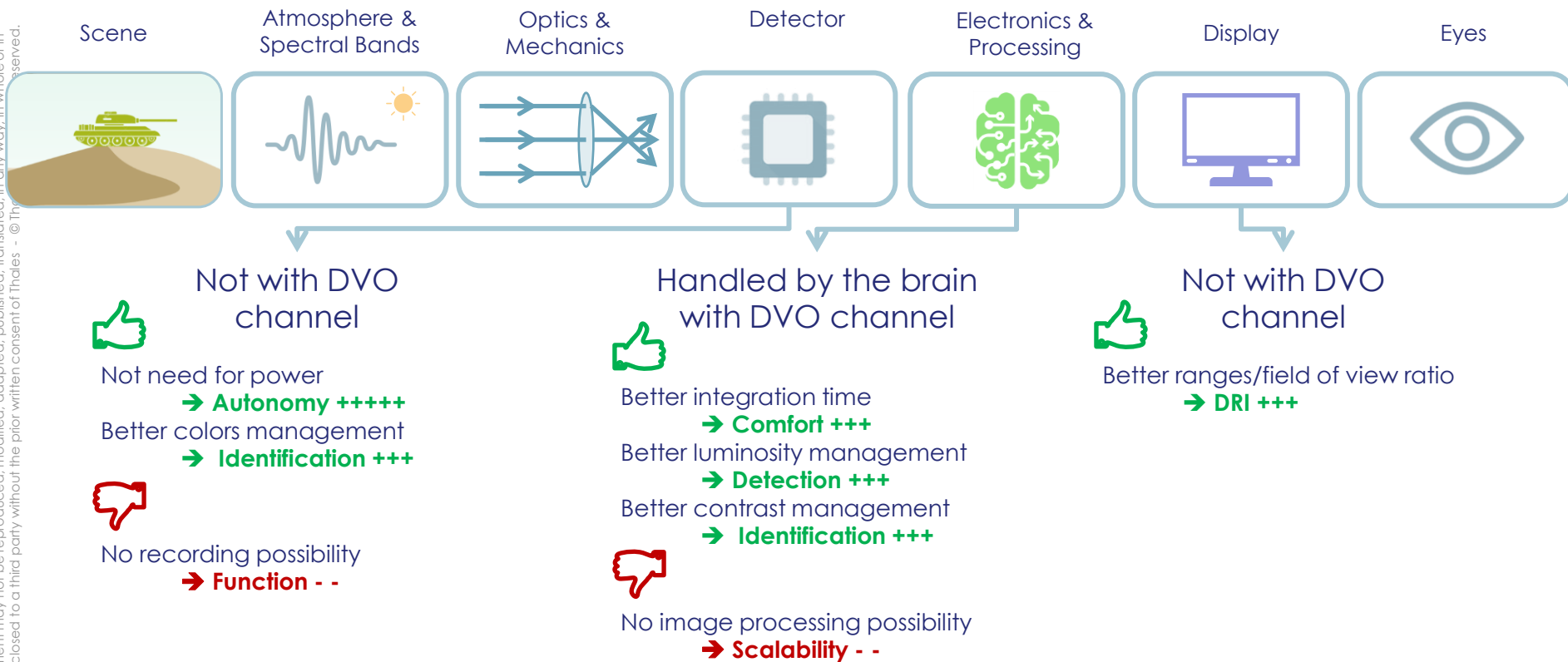


Common with Sophie Ultima

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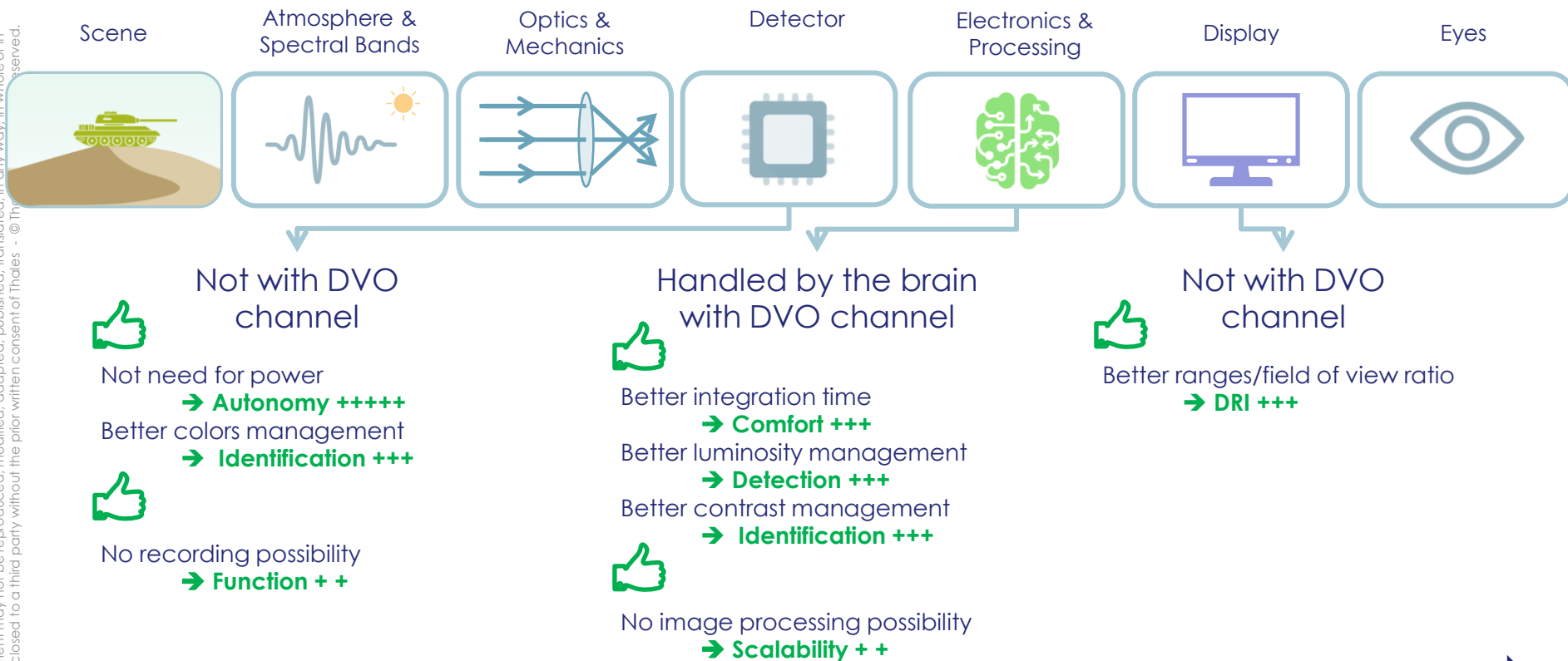
Comparison DVO channel – TV channel (1/2)

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Comparison DVO channel – TV channel (2/2)

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Sophie Ultima provides a DVO channel and a TV channel

Enables Collaborative Combat, Cybersecured and Reliable



- ✓ **Wired & Wireless**
- ✓ **Coordinates, Photo & Video sharing**
- ✓ **STANAG 4609**
- ✓ **State of the Art**



- ✓ **Secured Access**
- ✓ **Authentication of Shared DATA**
- ✓ **User DATA Protection**
- ✓ **Integrity Check**

Sophie Ultima
Night & Day
4-in-1 in 2.5kg

RS232

Thales relies on the **group's Cyber expertise** and also **collaborates with SMEs and French start-ups** to benefit from new innovative technologies

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Sophie Ultima: Enable Collaborative Combat with Digital connectivity



Bluetooth v4.2 (Wireless)

- Data & Image transmission
- Short range & Low detectability

Wireless

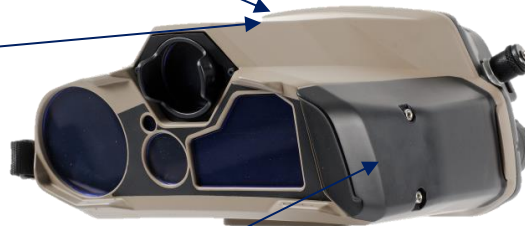
Wi-Fi IEEE 802.11ac (Wireless)

- Video transmission
- Remote control from a computer
- Prepare the mission

μSD Card extractible

- Remove easily your data

Storage



USB2

- Download image & video

Cables

RS232

- Plug an external GPS

Ethernet 1000 Base T

- Command & Control
- STANAG 4609 (video & metadata)
- Remote maintenance

Enable Collaborative Combat with digital connectivity,
STANAG 4609 video and augmented reality
through a HMI designed with users

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Sophie Ultima: Modular, scalable, open - eXtension capacity

NIGHT & DAY



eXtension concept for mission/function package and future capability upgrades

Associated with open, modular architecture

for **easy customization**

X-SWIR

For better imaging through haze, covert Laser pointers, Active Imagery

X-Celest

Celestial north finding for higher target location accuracy, TLE 1

X-LTD

For all-in-one lightweight LTD, seespot function and potentially MIL GPS

X-COM

4G / LTE communication for real time video transmission through civilian infrastructures or military networks

X-ZOOM

A large TV zoom for observation

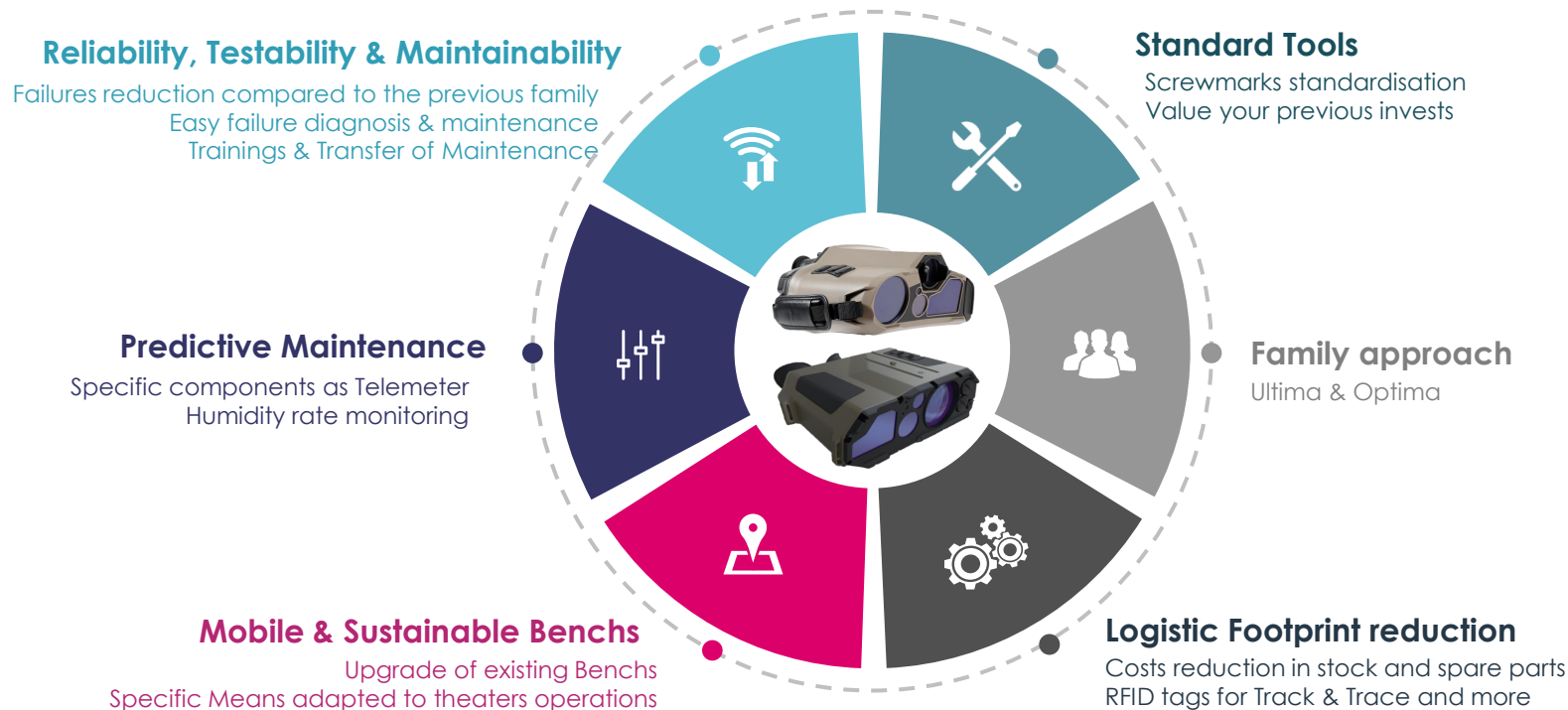
X-SIM

Simulator for training in virtual reality environment

Define your eXtension with us

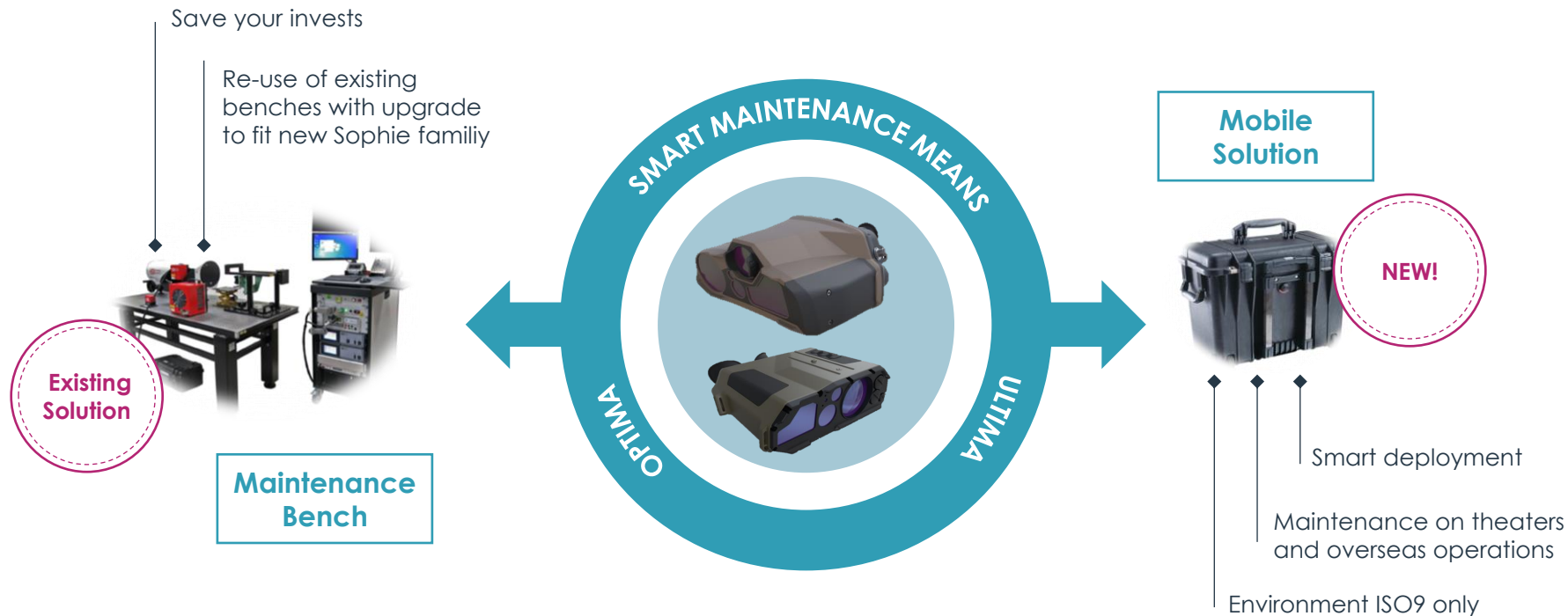


Lower through-life support costs with a new family





Improved and sustainable maintenance capabilities Higher maintenance autonomy



Accessories according to specific requests from customers



Sophie Ultima leaflet

IR Channel (MWIR)

- Optical Zoom 2°-20°
- Sensor resolution: 640x512
- Turn-on time (cool-down): 3mn

Day Channel

- Glass day channel 7x35, field of view Ø6°
- IR image fusion for decamouflage
- Colour TV channel for recording & transmission
- Turn-on time: 0-10s
- Backup mode: stadimetric reticule

See spot

- Laser pointers and designator display

Target location

- Laser Range Finder (eye-safe): 5 or 7.5km (NATO Tank, 10km as an option with 15km visibility)
- Digital Magnetic Compass
- Embedded C/A GPS + external NMEA connection

eXtension concept

- Easy customization through add-on concept for plug & play added features and scalability

NIR Laser Pointer (option)

Advanced features

- HMI optimised for users & configurable
- Image stabilisation, autofocus, super-resolution
- Multimode Image Fusion

- Image & video recording on extractible µSD card
- Safety features

Power management

- Rechargeable COTS batteries
- Battery life >4h
- Integrated battery charger 9-32V

Interfaces

- USB2 (image & video download)
- Bluetooth, Wi-Fi
- Ethernet 1000 Base T: C2, STANAG 4609 video, remote maintenance
- DAGR/PLGR RS232

Physical characteristics

- Weight: 2.5 kg (with battery 4h)
- Size (LxWxH): 245 x 275 x 135 mm (without eye cups)
- Volume: < 4.7 L
- Airborne operations friendly
- Environment: MIL STD 810 & MIL STD 461



SOPHIE AT THE HEART OF COLLABORATIVE COMBAT

Observe, Orient, Decide and Act

