

OMA SUD SpA

*SKYCAR MMP CONFIGURATION
(Multi-Mission Platform)*

-
XMP – SURVEYOR

SKYCAR
XMP CONFIGURATION
Homeland Security

SKYCAR XMP CONFIGURATION MISSION PROFILES

(Configuration Requirements)

SKYCAR XMP configurations are developed to perform activities of Homeland Security in the following areas:

- Surveillance of the Territory (Terrestrial, Coastal & Marine)***
- Urban monitoring***
- Control of illegal activities***
- Logistics to support of land activities***
- Recovery***

SKYCAR XMP CONFIGURATION (1 di 2)

(Configuration general specification)

SKYCAR XMP configuration consists of following systems:

- Acquisition system on board with a goal autotracking
 - Visible Areas Video Acquisition
 - Infrared Video Acquisition
- Mission control system (single operator), constituted as follows:
 - Touch Screen for images display
 - Keyboard.
 - Joystick for Camera Control
- Data-Link: System for acquisition, encoding and transmission of data to a ground station.
- Ground Receiving System for decoding / demodulation and display.
- Tactical Communication HF-Radio: used to enable users to communicate on all frequencies (from 29.7 MHz to 960 MHz) for military, medical, marine, public service.
- Surveillance external light
- Weather Radar or (WSI Datalink – currently can be used only in North America, Mexico and Caribbean and able to provide lightning data too) or Stormscope.

SKYCAR XMP CONFIGURATION (2 di 2)

(Configuration general specification)

The different XMP configurations described, characterized by the same on board acquisition system and ground receiving, differ in the system technical characteristics and data communication

VHF-DDL Configuration (Conf XMP #1)

- On Board Acquisition System and Mission Control
- Ground Receiving System
- VHF Down Data Link (DDL)
- Tactical Communication HF-Radio
- External Surveillance Light
- Weather Radar or WSI Datalink or Stormscope

VHF-UDDL Configuration (Conf XMP #2)

- On Board Acquisition System and Mission Control
 - Ground Receiving System
 - VHF Down Data Link (DDL)
 - Tactical Communication HF-Radio
 - External Surveillance Light
 - Weather Radar or WSI Datalink or Stormscope
- VHF UP Data Link (Transponder - UDL)



CONF XMP #1

SAT-DDL Configuration (Conf XMP #3)

- On Board Acquisition System and Mission Control
- Ground Receiving System
- VHF Down Data Link (DDL)
- External Surveillance Light
- Weather Radar or WSI Datalink or Stormscope
- SATCOM Data Link

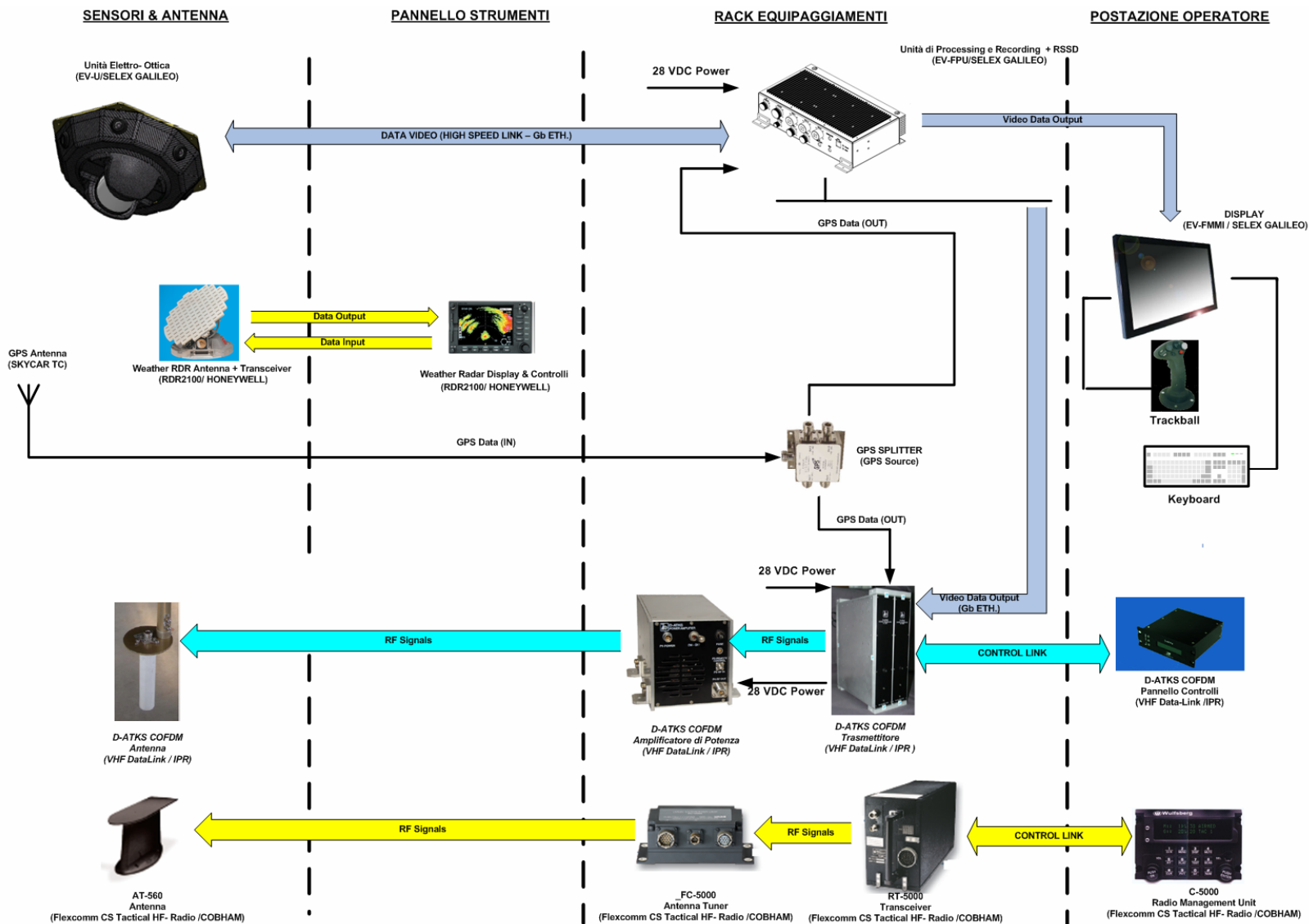
SAT-UDDL Configuration (Conf XMP #4)

- On Board Acquisition System and Mission Control
 - Ground Receiving System :
 - VHF Down Data Link (DDL)
 - External Surveillance Light
 - Weather Radar or WSI Datalink or Stormscope
 - SATCOM Data Link
- VHF UP Data Link (Transponder - UDL)

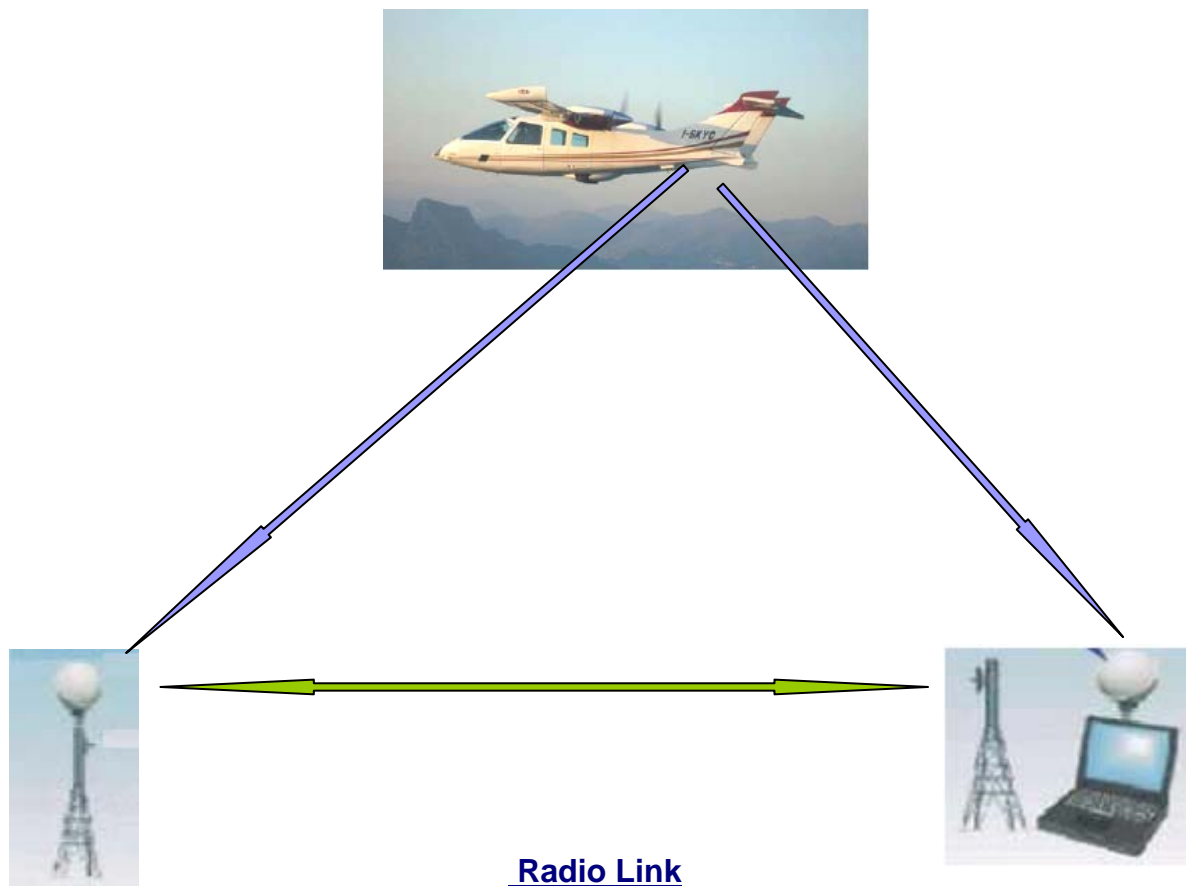


CONF XMP #3

VHF-DDL CONFIGURATION (Conf. XMP #1): Blocks Diagram

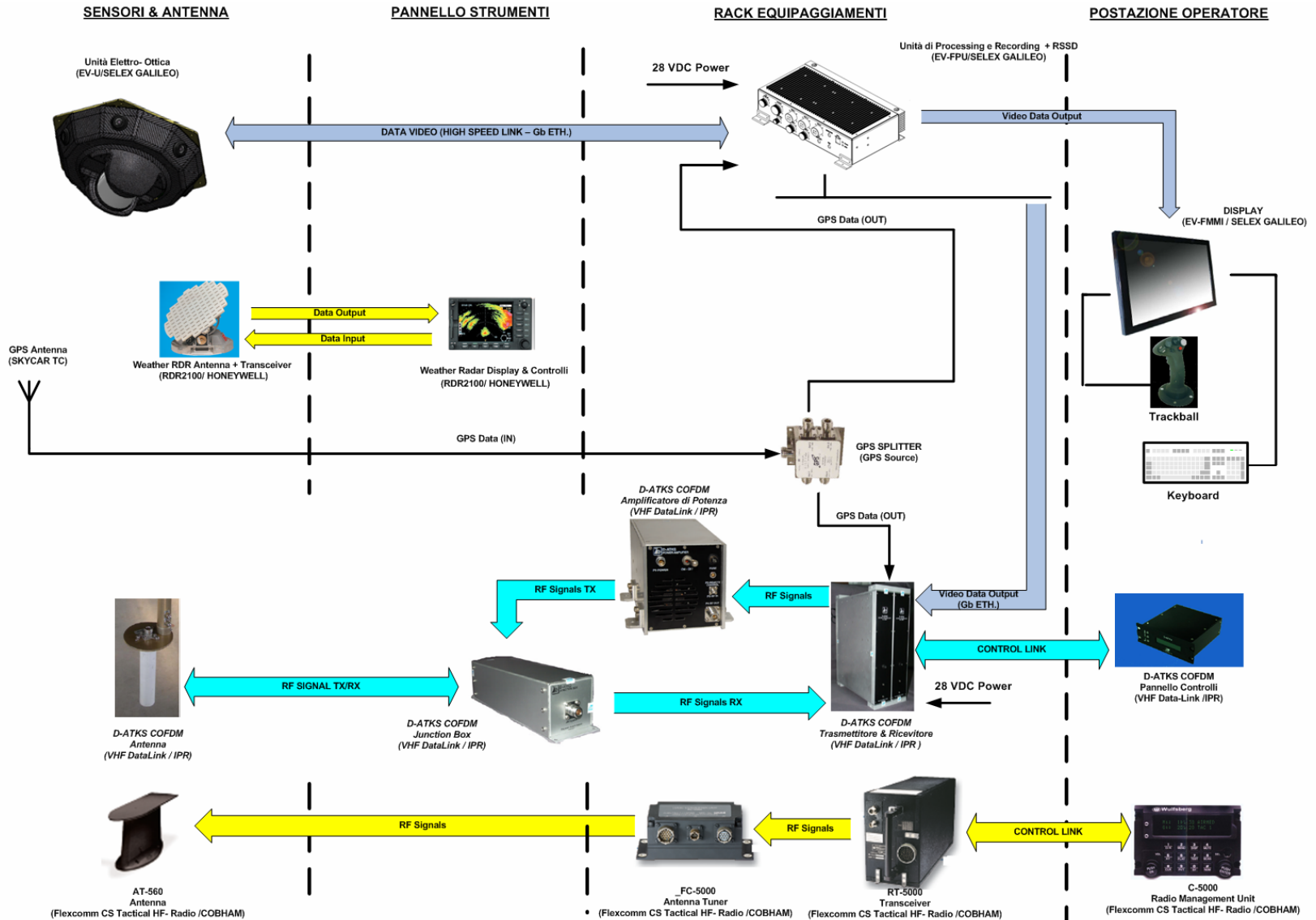


VHF-DDL Configuration (Conf. XMP #1): Mission Scenarios



**Down Link → Data from aircraft to ground station
or radio link**

VHF-UDDL Configuration (Conf. XMP #2): Blocks Diagram



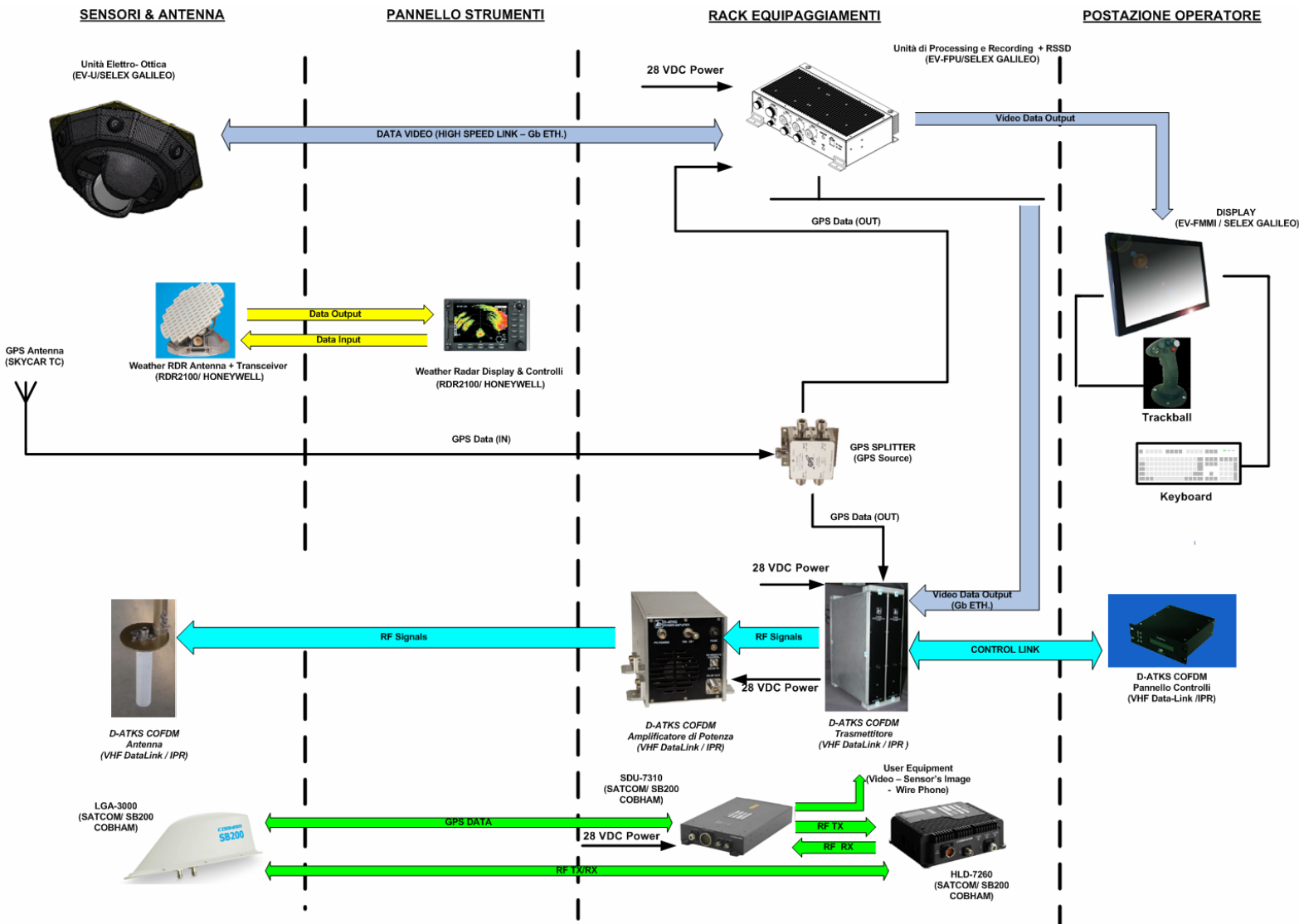
VHF-UDDL Configuration (Conf. XMP #2): Mission Scenarios



Down Link → Down Link → Data from aircraft to ground station or radio link

**UP Link → From Mobile Station to Aircraft
(Coverage Area → 30 Km max)**

SAT-DDL Configuration (Conf. XMP #3): Blocks Diagram



SAT-DDL Configuration (Conf. XMP #3): Mission Scenarios

Geostationary satellite

The Inmarsat Satcom system provides full coverage of the globe except the extreme polar regions



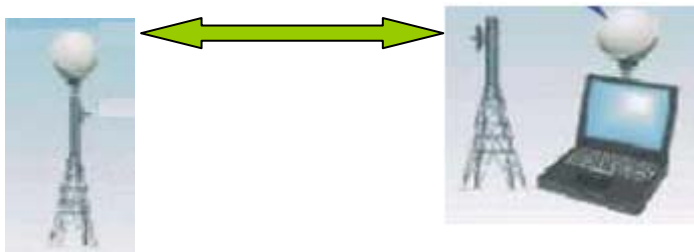
Inmarsat Satcom

The Inmarsat Satcom System allows to support a point-to-point fixed and mobile platforms

Ground Control Station

It is possible to use the ground station to transmit information to mobile units and receive pictures / videos from them via a LAN link / Internet provider

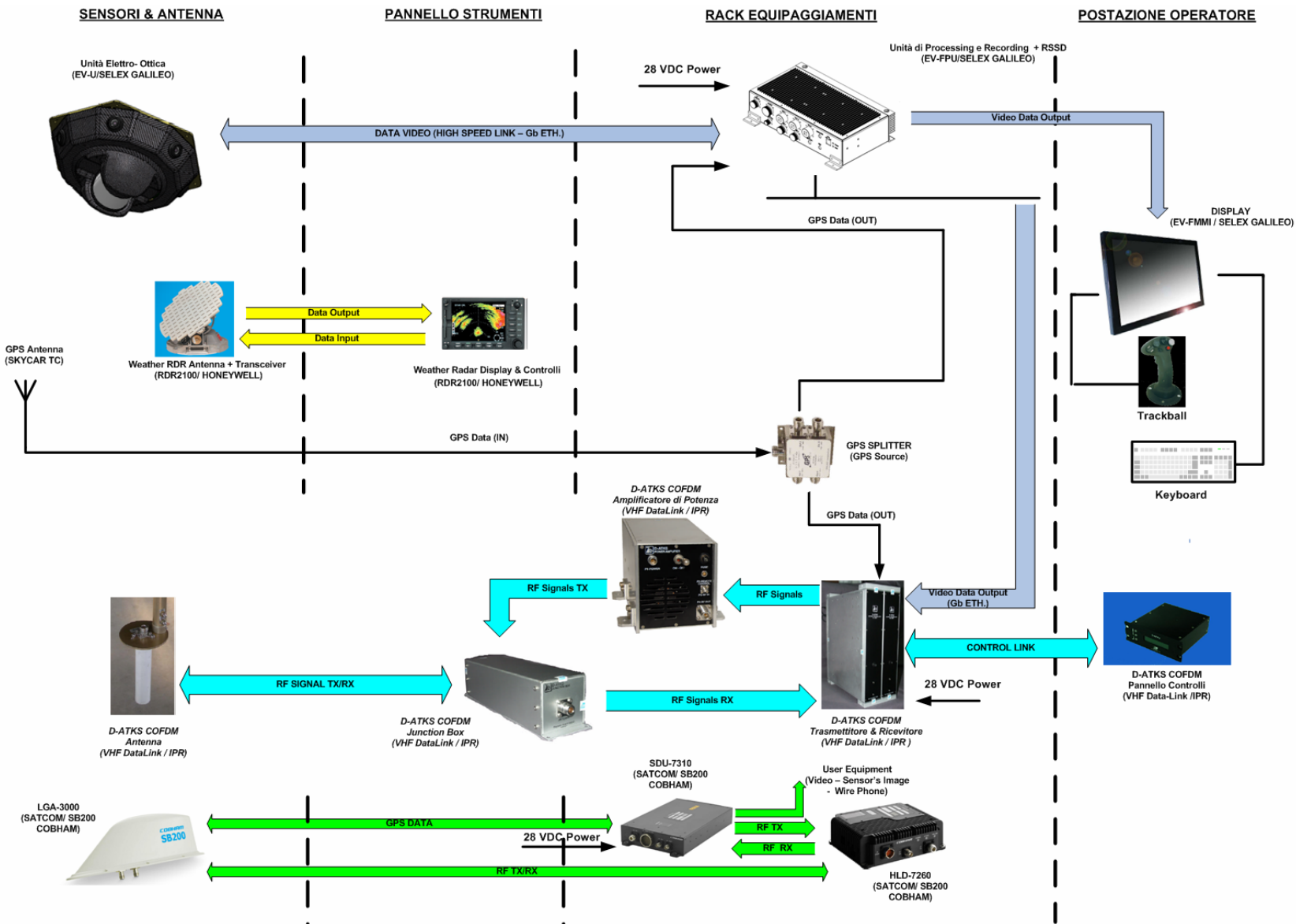
VHF DOWN DATA LINK



WAN/INTERNET LINK



SAT-UDDL Configuration (Conf. XMP #4): Blocks Diagram



SAT-UDL Configuration (Conf. XMP #4): Mission Scenarios

Geostationary satellite

The Inmarsat Satcom system provides full coverage of the globe except the extreme polar regions



Inmarsat Satcom

The Inmarsat Satcom System allows to support a point-to-point fixed and mobile platforms



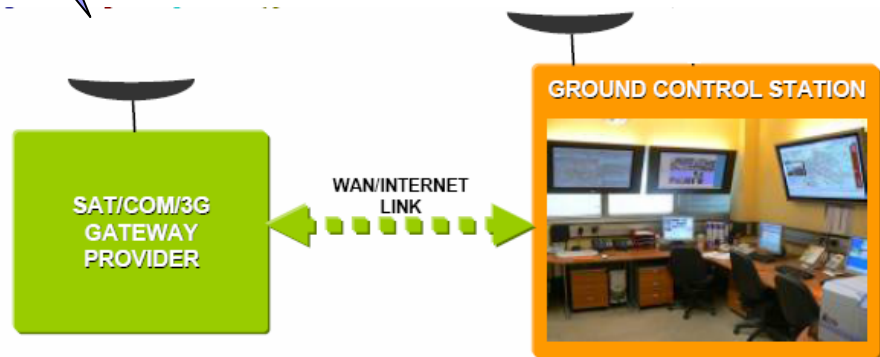
Ground Control Station

It is possible to use the ground station to transmit information to mobile units and receive pictures / videos from them via a LAN link / Internet provider

VHF Down Data Link



VHF UP Data Link



SKYCAR

SURVEYOR CONFIGURATION

SKYCAR SURVEYOR CONFIGURATION MISSION PROFILES

(Configuration Requirements)

SKYCAR SURVEYOR configurations are developed to carry out activities in the following areas:

- Remote sensing (territories mapping, fire control, crops differentiation)
- Environmental analysis (analysis of air and earth pollution, the presence of toxic materials both on the ground to air (such as asbestos), control oil and gas pipelines).
- Areas Mapping (creation of a database of national and regional territories in order to make them converge in the Infrastructure of community territorial data)
- Contrast of environmental crimes (illegal building, identification of illegal dumping, damages to protected areas both terrestrial and marine)

SKYCAR SURVEYOR CONFIGURATION (1 di 2)

(Configuration general specification)

SKYCAR SURVEYOR configuration consists of following systems:

Flexible System "Data Fusion" able to integrate and synchronize different types of sensor (hyper / multispectral, laser scanning, thermal, photogrammetry, spatial, position).

- Video Surveillance System with auto tracker able to:
 - Visualization and Acquisition in the visible range
 - Acquisition and visualization in IR
 - LRF/LP (Laser Rangefinder/Laser Pointer)

 - Mission control system (single operator), constituted as follows:
 - Display for images visualization
 - Keyboard
 - Data Storage Unit

 - Data-Link: system acquisition, encoding and transmitting data to the ground.

 - Ground software Software for data decoding / demodulation and visualization

 - Weather Radar or (WSI Datalink – currently usable only in North America, Mexico and Caribbean and able to provide also lightning data)
- Environmental Sensor / Mapping / Remote Sensing



**Standard
Configuration**

SKYCAR SURVEYOR CONFIGURATION (2 di 2)

(Configuration general specification)

The different described SURVEYOR configurations, characterized by the same “Standard Configuration” (Integration and synchronization system of different sensors and of same system of data ground transmission system), differ in the technical characteristics of installed sensors

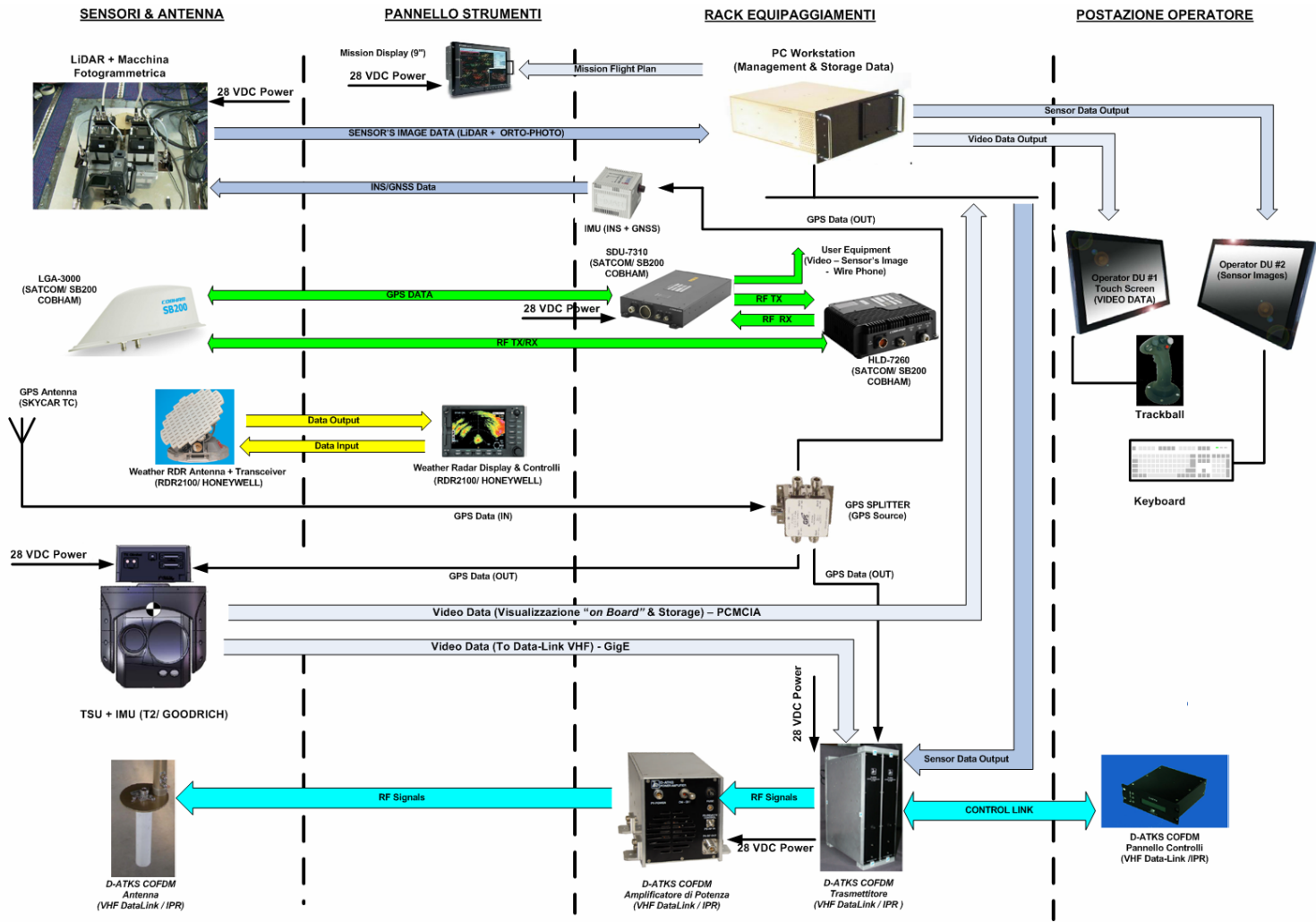
AP-SURV configuration. (Aerial Photogrammetric SURVeillance (Conf SURV. #1)

- Video SurveillancerSystem
 - Mission Control System and “Data fusion”
 - VHF Down Data Link
 - SATCOM Data Link
 - Weather Radar
 - Aero photogrammetric Camera
 - Laser Scanning Sensor
 - Ground Software for data extraction
 - Data Ground Receiving System
- Standard Configuration**
- Ground System**

AH-SURV configuration (Aerial Hyperspectral SURVeillance (Conf SURV. #2)

- Video Surveillance System
 - Mission Control System and “Data fusion”
 - VHF Down Data Link
 - SATCOM Data Link
 - Weather Radar
 - Hyperspectral Sensor
 - Ground Software for data extraction
 - Data Ground Receiving System
- Standard Configuration**
- Ground System**

AP-SURV (Conf. SURV. #1) Configuration – Blocks Diagram



Configurazione AH-SURV (Conf. SURV. #2) – Block Diagram

