
ASDT
CREATING SAFE SPACES

Who are we?

ASDT Systems Europe S.L. is a Spanish company, with more than 10 years of experience, specialised in in-house C-UAS (Counter Unmanned Aerial Systems) technology for airspace security.

Thanks to the **SENDES technology**, based on real-time radio frequency decoding and selective radio frequency neutralisation, ASDT counts with one of the most advanced C-UAS ecosystems worldwide.

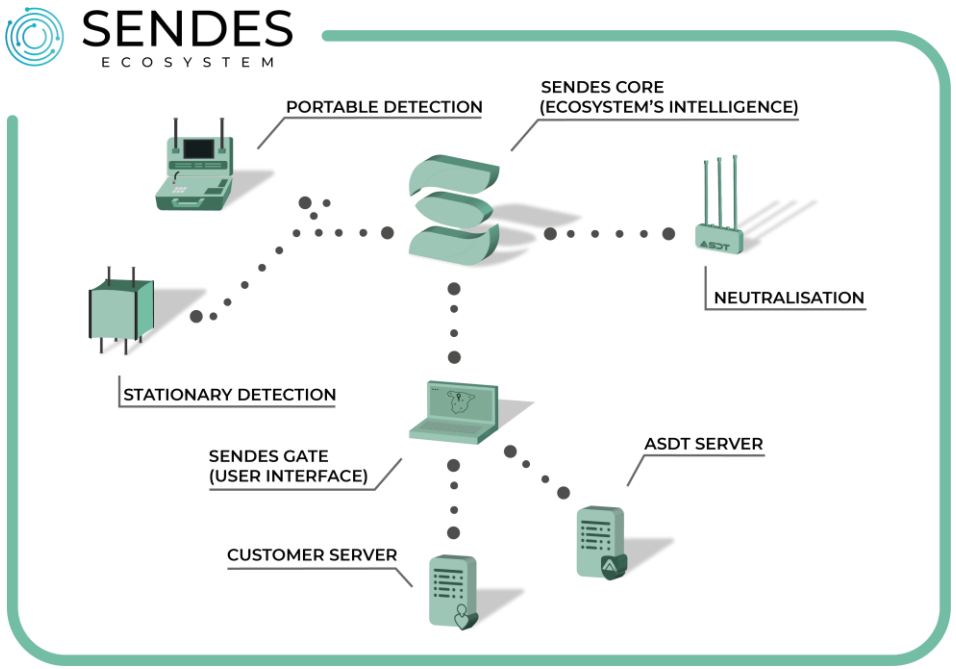
This C-UAS technology has detected, identified & tracked more than 22.000 drone flights during the past year, proving to be indispensable for **airspaces & critical infrastructures protection.**

Some of these C-UAS systems are installed in airports, penitentiary institutions, critical infrastructures, government buildings, urban areas, football stadiums, or even, for temporary use, in events such as official visits, concerts or demonstrations.

SENDES Ecosystem

The SENDES Ecosystem comprises the following elements:

- **SENDES DAU & SENDESCOPE:** Detection systems
- **SENDES SJ:** Neutralisation systems
- **SENDES Gate:** User interface
- **SENDES Core:** Ecosystem's intelligence
- **Servers** in either ASDT's or customer's infrastructure



Because of its design, based on **independent, modular, scalable and integrated elements**, the SENDES Ecosystem can expand both in number and in technological capabilities, allowing its enhancement and evolution in an organic & progressive manner while avoiding becoming obsolescent.

In addition, it features a series of APIs for the integration and interoperability of third-party systems & technologies.

Stationary systems

- **SENDES DAU:** UAS detection, identification & tracking system
- **SENDES SJ:** UAS neutralisation system
- **SENDES DAU SJ:** UAS detection & neutralisation system

Detection

- **Detection modules:** DJI drones and Remote ID technology
  - Optional: Parrot & Yuneec drones, as well as ADS-B & WiFi technologies
- **Gathered data:** Brand & model, SN, drone & pilot & home position, height, etc.

Neutralisation

- **Models:** SJ-90 (90° directional in all four directions) and SJ-360 (omnidirectional)
- **Neutralisation frequencies:** GNSS L1 (1,6 GHz) and ISM bands (2,4 GHz and 5,8 GHz)
  - Optional: One extra channel to choose between 100 MHz and 6 GHz
- **Activation:** Remotely or Automatically

Technology

- **Protection level:** IP66
- **Installation:** Stationary in mast, ceiling, tripod or tower
- **Compatibility:** SENDES Ecosystem and SIGLO-CD network

Portable systems

- **SENDESCOPE:** UAS detection, identification & tracking system
- **SENDESCOPE SJ:** UAS detection & neutralisation system

Detection

- **Detection modules:** DJI drones
- **Gathered data:** Brand & model, SN, drone & pilot & home position, height, etc.

Neutralisation

- **Model:** Omnidirectional (SJ-360)
- **Neutralisation frequencies:** GNSS L1 (1,6 GHz) and ISM bands (2,4 GHz and 5,8 GHz)
  - Optional: Up to two extra channels to choose between 100 MHz and 6 GHz
- **Activation:** Manually, Remotely or Automatically

Technology

- **Protection level:** IP54 (detection) y IP67 (neutralisation)
- **Autonomy:** Up to 2h or unlimited (when powered to the network)
- **Installation:** Portable and on tripod (neutralisation)
- **Compatibility:** SENDES Ecosystem and SIGLO-CD network

Handheld systems

- **SENDES HD03:** Handheld UAS neutralisation system

Neutralisation

- **Version:** 90° directional
- **Neutralisation frequencies:** GNSS L1 (1,6 GHz) and ISM bands (2,4 GHz and 5,8 GHz)
  - Optional: Up to one extra channel to choose between 100 MHz and 6 GHz
- **Activation:** Manually

Technology

- **Protection level:** IP56
- **Autonomy:** 2 hours
- **Installation:** None required
- **Compatibility:** None - it works as standalone system

SENDES Core

The **SENDES Core** is the intelligence of the SENDES Ecosystem, which deals with every real-time process between all detection & neutralisation systems.

Some of the most relevant processes are as follows:

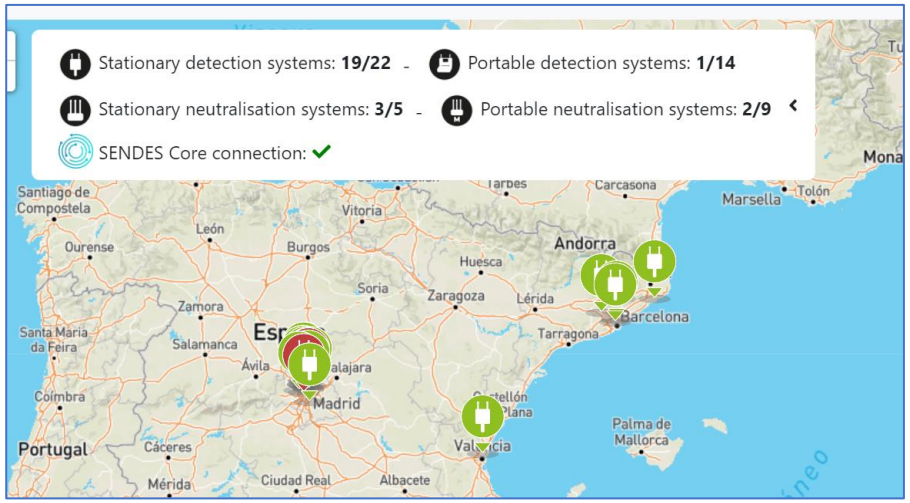
- **Communication decryption** between detection / neutralisation systems and the SENDES Ecosystem.
- **Information management** according to the logic and the parameters established by the user.
- **Certificates & Licenses** storage and management.
- **Detection** systems, safety zones and alarms **management**.
- **Neutralisation** permissions **management**.
- **Artificial intelligence algorithms** development for data science and machine learning.
- **Redundancy** & back-up processes management.

SENDES Gate

The **SENDES Gate** is the management tool and user interface of the SENDES Ecosystem, which portrays **real-time** information of all detected drone flights.

In addition, it features the following relevant functionalities:

- Track **past detected drone flights**
- Generate automatic **reports** for detected drone flights, in PDF, KML and Excel
- **Filter drone flights** by selected parameters
- **Activate neutralisation systems** automatically and/or remotely
- Manage and categorise **drones**
- Manage **groups** and **users**
- Create and manage **safety zones**



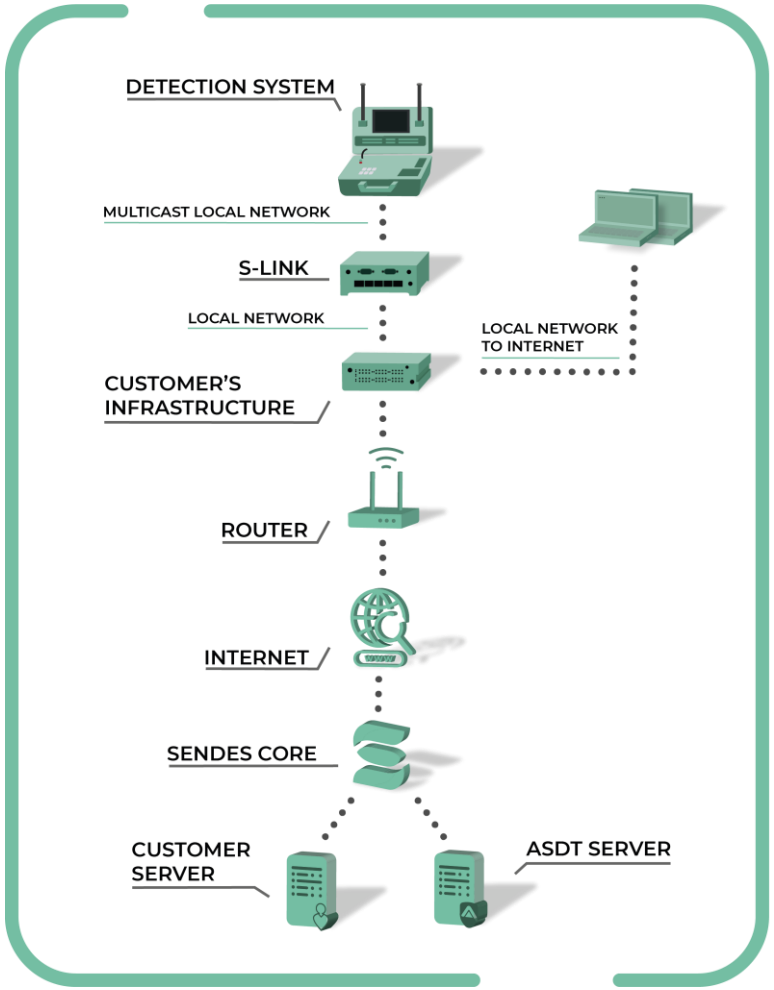
Servers

As soon as the data from the detection systems is transferred to the SENDES Core and it is processed, it must be handled and stored securely.

Depending on the location and the setup of the servers where such data is stored, the customer may choose among the following infrastructure options:

- **ASDT's data processing centre**
  - Shared or dedicated **virtual machine**
  - **Dedicated server** with independent connection and firewall

- **Customer's data processing centre**
  - **Dedicated virtual machine** with connection to ASDT's infrastructure
  - **Local SENDES Ecosystem development & deployment** in a standalone network*



*To meet the most demanding security requirements, the SENDES Ecosystem can be installed in the customer's private network. This setup does not allow any connection with ASDT's servers and therefore it entails certain technical limitations related to updates, maintenance or remote status monitoring.

Third-party systems integration

Thanks to the modular, interoperable and scalable design of the **SENDES Ecosystem**, it is possible to integrate systems & technologies from other manufacturers. This way, partners can develop a comprehensive solution tailored to both technical and security customers requirements.

For this integration, the following **APIs** are available:

- **SENDES Core API**, to provide customers with access to the system intelligence and therefore manage detection & neutralisations systems. In addition, this API can also be configured to send information in real time to other platforms or technologies, such as optronic systems for UAS monitoring.
- **SENDES Gate API**, to integrate visualization and management tools in customers' command and control centres.
- **S-LINK API**, to integrate third-party detection systems to the SENDES Ecosystem.
- **CRA API,** to communicate any type of system event to the alarm coordinating centres.

Some of our customers

mossos d'esquadra

ERTZAINTZA

Policía Foral

Foruzaingoa

SEAT

BASÍLICA DE LA SAGRADA FAMÍLIA

Santander

Aeroports de Catalunya

PROSEGUR

SCP SPORTING PORTUGAL

novum energy

INTA

FIIAPP

MARS INTELLIGENCE

Telefónica Ingeniería de Seguridad

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