Aerobits®

UTM/U-Space

integrated systems

Who we are?

Aerobits®

AEROBITS is a Polish technology company that has been operating on a global market since 2017. We deal with miniaturization of avionic systems, such as aviation transponders.

All solutions are based on a patented technology that allows to process radio signals on very small surfaces. This concept is at the core of our OEM modules (low-level assembly function modules), which are the basic building block of miniaturized avionics.

DEVELOPING SAFETY IN THE AIRSPACE

Unmanned Aircraft Systems (UAS), commonly known as drones, open up new opportunities in the civil, commercial and military sectors. However, this impressive technology comes with certain risks.

UAS entered the orderly airspace that until now was only used by manned air traffic. Legal regulation of the use of the airspace turns out to be insufficient for many reasons and forces the search for system concepts. A hint here are aviation solutions and procedures that have evolved over the years along with the growing volume of traffic.

ATM (Air Traffic Management), having various types of radars, is able to locate manned aircraft and guarantee safe separation between them. Unmanned systems are planned to implement a similar solution called UTM (Unmanned Traffic Management). UTM will be nothing else but a functional extension of ATM. It is about the integration of drones into the airspace, which is seen as one of the greatest challenges of modern aviation. The main difficulty is to ensure safe separation through anti-collision systems for all airspace users, in line with the DAA (Detect and Avoid) concept. Achieving this goal is possible by maintaining system compatibility between manned and unmanned aviation.

This can be obtained through implementation of communication systems like: ADS-B, FLARM, UAT as well as LTE, Wi-Fi and Bluetooth. Data from these modules can be directly received by ANSP's and USSP's and correlated with ATM data for safeguarding the airspace.

Therefore, it is necessary to miniaturize the avionics, which will allow the installation of appropriate systems on small drones. The intensification of global activities towards the inclusion of UAS into the airspace shows the idea of fusing many information technologies. In addition to micro-avionic systems, UAS are now mandated by the FAA and EASA to be equipped with Remote ID broadcast modules based on Wi-Fi, Bluetooth and LTE. It will allow easier identification and tracking by local airspace managers. AEROBITS, is the only worldwide provider which offers SWaP UAS trackers that include all of the commonly used technologies (ADS-B, FLARM, UAT as well as LTE, Wi-Fi and Bluetooth). The trkMe system revolutionizes UAS safety systems, known today..

SUBSYSTEMS FOR UAS INTEGRATION INTO THE AIRSPACE

GLOBAL REACH
Our technologies are currently used in over 54 countries by over 550 customers.

ATM/UTM U-SPACE CONCEPT
We create solutions for the broadly understood management and monitoring of airspace for UTM/U-Space users.

GROUND INFRASTRUCTURE
Our ground infrastructure is becoming frequent requirement in the European Union and beyond. Technologies we use in our solutions include: ADS-B, UAT, FLARM, and RiD.

LEADER IN THE WORLD
Due to very early ideas of miniaturization of avionics, we became a leader in the world.

OUR HISTORY

The beginnings of AEROBITS date back to 2015, when a subminiature ADS-B implementation (Automatic Dependant Surveillance-Broadcast) was created at the West Pomeranian University of Technology in Szczecin in conjunction with the multi-GNSS (Global Navigation Satellite Systems) function. The OEM module with an area of only <4cm^2 and weighing 1.5g, to this day is the smallest ADS-B / GNSS fusion in the world.

A year later, much faster systems with FPGA support were created and presented for the first time publicly at the ILA Berlin Air Show 2016. Our solutions were interesting for various institutions and organizations which are responsible for creating the laws for the UAS in the European Union. An additional impulse for further actions was the prestigious award in the European Satellite Navigation Competition 2016. It was just the beginning - during 2019 we received a grant from NCBiR (project value 2,5 mln PLN), in 2020 we had our first deployments of the UAS monitoring ground infrastructure in Poland and Germany and during 2021 we have conducted with LMT, Latvia's Telekom, nationwide demonstrational PoC for UAS monitoring system. Together with our partner Droniq GmbH, a JV by DFS & Deutsche Telekom, we build on a common standard for the UTM/U-Space in Europe.

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TECHNOLOGIES USED IN AEROBITS SOLUTIONS

ADS-B (AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST)

ADS-B is an aviation surveillance technology (operating on the 1090MHz band) and form of electronic conspicuity in which an aircraft (or other airborne vehicles such as drones approved to fit "ADS-B Out") determines its position via satellite navigation or other sensors and periodically broadcasts its position and other related data, enabling it to be tracked. The information can be received by air traffic control ground-based or satellite-based receivers as a replacement for secondary surveillance radar (SSR). Unlike SSR, ADS-B does not require an interrogation signal from the ground or from other aircraft to activate its transmissions. ADS-B can also receive point-to-point by other nearby equipped "ADS-B In" aircraft (or drones) to provide traffic situational awareness and support self-separation ADS-B is "automatic" in that it requires no pilot or external input to trigger its transmissions. It is "dependent" in that it depends on data from the aircraft's navigation system to provide the transmitted data.

UAT (UNIVERSAL ACCESS TRANSCEIVER)

To alleviate congestion on the 1090MHz band, the FAA created another option for ADS-B solutions that run on a dedicated 978MHz band –Universal Access Transceiver. It is a data link intended to serve the majority of the general aviation community. The data link is approved in the Federal Aviation Administration's "final rule" for use in all airspace except class A (above 18,000ft.MSL). The ADS-B "Out" broadcast on 978MHz carries all the same tracking data sent by Extended Squitter (ES) transponders on 1090MHz. However, on the ADS-B "In" side, the additional bandwidth afforded by the 978MHz spectrum allows for a much more extensive list of data uplink services.

FLARM, SRD-860, ADS-L

FLARM is an electronic system used to selectively alert pilots to potential collisions between aircraft. The installation of all physical FLARM devices is approved as a "Standard Change" and the PowerFLARM Core specifically as a "Minor Change" by the European Union Aviation Safety Agency. FLARM obtains its position and altitude readings from an internal GPS and then broadcasts this (using ISM band) together with forecast data about the future 3D flight track. At the same time, its receiver listens for other FLARM devices within range and processes the information received. FLARM plays an important role in the safe airspace sharing between manned and unmanned air traffic. SRD-860 is "FLARM-like" standard with ADS-L protocol introduced by the EASA. On April 21st 2021, the Commission Implementing Regulation (EU) 2021/666 was published, amending SERA.6005 by the sub-article (c): Manned aircraft operating in airspace designated by the competent authority as a U-space airspace, and not provided with an air traffic control service by the ANSP, shall continuously make themselves electronically conspicuous to the U-space service providers.

LOW-POWER INTERROGATORS

Small-sized interrogators with reduced output power, can ensure the safety of UAS operations in the G airspace (TMZ). The interrogator sends pulsed sequences on the 1030MHz and listens for replies at 1090MHz. This system is a simplified form of TCAS and allows to determine the distance and altitude of aircraft equipped with Mode S transponder. Reduced transmitter power, allows interrogation of objects at a distance of about 10km.

REMOTE ID

Remote ID is the ability of a drone in flight to provide identification and location information that can be received by other parties through a broadcast signal. From 1 January 2024, all drones operating in the specific category and all drones with class marks operating in the open category will be required to operate with an active and up-to-date remote identification system. All citizens may detect the remote identification information through a dedicated smartphone app. However, only the enforcement authorities will be able to interrogate the database and associate the UAS operator registration number with a name. Remote ID can use one of two methods of communication: broadcast or network. The first one based on Wi-Fi or Bluetooth technology to broadcast messages from the drone. Network Remote ID uses cellular networks for transmitting data. Network Remote ID is mandatory for the upcoming EU airspaces called U-space. The main purpose of Network Remote ID is to establish a reliable and secure connection between drones and operators in the U-space. Network Remote ID is fundamental to advanced operations such as BVLOS flights, drone deliveries, and integrating manned and unmanned traffic in the same airspace.

LOW-POWER MODE S TRANSPONDER

The transponder replies (on the 1090MHz) to pulsed sequences (on the 1030MHz) from an interrogating Secondary Surveillance Radar (SSR). The reply format is usually referred to as a "code" from a transponder, which is used to determine detailed information from a suitably equipped aircraft. Mode S has been deployed because the historical SSR systems have reached the limit of their operational capability. This takes the form of exceeded maximum number of targets, RF pollution, lost targets, identity errors and Mode A code shortage. Mode S is therefore an essential development for both SSR and the new ATM processes which will be essential in airspace subject to high levels of traffic density or absence of ATC radar coverage. The growing presence of UAS and the need to integrate them into the airspace has initiated work on the miniaturization of transponders. The high number of radio communication systems, installed in a small area on UAS, and the lack of sufficient antenna separation, forces to reduce the output power of transponders. This approach solves many problems but still provides "visibility" of several tens of kilometers.

MULTI-GNSS

A Multi-GNSS (Global Navigation Satellite System) receiver is a system able to calculate position, velocity and time by receiving the satellite signals broadcasted from multiple navigation satellite systems. Previously, GPS, operated by the United States, was the representative positioning system, but other satellite navigation systems such as GLONASS of Russia, Galileo of Europe, BeiDou (Compass) of China are now in operation. Moreover, SBAS (Satellite Based Augmentation System) a network of the geostationary satellite systems (WAAS of United States, EGNOS of Europe, MSAS of Japan) is in operation, improving positioning accuracy

ISO CERTIFIED
-QUALITY FIRST

The implementation of ISO certifications at AEROBITS has improved operational efficiency, enhanced workplace safety, ensured quality standards, and promoted environmental sustainability within the company.

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ISO 45001:2018
—

The ISO 45001:2018 certification is responsible for ensuring effective management of occupational health and safety risks within organizations.

ISO 45001:2018

ISO 14001:2015
—

The ISO 14001:2015 certification is responsible for ensuring that an organization effectively implements an environmental management system to manage its environmental responsibilities and commitments.

ISO 14001:2015

CE Certificate
—

Indicates that the product has been examined by the manufacturer and found to meet EU requirements for health, safety, and environmental protection.

CE

FCC Certificate
—

Confirms that the radio emissions from the device do not exceed the limits established by the FCC, which aims to ensure that these devices will not interfere with other communications and operate in accordance with federal health and safety standards.

FCC

ISO 9001:2015
—

The ISO 9001:2015 certification is responsible for ensuring that organizations establish and maintain effective Quality Management Systems (QMS) to consistently meet customer requirements and enhance overall performance.

ISO 9001:2015

STANDARD

ETSI standards
—

These standards promote interoperability, reliability, and common technological standards, which are crucial for the effective operation and development of both the European and global markets.

ETSI

Aerobits® **UTM/U-Space** integrated systems
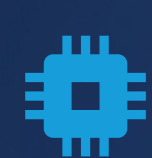
OEM
– LOW LEVEL MODULES

AEROBITS provides low-level ADS-B devices
Sub-miniature ADS-B and FLARM modules
for direct integration on printed circuit boards.
Unique devices that require access to air
traffic information in their structure. We offer
multiple technological solutions that differ in
size and data processing capabilities.
Depending on the target application, we offer
single and multi-RF solutions based on
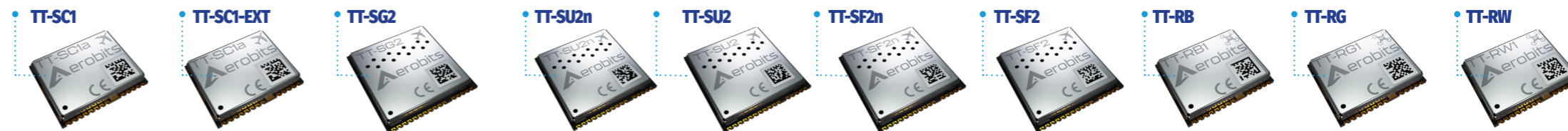ADS-B, FLARM and UAT technology, some
with integrated GNSS receivers. The smallest
solutions are the size of the one cent coin. An
important feature of the modules is the very
high ADS-B input sensitivity of the receivers,
ensuring compliance with ETSI avionic
standards on an extremely small surface.
Regardless of the type of module, we offer
the customization of the firmware, which
provides a number of communication
interfaces and on-demand software solutions.

Evaluation board
available for each
version of OEM

OEM category	ADS-B only		Multi RF systems					RemoteID		
Product name	**TT-SC1**	**TT-SC1-EXT**	**TT-SG2**	**TT-SU2n**	**TT-SU2**	**TT-SF2n**	**TT-SF2**	**TT-RB**	**TT-RG**	**TT-RW**
ADS-B (IN)	✓	✓	✓	✓	✓	✓	✓			
MODE A/C/S (IN)		✓	✓	✓	✓	✓	✓			
Precise MODE A/C/S Timestamp		✓	✓	✓	✓	✓	✓			
FLARM (IN/OUT)						✓	✓			
UAT(IN)				✓	✓					
Remote ID – Bluetooth (IN/OUT)								✓ (BT4 / BT5)	✓ (BT4 / BT5)	✓ (BT4 / BT5)
Remote ID – Wi-Fi (IN/OUT)										✓ (Beacon / NaN)
Built-in GNSS ***		✓		✓		Needs external GNSS source for FLARM subsystem	✓	Needs external GNSS source	✓	✓
RX sensitivity [dBm]	-84 (ADS-B)	-84 (ADS-B)	-85 (ADS-B) -167 (GNSS)	-85 (ADS-B) -95 (UAT)	-85 (ADS-B) -95 (UAT) -167 (GNSS)	-85 (ADS-B) -103 (FLARM)	-85 (ADS-B) -103 (FLARM) -167 (GNSS)	-97 (BT)	-97 (BT) -167 (GNSS)	-97 (BT) -98 (WLAN) -167 (GNSS)
Transmitter power [dBm]						+14 (FLARM)	+14 (FLARM)	+20 (BT)	+20 (BT)	+20 (BT) +20 (Wi-Fi)
UART interface [baud]	✓ (115k)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (57k/115k/921k)	✓ (57k/115k/921k)	✓ (57k/115k/921k)
USB interface	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)
Supported protocols set	Basic*	Extended**	Extended**	Extended**	Extended**	Extended**	Extended**	Basic*	Basic*	Basic*
Power supply [V]	3,3	3,3	3,3	3,3	3,3	3,3	3,3	3,3	3,3	3,3
Current consumption [mA]	70	70	100	115	130	115	130	55	70	70
Weight [g]	1,2	1,2	1,6	1,7	1,8	1,7	1,8	1,2	1,2	1,2
Dimensions [mm]	13x16(a) 13x20(b)	13x16(a) 13x20(b)	19x18.5	19x18.5	19x18.5	19x18.5	19x18.5	13x16	13x16	13x16

Row groups (left side labels): **RF Systems**, **Communication Interfaces**, **Other**

SUB-MINIATURE ADS-B/FLARM/UAT MODULES FOR DIRECT INTEGRATION ON PCB

* Basic set	CSV / MAVLINK
** Extended set (Some RF reception systems do not Support certain protocols)"	CSV / MAVLINK / RAW / JSON / ASTERIX / GDL90 / BEAST
*** BUILD-IN GNSS spec.	4 Concurrent constellations; 72-channel engine; GPS/QZSS L1 C/A; GLONASS L10F; BeiDou B1I; Galileo E1B/C1SBAS L1 C/A; WAAS; EGNOS; MSAS; GAGAN

Aerobits®   **UTM/U-Space** integrated systems

PLUG&PLAY

ADS-B (IN, OUT)

In this product group, we offer ADS-B receivers and ADS-B / FLARM transceivers. In sets, you will find all the necessary wiring and/or parameterization tools such as communication converters. Solutions start with the most compact and providing basic functionality, through middle-end solutions up to the top multisystem solutions.

The drone user at every level will find something for themselves in this products category. Short and clear instructions will help you how to quickly integrate into your existing drone system.

UAS-READY EQUIPMENT TO MEET THE DAA (DETECT AND AVOID) PHILOSOPHY

Product category	ADS-B IN	ADS-B / FLARM - IN / OUT			MODE-S IN/OUT	
Product name	**Aero Pro**	**TR-3A**	**TR-3F**	**TR-3U**	**TR-10**	**TR-10i**
RF type	receiver	transceiver	transceiver	transceiver	transponder	interrogator
ADS-B (IN)	✓	✓	✓	✓		✓
ADS-B (OUT)		✓	✓	✓	✓	
MODE-S downlink (IN)						✓
MODE-S downlink (OUT)					✓	
MODE-S uplink (IN)					✓	
MODE-S uplink (OUT)						✓
MODE A/C/S (IN)	✓	✓	✓	✓		✓
Precise MODE A/C/S Timestamp		✓	✓	✓		✓
FLARM (IN/OUT)				✓		
UAT (IN)				✓		
Built-in GNSS ***		✓	✓	✓		
Receiver sensitivity [dBm]	-84 (ADS-B)	-85 (ADS-B) -167 (GNSS)	-85 (ADS-B) -103 (FLARM) -167 (GNSS)	-85 (ADS-B) -95 (UAT) -167 (GNSS)	-72 (MODE-S UL) -167	-87 (MODE-S DL) -167
Transmitter power [dBm]		+35 (ADS-B)	+35 (ADS-B) +14 (FLARM)	+35 (ADS-B)	+40 (MODE-S)	+40 (MODE-S)
UART interface [baud]	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)
USB interface	✓ (2.0)			✓ (2.0)	✓ (2.0)	✓ (2.0)
LTE						
Built-in pressure sensor		✓	✓	✓	✓	✓
Supported protocols set	Extended**	Extended**	Extended**	Extended**	Extended**	Extended**
Power supply [V]	5	5	5	5	10-36	10-36
Current consumption [mA]	70	120	130	130	200	200
Weight [g]	5	17	17	17	60	60
Dimensions [mm]	31.5 × 15.5 × 7.3	25x31x9	25x31x9	25x31x9	53.5 × 43.5 × 18	53.5 × 43.5 × 18

Row groups: RF Systems, Communication Interfaces, Other

PLUG&PLAY
TRACKERS

This group presents UTM/U-Space dedicated solutions based on technology like LTE, BLE.

U-space is a set of new services relying on a high level of digitalization and automation of functions and specific procedures designed to support safe, efficient and secure access to airspace for large numbers of drones (UAS). As the number of flights increases, U-Space services will provide coordination and oversight to make safe operations a reality. Airspace will be dynamically managed to improve through shared operational data. Our products are designed to support this extremely important process.

UAS-READY EQUIPMENT TO MEET THE DAA (DETECT AND AVOID) PHILOSOPHY

| Product category		RemoteID tracker			Multi system tracker			
Product name		**idME**	**idME+**	**idME PRO**	**HOD**	**trkME**	**trkME+**	**trkME PRO**
RF type		transceiver	transceiver	transceiver	transceiver	transceiver	transceiver	transceiver
ADS-B (IN)	RF Systems				✓		✓	✓
ADS-B (OUT)								✓
MODE A/C/S (IN)					✓		✓	✓
Precise MODE A/C/S Timestamp					✓		✓	✓
FLARM (IN/OUT)					✓		✓	✓
RemoteId – Bluetooth (IN/OUT)		✓ (BT4 / BT5)	✓ (BT4 / BT5)	✓ (BT4 / BT5)		✓	✓	✓
RemoteId – Wi-Fi (IN/OUT)				✓ (Beacon / NaN)		✓	✓	✓
Built-in GNSS ***		Needs external GNSS source	✓	✓	✓	✓	✓	✓
Receiver sensitivity [dBm]		-97 (BT)	-97 (BT) -167 (GNSS)	-97 (BT) -98 (Wi-Fi) -167 (GNSS)	-84 (ADS-B) -95 (FLARM) -167 (GNSS)	-167 (GNSS) -97 (BT) -98 (Wi-Fi)	-84 (ADS-B) -103 (FLARM) -167 (GNSS) -97 (BT) -98 (Wi-Fi)	-84 (ADS-B) -103 (FLARM) -167 (GNSS) -97 (BT) -98 (Wi-Fi)
Transmitter power [dBm]		+20 (BT)	+20 (BT)	+20 (BT) +20 (Wi-Fi)	+14 (FLARM)	+20 (BT) +20 (Wi-Fi)	+20 (BT) +20 (Wi-Fi) +14 (FLARM)	+35 (ADS-B) +20 (BT) +20 (Wi-Fi) +14 (FLARM)
UART interface [baud]	Communication Interfaces	✓ (57k/115k/921k)	✓ (57k/115k/921k)	✓ (57k/115k/921k)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)	✓ (115k / 921k / 3M)
USB interface		✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)	✓ (2.0)
LTE					✓ Cat. 1	✓ Cat. 1	✓ Cat. 1	✓ Cat. 1
Built-in pressure sensor	Other		✓	✓	✓	✓	✓	✓
Supported protocols set		Basic*	Basic*	Basic*	Extended**	Extended**	Extended**	Extended**
Power supply [V]		5	5	5	5	5	5	5
Current consumption [mA]		100	130	130	400	320	400	450
Weight [g]		4	5	5	40	50	50	50
Dimensions [mm]		31.5 × 15.5 × 7.3	31.5 × 15.5 × 7.3	31.5 × 15.5 × 7.3	58×38×9.5	65x46x12	65x46x12	65x46x12

GROUND INFRASTRUCTUE
GS2L

This product is the result of AEROBITS' years of experience in the air traffic surveillance market. It is a modular system closed in a 270x270x100mm box. The GS is equipped with four mini PCI slots that can be flexibly equipped with ADS-B/UAT, ADS-B/FLARM or RemoteID modules. The ground station can operate with omnidirectional or directional antennas. The system has Ethernet communications as standard but can be equipped with optional LTE connectivity (Cat. 4). An internal computer running the Linux operating system provides unlimited possibilities for system configuration. Powering the station is possible in two ways: DC (12-36V) or via PoE (30W).

UAS-READY EQUIPMENT TO MEET THE DAA [DETECT AND AVOID] PHILOSOPHY

	RF systems through MPCI card	ADS-B FLARM GNSS UAT RemoteID
Data source	No. of RF MPCI slots	4
	Antennas	omni-directional or sector
	Timestamp (MLAT data source)	✓
	GNSS	Internal antenna
	Other measured Parameters	Pressure Temperature Humidity
	Health monitoring	✓
Communication	Ethernet	1000 Mbps
	GSM support	LTE Cat. 4
	Protocol	MQTT
	MQTT features	WS / TLS
	VPN support	✓
	Remote maintenance	✓
Other	Mobile kit extension	✓
	Software extensible by customer	✓
	Operating system	Linux ARM
	FOTA	✓
General	DC power supply	12-36V
	PoE power supply	✓
	Power consumption	5-10W
	Weight	2kg
	Dimensions	27x31x10 cm
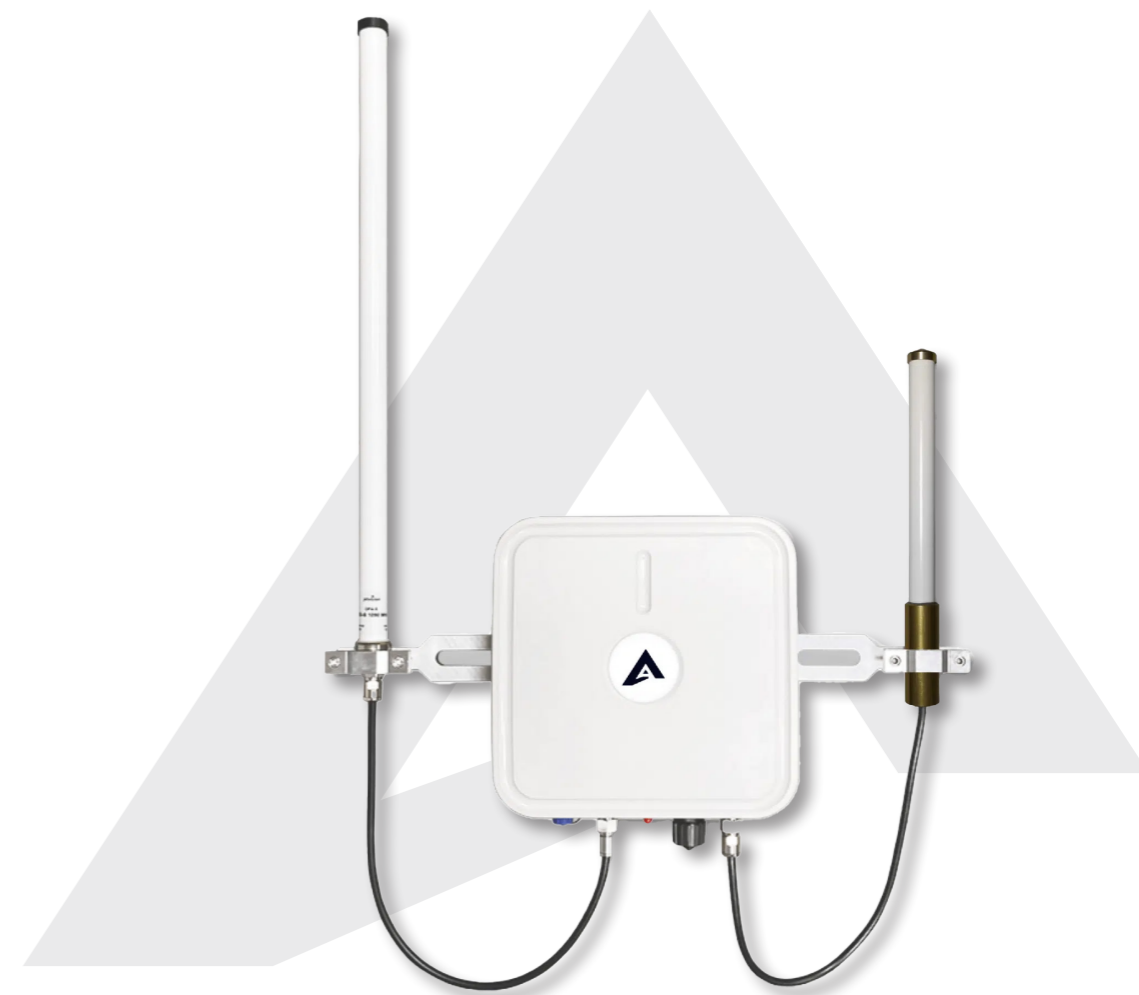
Available antennas

Name	Band	Beamwidth [deg]	Gain [dBi]
GS2L-ANT-AUF-OM	ADS-B/FLARM/UAT	360	5
GS2L-ANT-AUF-SEC	ADS-B/FLARM/UAT	120	13
GS2L-ANT-RID-OM	RemoteID	360	8
GS2L-ANT-RID-SEC	RemoteID	120	15

Typical use cases

Area type	Example setups	Note
Urban areas	1 x ADS-B + FLARM omni-directional antenna 1 x RID omni-directional antenna Supply over PoE Communication over PoE	High density of receivers
Sub-urban areas	1 x ADS-B + FLARM omni-directional antenna 3 x RID sector antennas Supply over DC Communication over LTE	Medium density of receivers
Rural areas	3 x ADS-B + FLARM sector antennas 1 x RID omni-directional antenna Supply over DC Communication over LTE	Low density of receivers Tailored to track ADS-B Equipped professional drones
Mobile receiver	1 x ADS-B + FLARM omni-directional antenna 1 x RID omni-directional antenna Supply over DC Mobile power supply kit Mobile box kit Communication over Ethernet	All in one mobile solution tailored to quickly setup air-traffic monitoring in remote place

Aerobits®

GROUND INFRASTRUCTUE
DRS

The outstanding miniaturization of avionics offered by AEROBITS, has allowed the design of a ultra-small ground station, installed directly at the antenna. DRS is available in various configurations of ADS-B, ADS-B/UAT, ADS-B/FLARM and RemoteID. The system is equipped with highly selective filters and allows correct operation in harsh RF environments, while offering high input sensitivity. Wired (up to 100m) Ethernet communication with PoE power supply allows the installation and startup process to be simplified to a minimum.

	RF systems	ADS-B FLARM GNSS UAT RemoteID
Data source	Antenna	Omni-directional
	Timestamp (MLAT data source)	✓
	GNSS	Internal antenna
	Self monitoring parameters	Humidity Temperature
Communication	Ethernet	100 Mbps
	Protocol	UART over TCP / UDP
	TCP / UDP client	✓
	TCP / UDP server	✓
	FOTA	✓
General	PoE power supply	✓
	Power consumption	3 W
	Weight	0.5 kg
	Dimensions	224x54x32 mm

Variants of DRS-1					
Name	**ADS-B**	**FLARM**	**UAT**	**RemoteID**	**GNSS**
DRS-1A	✓				✓
DRS-1F	✓	✓			✓
DRS-1U	✓		✓		✓
DRS-1R				✓	✓

GROUND INFRASTRUCTUE
mPCI

The new product is a powerful solution that opens up a wide spectrum of applications. It is the primary result of optimizing AEROBITS' manufacturing processes and simplifying the prototyping phase of our customer-side solutions. The mini PCI interface cards are available in ADS-B, ADS-B/UAT, ADS-B/FLARM, RemoteID configurations along with a high-performance multi-GNSS receiver. Inexpensive mPCI/USB or mPCI/PCI converters make it possible to quickly run the card in different systems. Direct installation in a computer's PCI slot opens up new opportunities to access aviation data.

Multi RF receiver mPCI card		
Name	**RF system**	**RF receiver Sensitivity [dBm]**
MP1-AF	ADS-B	-95
	FLARM	-110
	GNSS	-167
MP1-AFn	ADS-B	-95
	FLARM	-110
MP1-AU	ADS-B	-95
	UAT	-100
	GNSS	-167
MP1-AUn	ADS-B	-95
	UAT	-100
MP1-R	RemoteID	-107
	GNSS	-167
MP1-Rn	RemoteID	-107

UTM/U-Space integrated systems

REMOTE ID SOLUTIONS

ELEVATING DRONE SAFETY AND COMPLIANCE

In the age of drones, safety and accountability in the airspace have become paramount. Remote Identification is the digital license plate for drones, providing essential information about the drone and its operator. AEROBITS, a pioneer in aviation technology, has introduced the idME PRO – a standout RID device that exemplifies the future of drone safety and compliance.

Remote Identification serves as a key to unlocking the potential of drones, ensuring secure and responsible usage. It allows authorities and other airspace users to identify a drone in flight and access information such as its location, altitude, and the location of the control station. This transparency is crucial for preventing unauthorized drone operations and enhancing public safety.

Remote ID provides real-time identification and location data of drones to ensure safety, security and accountability in airspace operations.

> ## AEROBITS REMAINS DEDICATED TO ADVANCING DRONE SAFETY AND COMPLIANCE, ENSURING THAT THE SKIES REMAIN SAFE FOR EVERYONE.

UAS-READY EQUIPMENT TO MEET THE DAA (DETECT AND AVOID) PHILOSOPHY

Superior Performance of standalone devices

AEROBITS Remote ID solutions demonstrate exceptional performance in conjunction with the GS2L Ground Station, achieving an impressive range of nearly 16 kilometers using advanced BT4 technology!
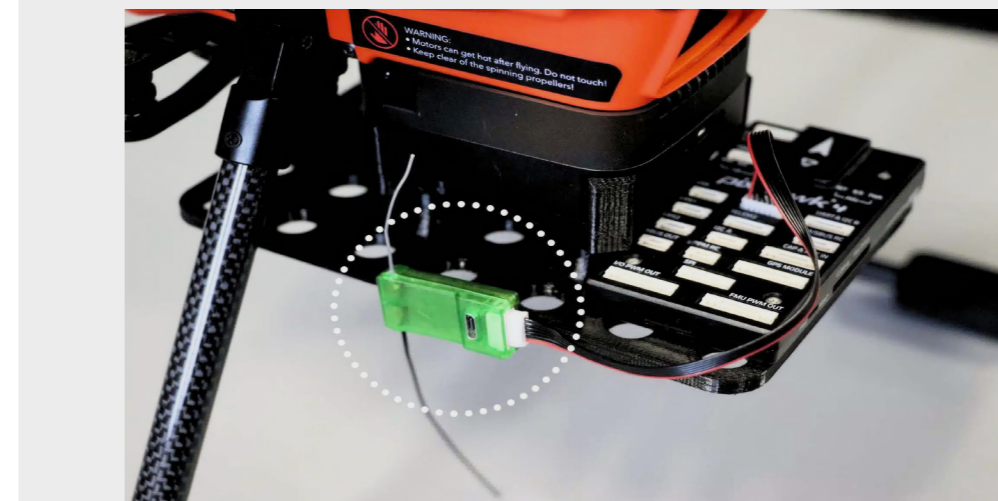
This remarkable feat underscores AEROBITS' dedication to providing robust and reliable Remote ID solutions that exceed industry standards.

Cost-Effective and User-Friendly

The idME series not only boast superior performance, but also offer an economical solution for end-users. Its ease of retrofitting onto older drones without built-in Remote ID capabilities makes it an attractive option for upgrading existing fleets.
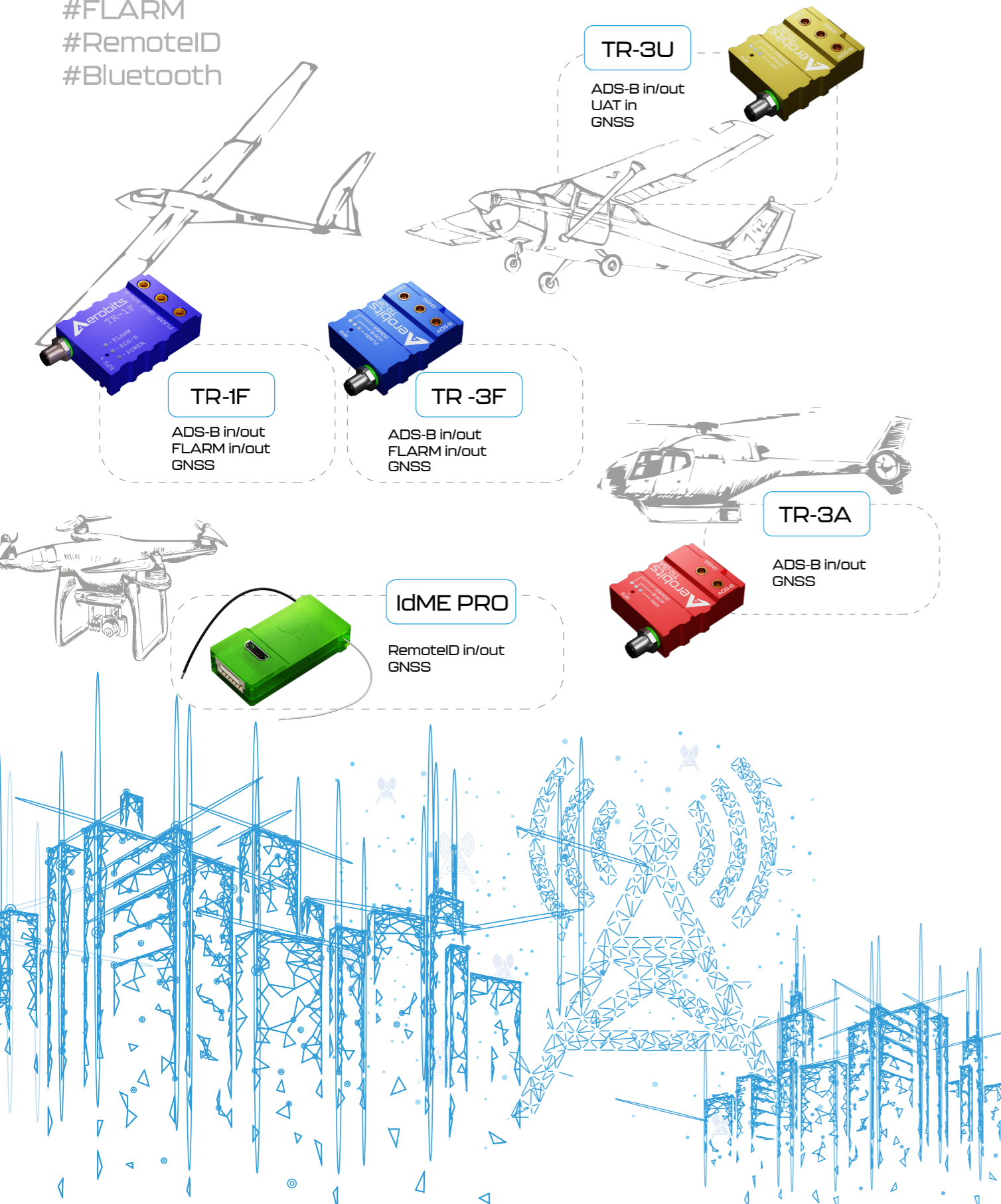
idME series - key features

- ≫ Advanced technology
- ≫ Simple integration
- ≫ Extended range
- ≫ Low power consumption
- ≫ Flexible configuration
- ≫ Regulatory compliance
- ≫ Cost-effectiveness

EASA
European Aviation Safety Agency

FAA AND EASA APPROVED

UTM/U-Space
based on Aerobits products

#LTE
#ADS-B
#FLARM
#RemoteID
#Bluetooth

TR-3U

ADS-B in/out
UAT in
GNSS

TR-1F

ADS-B in/out
FLARM in/out
GNSS

TR -3F

ADS-B in/out
FLARM in/out
GNSS

TR-3A

ADS-B in/out
GNSS

IdME PRO

RemoteID in/out
GNSS

Air Traffic
Surveillance Systems
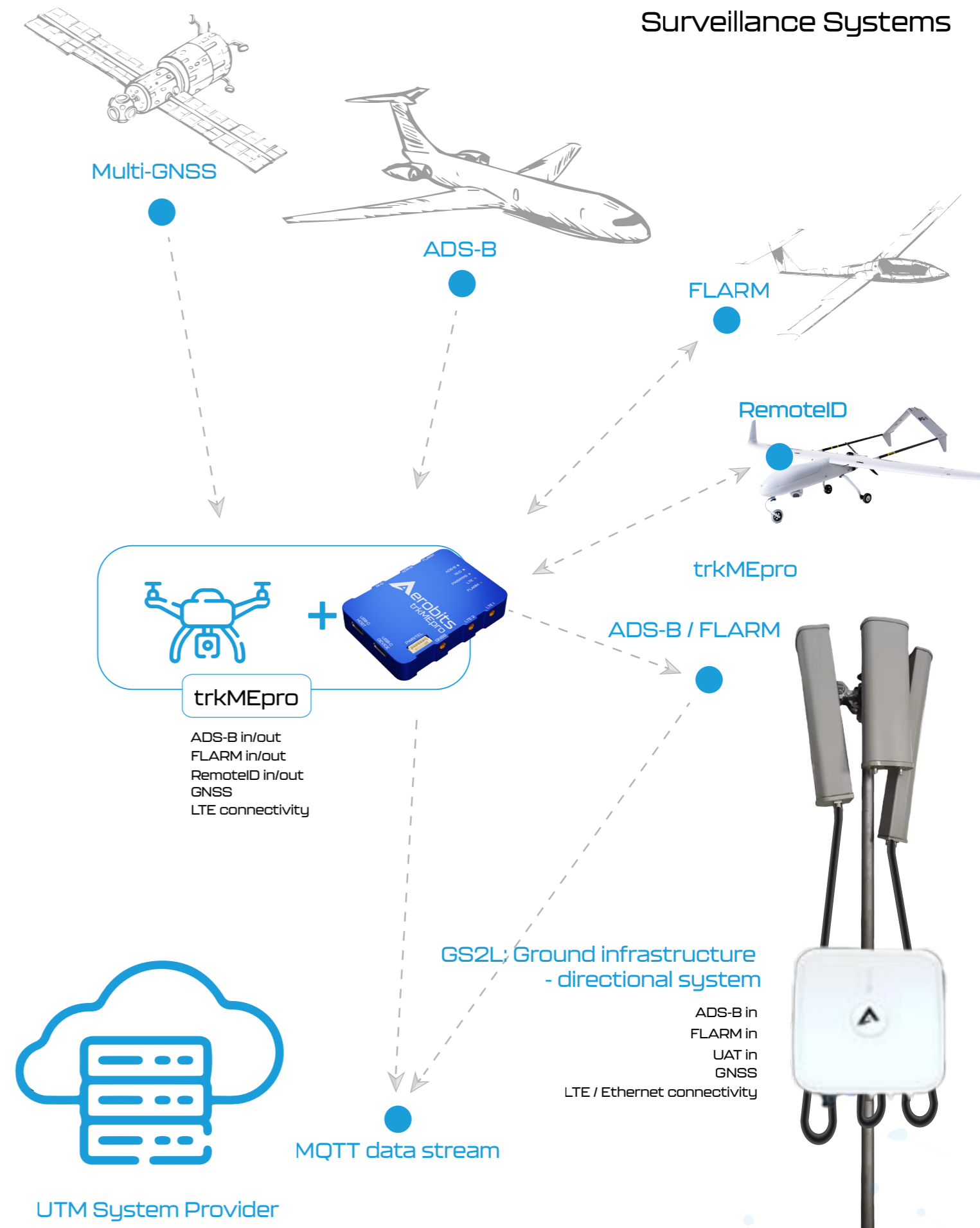
Multi-GNSS

ADS-B

FLARM

RemoteID

trkMEpro

ADS-B / FLARM

trkMEpro

ADS-B in/out
FLARM in/out
RemoteID in/out
GNSS
LTE connectivity

GS2L: Ground infrastructure
- directional system

ADS-B in
FLARM in
UAT in
GNSS
LTE / Ethernet connectivity

MQTT data stream

UTM System Provider

CUSTOMERS REVIEW
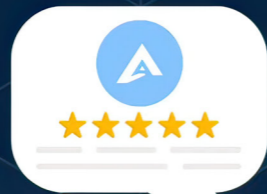
At AEROBITS, we value highly the insight and experiences of our customers. Their testimonials mean more than just proof of past successes to us; they are important guideposts helping us navigate development and ongoing operational refinements. We believe that the real feedback from clients lights the way for future service improvement and helps in being attuned to clients' growing needs.

Ukrspecsystems LLC is delighted to recommend AEROBITS Sp. z o. o. as a business partner due to their remarkable performance in every aspect of our collaboration. We have been positively impressed with the innovative solutions provided by AEROBITS, especially their miniaturised components, which have brought a fresh perspective to our projects. Their commitment to supporting us in resolving technical issues has been unparalleled and has consistently exceeded our expectations. Their outstanding performance and unwavering dedication have been instrumental in the success of our projects, and we are grateful for their invaluable contributions.

UKRSPECSYSTEMS
VOLODYMYR BONDARENKO

DRONEMATRIX.EU
LANDER VANWELKENHUYZEN

Dronematrix states that it's a pleasure to work with AEROBITS company from Poland. By integrating AEROBITS solutions like FLARM transceivers, Dronematrix contributes to enhancing safety in the airspace. The cooperation between Dronematrix and AEROBITS exemplifies innovation, safety and excellence in the UAV industry. Their Customer Service is very supportive. AEROBITS from Poland is not only a reliable Business Partner of Dronematrix, but also a key player in advancing aviation technology globally.

ROTORS & CAMS
EMESE BALOGH

AEROBITS' solutions offer easy implementation and intuitive configuration within lightweight, great-value products. The plug-and-play design and great compatibility helped our company to quickly meet every compliance criteria of the newest UAV regulations.

Globe UAV as a developer of BVLOS UAV systems requires as reliable transceivers for SAIL III operations. Since 2019 we have been integrating AEROBITS devices into our multicopters and VTOLs to fulfill EASA guidelines.

GLOBE UAV
JÖRG BRINKMEYER

AEROBITS is a reliable partner characterised by high flexibility and customer orientation as well as expertise in unmanned aviation. Together we have developed innovative products for safe and efficient drone flights. We look forward to continuing our successful collaboration and are happy to recommend AEROBITS to others.

EMBENTION
JAVIER ESPUCH

Our collaboration with AEROBITS has enabled Embention to become the first autopilot company to release a flight controller with an embedded ADS-B module. This partnership has led to significant advancements in avionics solutions for UAVs.

DRONIQ
RALPH SCHEPP

OUR CURRENT
GLOBAL REACH

We are honored to provide products
and support to our customers.

Aerobits®

550 CLIENTS

54 COUNTRIES

6 CONTINENTS

Aerobits®   **UTM/U-Space** integrated systems

DRONIQ
CASE STUDIES

Droniq offers a traffic management system for drones, UAS Traffic Management System (UTM), which provides a combined air picture of manned and unmanned aircraft.
Our participation in the project consists of delivering hardware to UAS Traffic Management System (including Ground Infrastructure and HoD (Hook on Device) for UAS tracking purposes.
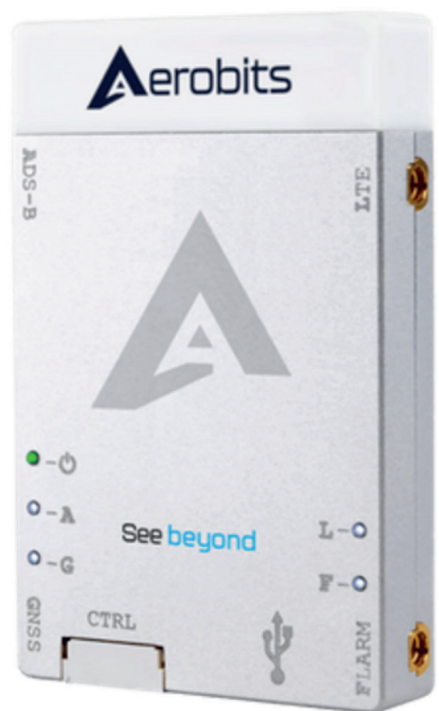
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