

PROJECT

MIDAS

Modular and Integrated Digital Probe for SAT Aircraft Air Data System

Funding: European (Horizon 2020)

Duration: Nov 2018 - Oct 2021

Status: Ongoing

Total project cost: €1,154,375

EU contribution: €948,688



Call for proposal: H2020-CS2-CFP07-2017-02

[CORDIS RCN : 218637](#)

Objectives:

The main objective of the MIDAS project is to design and manufacture a smart and fully integrated air data probe (ADP) for SAT applications, characterized by the following features:

- reduced size and weight;
- reduced power consumption;
- improved reliability;
- fully-integrated with the onboard communication bus;
- fault tolerant, thanks to the health monitoring functionalities.

The ADP will be delivered after:

- a thorough test campaign for verification and validation of the manufactured system;
- environmental requirement verification (Temperature, Vibration, Icing, EMI/EMC).

Quality is ensured by the documented traceability of measurement results.

Methodology:

In order to achieve these targets, the solution will include key enabling innovative technologies such as:

- single Line-Replaceable Unit (LRU) with the capability of communicating with other FBW control system devices through a standard legacy (e.g. Arinc429, CanBUS Arinc825) and innovative communication bus (e.g. AFDX). As a further step it may be evaluated the introduction of a AFDX over fibre link channel to furtherly drastically reduce wiring weight on the aircraft, signals crosstalk and susceptibility and to increase the overall system reliability;
- optimized fail-safe architecture;
- innovative air data strategies to implement virtual sensors with the aim to reduce the use of physical probes;
- redundant power supply and advanced health monitoring (hardware and software) based on previous partners' experience exploiting power-up, initial and continuous built-in test;
- advanced air data algorithms focused on air data system optimization, based on partners' previous experience;
- anti-ice capability using automatic heater in order to avoid holes occlusion due to ice formation;
- complete sensors characterisation, calibration and target uncertainty evaluation.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Other programmes: JTI-CS2-2017-CfP07-SYS-03-14 Development of Digital Integrated Multifunction

Lead Organisation:

Politecnico Di Torino

Address:

Corso Duca Degli Abruzzi
10129 Torino
Italy

Organisation Website:

<http://www.polito.it>

EU Contribution: €373,750

Partner Organisations:

Selt Srl

Address:

VIALE DELLE INDUSTRIE 13/22
20020 ARESE - MI
Italy

EU Contribution: €479,938

Istituto Nazionale Di Ricerca Metrologica

Address:

STRADA DELLE CACCE 91
10135 TORINO
Italy

Organisation Website:

<http://www.inrim.it>

EU Contribution: €95,000

Technologies:

Aircraft operations and safety
Safety (and maintenance) improvement through automated flight data analysis

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Safety/Security

Geo-spatial type: Other