

## DEVELOPMENT & MANUFACTURING OF SMART AFC DRIVE & CONTROL SYSTEM

### PROJECT OBJECTIVE AND INNOVATION

The H2020 Clean Sky 2 project FloCos is coordinated by Trisitec UG and performed with the help of Cedrat Technologies. The project will focus on an integrated Active Flow Control (AFC) actuator driving system taking into account the specific requirements of piezoelectrically driven Synthetic Jet Actuators (Figure 1). The system will be divided into two different main parts: the electronic amplifier unit on the one hand and the control part on the other hand. For making measurement values available which will be used for closed-loop control of the actuator, a dedicated measurement circuit will be developed and optimized for this specific application. A highly integrated and miniaturized electronic module (Figure 2) for fluidic AFC actuators will be the output of this project.



Figure 1: Fraunhofer ENAS Synthetic Jet Actuator

FloCoS will not only provide smart power amplifier solutions, but also efficient solutions. State-of-the-art power recovery technologies will be used to minimize the needed power for driving the piezoelectric elements. For the addressed application scenarios, e.g. the test of actuators in large scale wind tunnel test studies, there are special requirements for remote access and control for the system. For the test of the actuators as well as the aerodynamic concepts, the actuators have to be driven in Wind Tunnel Test (WT/T) environment, where control computers and power supply connectors may be far away from the point of action. FloCoS will provide remote access to all system parameters with an advanced monitoring and logging functionality.

FloCoS contributes to the ACARE Flightpath 2050 ambitious goals. Less pollution and noise will be reached while reducing the use of fossil fuels during flight as addressed in the overall objective of Clean Sky 2.

### CTEC CONTRIBUTION IN THE PROJECT

CTEC is mainly focusing on the following tasks in the project:

- Contribution to the development of the specification documentation for the whole system
- Development of the overall system architecture
- Development of the HV DC/DC and Amplifier System



Figure 2: Final 2x48 channels CTEC Drive & Control system

### PARTNERS

- [Trisitec UG](#)
- [Cedrat Technologies](#)

The know-how and the competencies acquired in FloCoS will enable CTEC and TriSiTec to strengthen their position as being reliable and capable partners for future support and collaboration with industrial partners in the areas of Active Flow Control systems and technologies.

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