

TRONICO Partners search : **Decentralised HVDC power conversion module for innovative optimised aircraft electrical network distribution** JTI-CS2-2020-CFP11-SYS-02-063

Purpose of the topic: to develop optimised prototypes in size, weight and cost for HVDC/DC conversion modules to be included in innovative, decentralized, electrical power distribution network on future large passenger aircraft. These modules will convert the main HVDC network voltage into secondary DC and AC voltages to supply dedicated end-users aircraft components or systems. The required modules will be developed according to the airframer specified modular concept. The modules will be brought to TRL5 via integration into airframer HVDC network integration bench.

TRONICO competencies: For 45 years, TRONICO specializes in high quality and very demanding electronics design and manufacturing. It built up unique competencies in power electronics to become an expert that is already providing off the shelf DCDC power converters and custom research and design solutions. Throughout its commercial brand TAME-POWER, the DCDC power converters addresses various markets: e-mobility, marine, gensets and aerospace. For the latter, TRONICO developed custom converters that are used in various cases:

Aboard the e-Fan X, TRONICO develops the DCDC converter that will convert the energy to the electric engine. This project, led with the Airbus engineers aims at reaching high power density objectives. One of the key issue relies on the thermal cooling of the converters. Innovative solutions would be at stake if the planning allowed them. However, such solutions are too risky for achieving the ambitious delivery dates.

Aboard the Stratobus project, TRONICO design power converters operating in the stratosphere that converts energy from solar panels and batteries to 28VDC application in two stages. These converters considers high altitude impacts and natural convection thermal cooling.

TRONICO is also involved on the PIPAA project dealing with embarking hydrogen onboard the aircraft, looking for either green taxi or powering onboard equipments. These projects involves great amounts of current because of low voltage incl. 28V

The power converter design activity is supported by a dedicated team of 50 engineers and project managers, located in France (Nantes). R&D resources gathers mechanical skills (incl. thermal and mechanical simulations), electrical skills (incl. Design, simulation and modelling), software skills (either embedded or not); safety, quality management for highly standardized development processes and validation and verification skills.

Also, TRONICO's DNA relies on 45 years of manufacturing various electronic products for the aerospace industry, which got enlarged since 2012 with the opening of the R&D office which already designed and manufactured aerospace products.

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Recherche de partenaires – Appels EDIDP – Meteomatics

Meteomatics is an SME organisation with headquarters in St. Gallen, Switzerland and with subsidiaries in Berlin (DE) and Exeter (UK). The company was created in 2012 and has over 35 employees. The employees have a strong background in meteorology, engineering, IT, drone development, physics and mathematics. Meteomatics specializes in meteorological solutions for industry and defense. To ensure paratrooper safety and optimize ballistic operations Meteomatics has developed a unique drone technology to gather meteorological data from the surface up to 6km above ground. Meteomatics has run these drones operationally since 2016 under BVLOS conditions (Beyond Visual Line Of Sight). Meteomatics also designs, develops and operates newly born “meteobases”, which are automated, remotely controlled take-off/landing/recharging platforms for metedrones. We also provide all kinds of meteorological data worldwide at an unprecedented resolution via our own API technology.

We are seeking to participate in a consortium where hyper-local meteorological data and the use of unmanned aerial vehicles (UAV) support the current defense developments.

Calls we are interested in:

- Topic EDIDP-CBRN-DEWS-2020 – Capabilities for CBRN risk assessment, detection, early warning and surveillance
- Topic EDIDP-CSAMN-SDN-2020 – Software defined network for defence use including the development of products and technologies
- Topic EDIDP-MSC-IS-2020 – Integrated solution to enhance the maritime situational awareness
- Topic EDIDP-MSC-CRPS-2020 – Coastal radars and passive sensors with associated relevant networks
- Topic EDIDP-NGPSC-LRIF-2020 – A Platform for long range indirect fire support capabilities
- Call EDIDP-SME-2020 – Innovative and future-oriented defence solutions

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