# Teledyne e2v First to Have Fully Space-Qualified 4-Channel ADC

**Grenoble, 15th June 2021** – Teledyne e2v continues to address the most challenging of application scenarios, through the supply of mixed-signal technology that is capable of delivering exceptional degrees of reliability. The company's EV12AQ600 has just been confirmed as the industry's first 4-channel analog-to-digital converter (ADC) to be qualified for space deployment.

Subjected to comprehensive testing, the EV12AQ600 has shown that it can withstand a total ionizing dose (TID) of 150kRad. The TID and SEE results underline the suitability of this device for space applications like long-term missions or GEO satellites. In addition, the ADC had to endure multi-axis mechanical shock and vibration tests, plus electro-static discharge (ESD), extreme temperature and thermal cycling test procedures. Having successfully passed all of the tests described, it now meets NASA and ESA requirements, complying with the stringent MIL-PRF-38535 (QML-Y) and ESCC 9000 standards.


Teledyne e2v's EV12AQ600 series devices are already employed in numerous mission-critical military and avionics applications, and space qualification will open up many new opportunities for their usage. These 12-bit ADCs support 1.6GSps data sampling rates on each of their channels, or 6.4GSps across a single channel when interleaved. Detailed studies have shown that they do not exhibit the poor interface stability witnessed on devices from other ADC manufacturers when placed into a space environment. Consequently, customers can have full confidence in their long-term operation once they have been deployed there.

As well as the leading-edge performance and operational robustness achieved by the EV12AQ600, this ADC has certain other attributes that will be beneficial for space applications. Thanks to the cross-point switch which is situated after the inputs, this device is much more versatile than other solutions. The ADC can easily be reconfigured remotely, once the hardware it has been incorporated into is in orbit. The number of channels, the bit rate and the dynamic range can all be altered via the accompanying FPGA - so that new functional requirements can be attended to. This inherent flexibility also facilitates design re-use, with engineers able to follow a platform-based strategy where the original system can be subsequently adapted to suit different application criteria. Consequently, development times can be accelerated significantly, with less engineering resources being required. A comprehensive collection of FPGA libraries are available to further assist with project development work, leveraging Teledyne e2v's inclusion in the Xilinx ecosystem (XQRKU060) for space implementations.

"Through our space-qualified EV12AQ600 devices, we are able to offer customers high-performance data converter solutions that are ready to integrate directly into their systems," explains Nicolas Chantier, Marketing Director at Teledyne e2v. "It means that they can benefit from flight-proven TRL9 technology, without the need for any further qualification effort." "Also, with inventory now available, there are much shorter lead times associated with these ADCs than competing solutions currently on the market. Customers can therefore get access to samples straight away," he adds.

The test data relating to space qualification of the EV12AQ600 from Teledyne e2v can be found here: https://semiconductors.teledyneimaging.com/en/products/data-converters/ev12aq600/#prodnav-1

**About Teledyne e2v**

Teledyne e2v's innovations lead developments in healthcare, life sciences, space, transportation, defence and security and industrial markets. Teledyne e2v's unique approach involves listening to the market and application challenges of customers and partnering with them to provide innovative standard, semi-custom or fully-custom solutions, bringing increased value to their systems.

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