

FIBER-OPTICAL INPUTS

CAN measurement module

The Cansas-FBG-8T by IMC is a fiber-optic measurement module. It applies specially developed fiber Bragg grating sensors (FBG) at eight optical inputs to measure temperatures in high-voltage environments and outputs the results via CAN.

Users who perform measurements in high-voltage (HV) environments or in the field of E-mobility especially benefit from this technology. Thanks to the optical measuring principle it is independent of any electrostatic and electromagnetic influences. Thus all such EMI/ESD-related concerns with errors, signal artifacts, and even damage, that classical measurement technology used to be plagued with in HV contexts, can now be a thing of the past, said the company. The topic of personal safety, which prescribes protective measures when working on voltages of more than 50 V, is also reduced: the fiber-optic based sensors have no electrical conductivity whatsoever. This means that there is no need for special safety equipment or particular training of the operating personnel. Cable insulation is unnecessary.

The particularly thin FBG temperature sensors with diameters down to 0,5 mm make enable new applications. They can, for example, be directly integrated into the windings of an electric motor without significantly influencing its properties. Larger conventional sensors would alter the motors magnetic fields and potentially introduce irregularities or even mechanical noise. The fast response of the fiber-optic sensor can then precisely detect and record the dynamic temperature changes in the windings under load. According to the company, this is a task that was previously almost impossible to solve with conventional sensor technology (PT100 or thermocouple).

Kai Gilbert, Managing Director of IMC Test & Measurement said: "Fiber-optic measurement technology has been around for a long time – however, up until now it has hardly been used in the area of testing. This was mainly due to the complicated handling and the lack of integration possibilities. We have now solved this problem with the FBG measurement module. It can be applied immediately with the supplied sensors – just plug it in, enter the characteristics, and you're done. The data can be transferred via the CAN interface either directly to a data-logger, an application system, or to an automation system."

And Christian Walther, Key Account Manager at IMC Test & Measurement, added: "When it comes to fiber-optic measurement technology, many people are expecting excessively high channel prices. With the imc Cansas-FBG-8T however, it hardly makes any difference in terms of costs for our customers, whether they implement their HV instrumentation with classic or fiber-optic technology – but it certainly does with regard to the ease of use and the quality of results!"

The FBG module is electrically and mechanically compatible with the IMC [Cansas-Flex series](#). Users can dock directly to any existing measurement module of the flex series via the integrated click connector. This means that the entire IMC portfolio of classic electrical measurement technology is available, too. The Busdaq-Flex CAN data-logger can also be directly clicked on, thus allowing fiber-optic and electrical measurement modules to be combined into a fully integrated measurement system.



A variety of measurement, testing, and control applications can be covered, and a range of vehicle and industrial buses such as CAN can be integrated (Photo: IMC)

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