CAN Newsletter Online

CAN-TO-USB INTERFACE

A bridge to the bikeâ€™s telematic system

The CAN-interconnected electric off-road motorbikes from Cake rely on Kvaser's Leaf Light CAN-to-USB interfaces for programming and after-sales diagnostics.



According to the manufacturer, the electric motorbike is light, quiet, easy-to-ride, and causes low maintenance (Source: Kvaser)

Cake (Sweden) designs electric motorbikes that can be used in an urban environment, and taken off-road on rugged trails. The first model, the Kalk Or, is a winner of the Fennia Prize, Design Forum Finland's biennial design award, and the 2020 Red Dot Design Award. The Kalk has a geometry and stance influenced by motorbikes and the mountain bikes. It weights 69 kg. All the components had to be made from scratch as there were no suitable off-the-shelf components to support this category. A CAN network provides the communication backbone between the ECU (electronic control unit), BMS (battery management system), and display, allowing acceleration, top speed, and regenerative braking to be modulated according to different ride styles. The ride styles "Explore" (limits the speed to 45 km/h with 3-h to 4-h battery range), "Excite" (active trail riding, 1 h to 2 h), and "Excel" (race mode with max. torque and speed, up to 1 h) are possible.

Cake's motorbikes rely on Kvaser interfaces for programming and after-sales troubleshooting (Source: Kvaser)

CAN was also the key to being able to achieve several key safety features that are necessary for road certification in the US and Europe. According to Nils Ytterborn, co-founder and product developer at Cake: "Firstly, a display unit was needed to provide the rider with information about speed (in km/h or mph), battery state-of-charge, trip, odometer, ride mode, and brake mode. Secondly, we had to comply with OBDII regulation, the universal and standardized way of diagnosing electrical issues in the vehicle control unit." For this, the company decided to use CAN and the interfaces from Kvaser (supplied by Accurate Technologies) on all of their models. The interfaces are used for programming during development and testing, as well as for programming the bikes on the assembly line, too. Cake also supplies the Leaf Light HS v2 interfaces to each of its certified dealers. The interface enables the user to connect the bike's CAN network to a PC in order to troubleshoot any electrical problems.

Cake uses its ECU manufacturers' own software platform to diagnose issues, update bikes, and change parameters. The provided OBDII-capability of the company's bikes means that the service workshops can use a standardized OBDII diagnostic software for troubleshooting. Cake has chosen the Kvaser Leaf Light as it was recommended by its ECU manufacturer as an option to access the CAN system in production, remotely out on the field, and for internal testing, verification, and development of firmware. 550 bikes were produced so far this year. Next year's projections are much higher. Thus, the company is moving to a telematics system to enable valuable data from bikes in the field to be gleaned. Kvaser's Leaf should remain the bridge to the bike's telematics system.

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