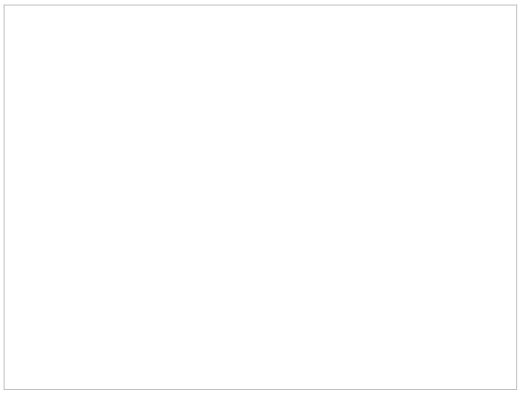
Analyzing CAN messages with an oscilloscope

Rohde & Schwarz (Germany) offers for its RTM oscilloscope a CAN option. This allows analyzing the CAN signals on the data-link layer level. Of course, the quality of the transmitted bits are still evaluable by the oscilloscope.



IN THE PAST, USERS ONLY HAVE BEEN ABLE TO verify the quality of CAN signals with the RTM oscilloscope by measuring characteristics such as amplitude and rise time. Due to the R&S RTM-K3 triggering and decoding option, users can view signals at the protocol layer and analyze the content of transmitted messages. The option allows supports LIN communication. Many providers of oscilloscopes offer such a CAN option, e.g. Agilent, LeCroy, Logian, Nicolet, Pico Technology, Tektronix, USBee, and Yokogawa.
The introduced option makes the oscilloscope to a troubleshooting tool, because it triggers on CAN-specific protocol data and decodes the recorded waveforms into a readable protocol content. The tool is intuitive to use, like all other oscilloscope applications by the German company. Simple test dialogs with explanatory graphics supports the configuration. To present measurement results in a clear-cut and straightforward manner, protocol details in the measured waveform are color-coded and protocol data is compiled in tables. The zoom function allows the user to view relevant data in detail. When the zoom factor is increased, more information about the relevant part of the message is displayed. To further improve readability of the decoded data, a user-defined name for the component (e.g. ‘brake’ or ‘windshield wiper’) can be displayed instead of the hexadecimal address.