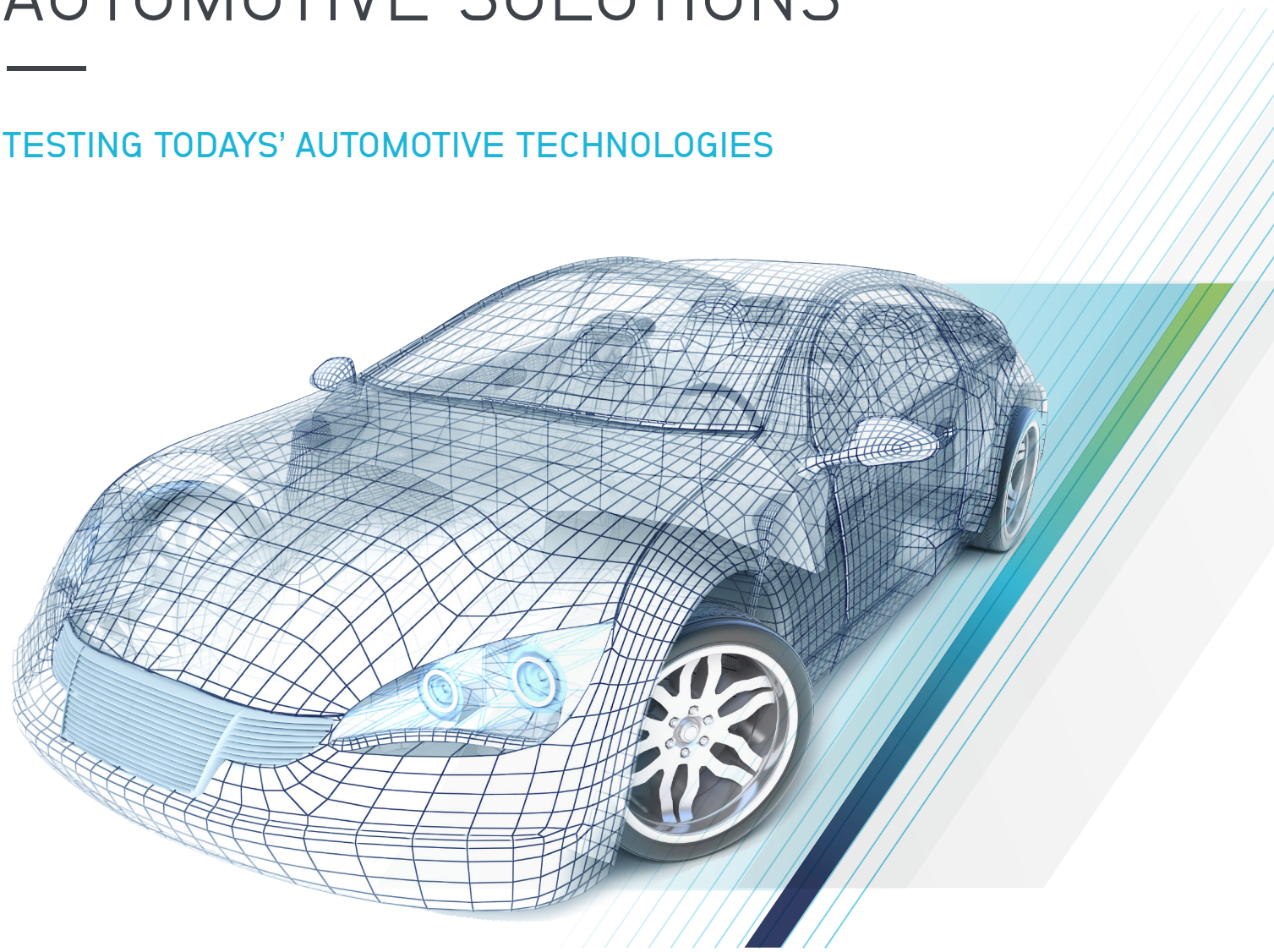
TEKTRONIX AUTOMOTIVE SOLUTIONS

TESTING TODAYS' AUTOMOTIVE TECHNOLOGIES



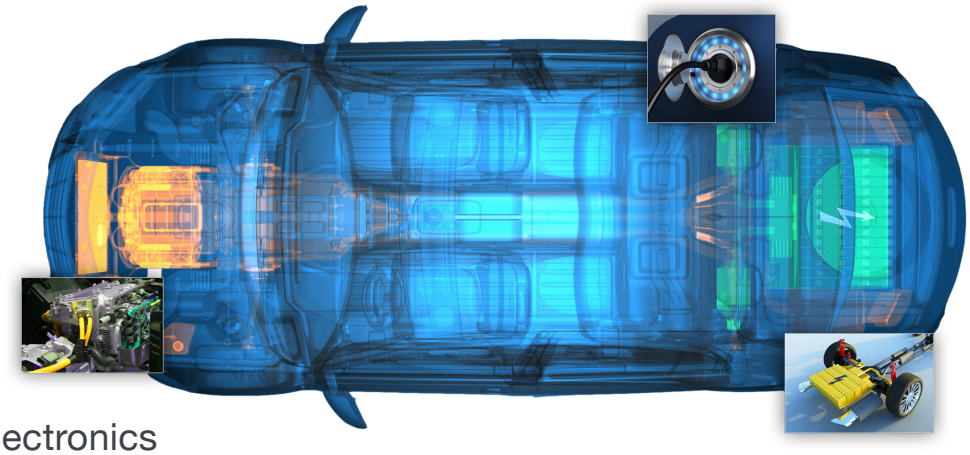
Power Train • Body • Infotainment • Vehicle Motion • Safety

The pace of change in automotive electronics has never been faster, resulting in safer, more efficient, and more connected vehicles. Technologies such as high-speed data communications, wireless communications, radar, and power supplies underpin these new systems. These enabling technologies are driving new standards and new challenges for testing and verification.

Tektronix®

TESTING TODAYS' AUTOMOTIVE TECHNOLOGIES

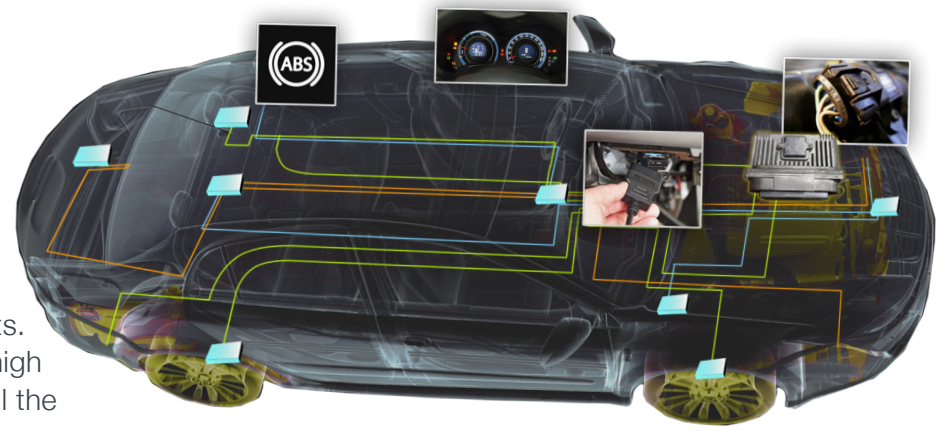
Analyzing Data Communications, Power, Sensors and RF Technologies



Power Electronics

Design your power converter without an earth ground. Make it operate under grueling environmental conditions and EMI. Make it fit in an awkward space. Make it efficient and cheap. Power design is tough in any vehicle. And it only gets tougher in today's EV's and hybrids. **We can help with:**

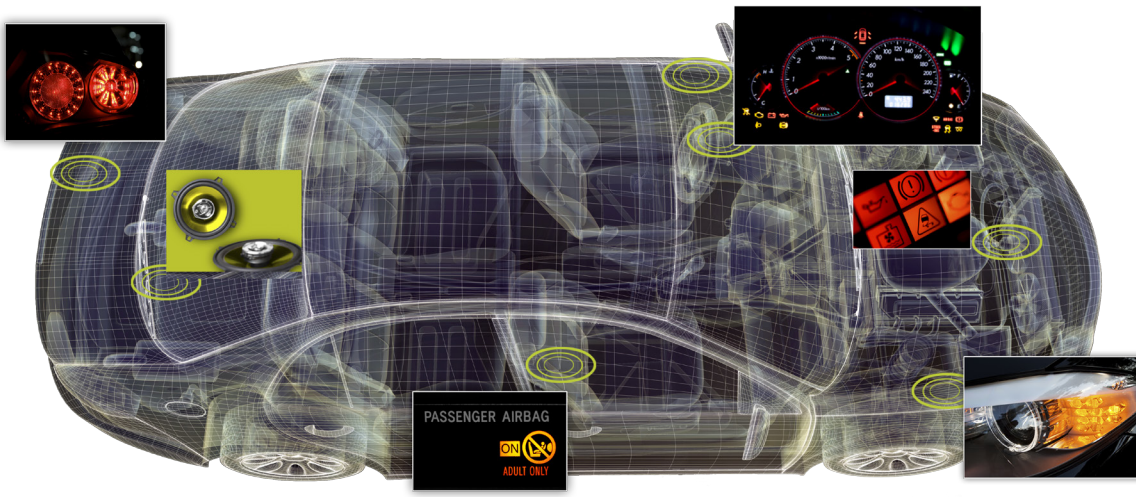
- Power efficiency testing using power analyzers
- Power semiconductor selection and characterization with Source Measure Unit (SMU) Instruments
- Power supply analysis with oscilloscopes equipped with automatic power analysis application
- Support for newer power conversion technologies using SiC and GaN semiconductors



Serial Data Communications and Control Systems

The tremendous increases in the amount of data moving through a vehicle dramatically impacted communication bandwidth requirements. New standards deal with these super-high data rates, but how do you deal with all the new standards? **We can help with:**

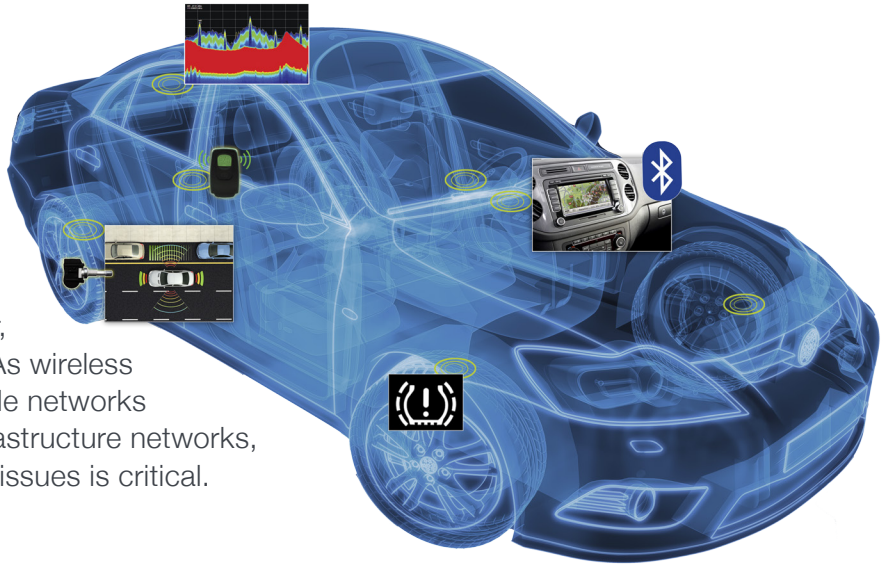
- Protocol decoding and debugging of the high speed and medium speed bus technologies including Ethernet, USB, PCI-e, CAN FD, CAN, LIN, Flexray and more
- Compliance testing for Ethernet, Broad-R Reach/100BASE-T1, MOST, USB, MIPI and more
- Evaluating signal integrity and troubleshooting anomalies
- Environmental testing with datalogging systems



Sensors and Lighting

New classes of sensors are expanding the information available to cars' control systems. The shift from power-hungry incandescent lighting to efficient, reliable LEDs is driving new design flexibility but with additional electronics. **We can help with:**

- Testing MEMS accelerometers
- Simulating sensor signals
- Cable harness testing
- LED and LED driver testing and analysis



RF Electronics

The automotive environment is a challenging place for today's radio systems which involve navigation, radar, keyless entry, infotainment, and more. As wireless communications expands from in-vehicle networks to vehicle-to-vehicle and vehicle-to-infrastructure networks, being able to quickly solve interference issues is critical. **We can help with:**

- Troubleshooting interference issues
- EMI-precompliance and troubleshooting
- Evaluation of wireless communications such as tire-pressure monitoring and in-vehicle Bluetooth

TEKTRONIX PRODUCTS FOR AUTOMOTIVE ENGINEERS

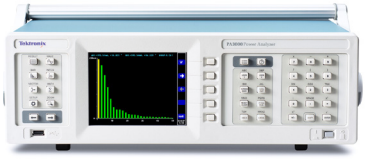
For Testing and Analyzing Data Communications, Power, Sensors and RF Technologies.

OSCILLOSCOPES AND PROBES

- Automatic Compliance Software for BroadR-Reach/100BASE-T1 and MOST
- Decoding and triggering for CAN FD, CAN, LIN and FlexRay
- Integrated logic channels and function generator
- Integrated spectrum analyzer for EMI troubleshooting
- Wide range of current probes

SPECTRUM ANALYZERS AND MIXED DOMAIN OSCILLOSCOPES

- USB Spectrum Analyzers for EMI pre-compliance testing and wireless integration
- Mixed Domain Oscilloscopes offer built-in spectrum analyzers – perfect for troubleshooting EMI or wireless communications



POWER ANALYZERS

- Up to 0.01% accuracy
- Three-phase power measurements
- Inrush measurements

DC POWER SUPPLIES AND ELECTRONIC LOADS

- Programmable voltage/current steps simulate battery voltage output response to varying engine loads

ARBITRARY/FUNCTION GENERATORS AND RF SOURCES

- Create a virtually unlimited number of any type of signal – analog or digital, ideal or distorted, standard or custom

SOURCE MEASURE UNIT (SMU) INSTRUMENTS

- Characteristic curve tracing for characterizing FETs , LEDs and IGBTs
- Four quadrant source and sink for current/voltage sensor testing
- Charge/discharge testing of battery systems

DMMS, DATALOGGING AND PRECISION SWITCH SYSTEMS

- DMM/Switch system integrating a high-performance DMM can support up to 576 two-wire multiplexer channels for automotive sub-system testing
- Production/functional testing of signals from multiple sensors
- Continuity and low resistance testing of cable harnesses and connectors

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