

Transportation application & products

ABOUT US MARKETS RESOURCES CONTACT US

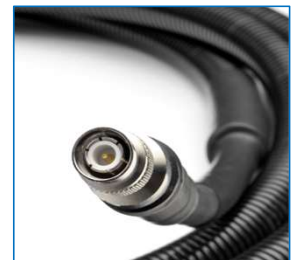
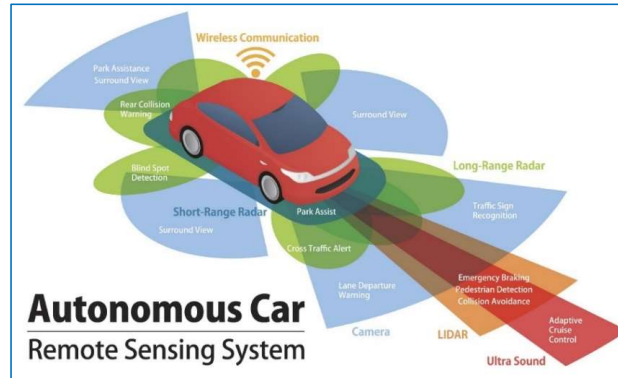


GEN 4.0 FAKRA

Driving Autonomous Technology

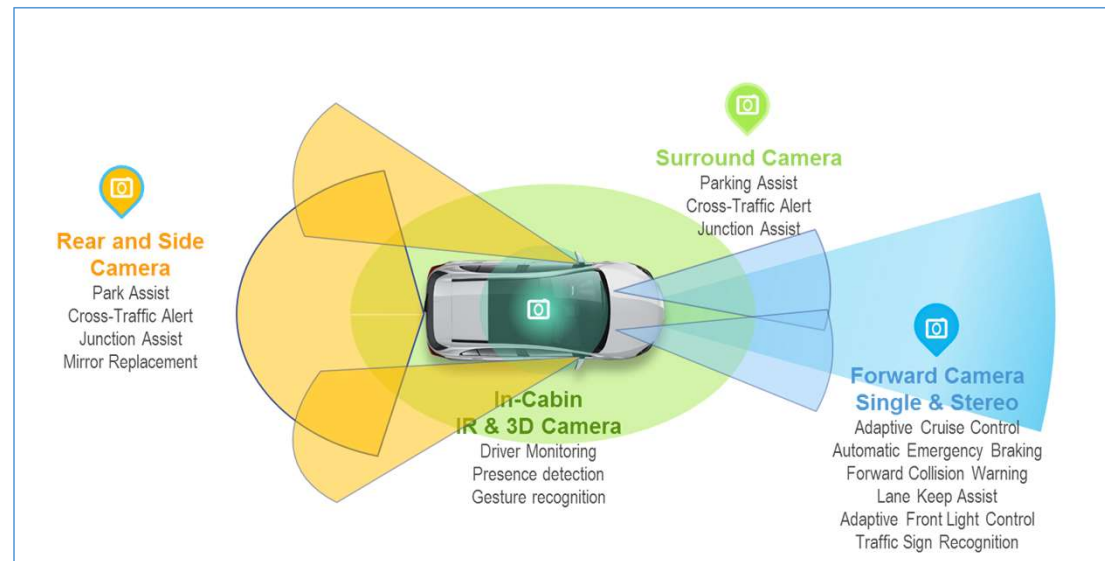
- Cost effective interconnect solutions for high volume applications
- Compatible with all previous FAKRA designs
- Ideal for applications such as blind spot monitoring, emergency vehicle warning systems, and autonomous braking

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Automotive Cameras

- Ongoing and future growth in autonomous features and levels
- Up to 10 cameras per vehicle
 - Rear and Side Cameras
 - Surround Cameras
 - Forward Cameras (Single and Stereo)
 - In-Cabin Cameras
- Increasing bandwidth needs
 - Higher resolution and HDR
 - Stereo for depth perception

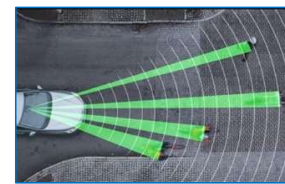


Autonomous Vehicles and ADAS

- Self-driving vehicles navigate with sensors, actuators, V2X communication, and advanced processing units
- Advanced Driver Assistance Systems (ADAS)
 - Similar hardware in lower quantities, generally lower data rates
- High speed interconnect; sealed camera connectors

Key Applications:

- Cameras
- GPS
- ECU
- DSRC, V2X Communication
- Antennas
- LiDAR, RADAR



GNSS

Global Navigation Satellite System

- Use GPS, GLONASS, Galileo or BeiDou system globally
- Standard GPS systems offering 1-3 meter accuracy are not adequate to ensure safety
- Next generation GPS systems provide centimeter level accuracy at affordable costs

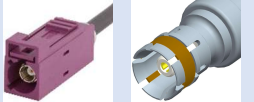

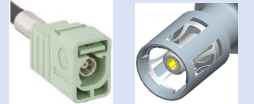



Other Key Transportation Applications

- Fleet Management & Mining
 - Telematics/Communications
 - Autonomous Mining
- Rail
 - Positive Train Control
 - RMT WIFI connectivity
- Smart Agriculture
 - Communications and control
 - Autonomous Agg
- Material Handling
 - Fork Lifts Telematics & RFID
 - Self Driving & Warehouse Robotics
- Off-Road, Utility & Recreational Vehicles
 - Infotainment, Communications & GPS



FAKRA – delivery program

Generation	Body	Center Contact	Termination	Key plastic housing colored	Picture
Gen 1	Screw machined, brass	Screw machined	Standard crimp	Separate part	
Gen 2 / 2.5	Zinc diecast	Machined		Pre-assembled	
Gen 2.5		Stamped and formed; T&R	Automation crimp		
Gen 3					Stamped and formed
Mini-FAKRA	High density , high bandwidth applications up to 20 Gbps				

Mini-FAKRA Type A and B

Two standards exist today – non-intermateable

- Type A
- Type B
- Next gen Mini-FAKRA is branded as AUTOMATE and is intermateable and interchangeable with all other industry standard Mini-FAKRA solutions
- IP69K versions available



Mini-FAKRA Type A -

- Low loss RF performance to 15 GHz
- Excellent for next generation high bandwidth applications
- Automated cable termination



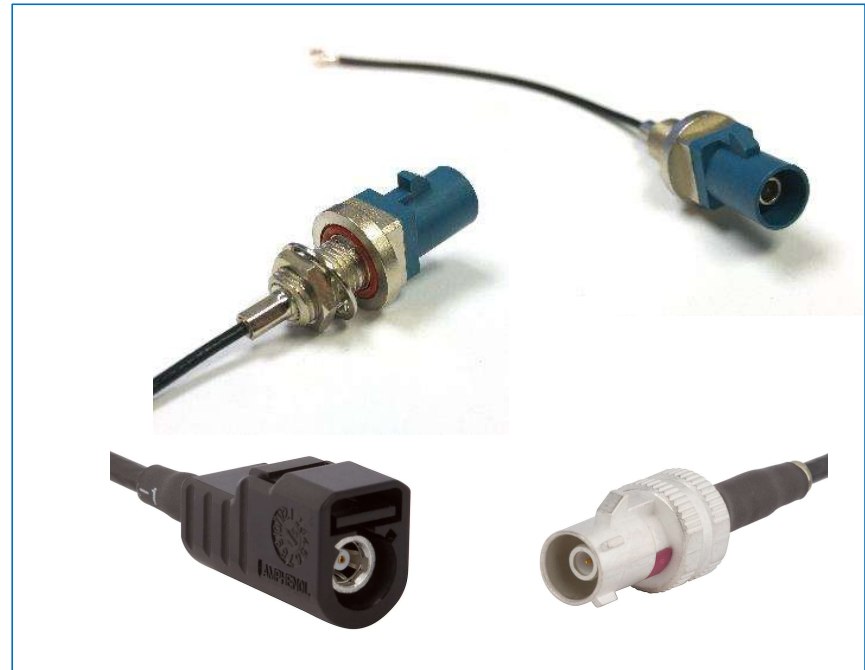
Mini-FAKRA Type B -

- RF performance optimized to 9 GHz
- Primary product line is 4-Port

Sealed FAKRA

IP67 Configurations available:

- Bulkhead (I/O) Mount
 - IP67 To panel
 - IP67 Mated and unmated
- Cable:
 - IP67 Mated and unmated
- Color and Key coded
- Meets GMW3191
- Based on Gen 3 / 3.5 jack and Gen 2.5 plug designs



Amphenol RF SPC PCB Connector

- Blind mate with robust closed entry socket contact
- Ruggedized against automotive mechanical and environmental stress
- High RF performance to 6 GHz
- Cost effective and high capacity with fully automated assembly
- Lead-free SMT Reflow optimized with Tape and Reel packaging



Rugged RF Interconnect

- IP67 and IP68 Rated PCB and Cable Connectors
 - TNC, Type N, SMA, BNC and HD-BNC
- Fixed Length IP67 rated cable assemblies
 - From 3" to 40" configurations
- End-To-End IP67 custom cable assembly capabilities
 - Multiple RF lines, Hybrid RF+ DC + Power
 - Unique cable solution by Amphenol Times Microwave cable manufacturer
 - Protective nylon sleeve and epoxy sealant
- ARC: Amphenol Ruggedized Connectors
 - SMA, TNC, Type N — IP67 rated in unmated condition
 - Withstand vibration, chemicals, submersion, corrosion



Opportunities are Everywhere – RF is Everywhere !

