

CONSTRUCTION & AGRICULTURE ANTENNAS

In-Vehicle & To/From Vehicle Connectivity

- 5G, LTE, Cellular
- Wi-Fi (inc Wi-Fi 6E/7)
- Bluetooth
- Two-Way Radio
- Satcom
- GNSS

Vehicle Trailer and Peripherals Connectivity

- 5G, LTE, Cellular
- Wi-Fi (inc Wi-Fi 6E/7)
- Bluetooth
- GNSS







Construction and agriculture industries today rely on the very latest communication technologies to keep everyone safe and seamlessly connected everywhere.

Access to real-time data and being contactable at any time while on the move is critical. For construction and agriculture this means delivering reliable communications in and around vehicles, as well as their support vehicles/systems.

As well as traditional communication this also helps to enable emerging technologies such as Artificial Intelligence which rely on high bandwidth connectivity. Accurate location/positioning is also achieved using GNSS and GPS technologies.

Antennas from TE Connectivity (TE) help meet and exceed that demand for best-in-class connectivity.

Applications

	Agriculture, fleets, utility vehicles, trailers and support vehicles - 5G, Wi-Fi 6E/7, GNSS, Two-Way Radio
	Broadband Evolution and the networks now being utilized to enhance agricultural, construction & fleet vehicles
	Multi-radio coordination and need for MIMO, allowing multiple concurrent wireless protocols in one vehicle
	Evolution of user experience and the digital engagement of remotely located stakeholders

This brochure presents an exciting range of multi and single-port antennas which are suitable for agriculture and construction wireless communications.

WHY TE CONNECTIVITY?

TE Connectivity has a reputation for the quality and performance of their antennas. As well as a large catalog of standard off-the-shelf- antennas, our team also has a broad range and depth of expertise in antenna design and development.

Expertise

TE Connectivity's combined expertise and long track record of associated quality means that we are able to offer a range of catalog products as well as some more stringently tested and validated antenna designs.

TE can offer custom antenna designs and validations solutions through our strong team of 50+ talented engineers spread globally across: Mechanical Engineering; RF Engineering; Hardware and Software disciplines.

Expertise includes:

- 4G/5G RF design
- Precision location/positioning
- Multi-band / multi-mode antennas
- Wi-Fi (Including Wi-Fi 6E & Wi-Fi 7), LPWAN, Cellular, GNSS, RFID, Satcom, 2-Way Radio
- Antenna integration
- Carrier pre-certification assessment
- LDS design & manufacturing

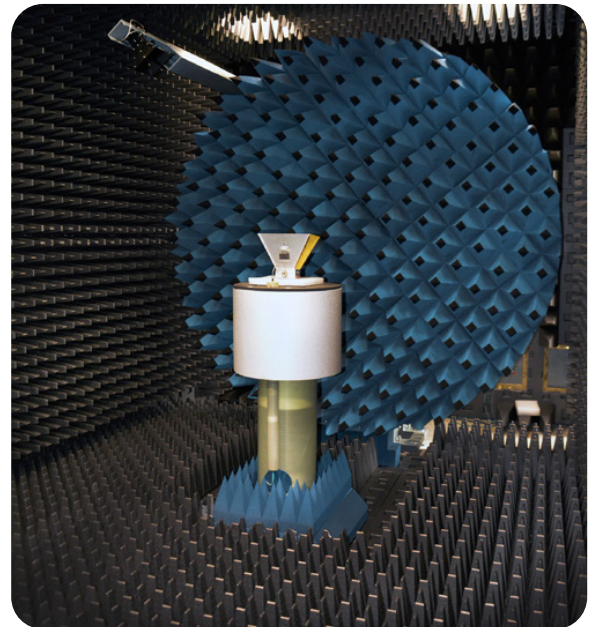
Our state-of-the-art RF and EM simulation and optimization tools includes:

- CST & HFSS EM simulation software
- Optenni optimization tool
- Advanced simulation for hardware development acceleration

Advanced Capabilities

In addition to our teams' extensive capabilities and the advanced design and simulation tools we have available TE can also offer more stringent design, testing, electrical mechanical and environmental specifications for our products including:

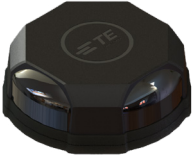



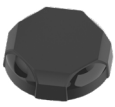

- Customized connector, cable and port configurations
- Design-led stylish and aesthetic designs
- Ensuring compatibility with applicable gateways & routers
- Providing design-in expertise up to full designs



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Multi-Port Antennas

The antennas listed below are common examples of the multi-port antenna portfolio from TE Connectivity. 'Common Port Configurations' given as examples below do not represent the entire portfolio. Please contact us if you have a different requirement.

	Product Series	Common Port Configurations					
		4G/5G	Wi-Fi	Bluetooth	VHF/UHF	GNSS	
	<p>FP40 ultra Series</p> <p>Up to 14-port antennas providing an all-in-one solution for LTE/5G, Wi-Fi, GNSS and Bluetooth in high bandwidth mobile connectivity applications. The product family includes a 5m extension cable with each antenna plus a range of connector options to suit all major vehicular gateways and routers.</p> <p>Learn More</p>	4	8	1	-	1	
		4	2	1	-	1	
		4	-	-	-	-	
	<p>FP20 auto Series</p> <p>Up to 9-port aerodynamic antennas providing a combination of 4G, 5G, CBRS, Wi-Fi, Bluetooth and GNSS. Plus, optional VHF, UHF and tri-band whip antennas to address your connectivity requirements. The product family includes a 5m extension cable with each antenna plus a range of connector options to suit all major vehicular gateways and routers.</p> <p>Learn More</p>	2	4	-	1	2	
		2	2	-	1	2	
		2	2	-	-	1	
	<p>FPL pro Series</p> <p>2 or 3-port antennas designed as an all-in-one solution for UHF (TETRA) gateways and radios, FPL pro antennas offer combinations of TETRA (UHF), Wi-Fi 6E/7 and GNSS from a single antenna.</p>	-	1	-	1	1	
			<p>Permanent mount and magnetic mount options allow customers a range of choices to suit their needs.</p> <p>Learn More</p>	-	-	-	1
	<p>VersAnte Antenna Series</p> <p>VersAnte multi-port IoT antennas offer combinations of 4G/5G cellular, Wi-Fi and GNSS coverage in an extremely compact form factor.</p> <p>Mountable on metallic or non-metallic surfaces, due to ground plane impedance. Combined with an IP67, IP69K rating these antennas are extremely versatile.</p> <p>VersAnte Disk Puck Antennas</p> <p>VersAnte Fin Antennas</p>			1	1	-	-
			2	-	-	-	1
			2	-	-	-	-





Multi-Port Antennas Continued

The antennas listed below are common examples of the multi-port antenna portfolio from TE Connectivity. 'Common Port Configurations' given as examples below do not represent the entire portfolio. Please contact us if you have a different requirement.

	Product Series	Common Port Configurations			
		4G/5G	Wi-Fi	VHF/UHF	GNSS
	Barracuda Series 6-port, multi-port/multi-band antennas which can provide an excellent solution for agriculture and vehicular applications. Configured for two-port MIMO operation over the 3G/4G/5G/ISM/CBRS bands this antenna family also offers configurations with UHF, Wi-Fi and GNSS capabilities. Learn More	2	3	-	-
		2	2	-	1
		2	2	1	1
	Gar Series Up to 5-port, multi-port/multi-band antennas which can provide an excellent solution for agriculture and vehicular applications. Configured for two-port MIMO operation over the 3G/4G/5G/ISM/CBRS bands this antenna family also offers configurations with Wi-Fi and GNSS capabilities. Two Port - 2xLTE Three Port - 1xLTE, 1xWi-Fi, 1xGNSS Three Port - 2xLTE, 1xGNSS Four Port - 2xLTE, 1xWi-Fi, 1xGNSS Five Port - 2xLTE, 2xWi-Fi, 1xGNSS	2	2	-	1
		2	-	-	1
		2	-	-	-
	MIMO Phantom Antenna Series MIMO Phantom antennas are multi-protocol supporting high quality 2G, 3G, 4G, 5G, Cellular, ISM 868, ISM 900, LoRaWAN, and the unlicensed 2.4 GHz band from a single antenna. Learn More	2	-	-	-
	Disk Puck Series Two or three port antennas covering 698-960, 1710-2700, 2300-2700, and 4900-5900 MHz frequencies as well as GPS (1575.42 MHz). Three Port - 1xLTE, 1xWi-Fi 1xGNSS Three Port - 2xLTE, 1xGNSS Four Port 2xLTE, 1xWi-Fi, 1xGNSS	2	-	-	1
		2	-	-	1
		2	1	-	1





Single Port Antennas

The antennas listed below are common examples of the single port antenna portfolio from TE Connectivity. 'Common Configurations' given as examples below do not represent the entire portfolio. Please contact us if you have a different requirement.

	Product Series	Common Configurations				
		VHF	UHF	700/800/900 MHz	4G	5G
	<p>Phantom Antenna Series</p> <p>Single and multi-band Phantom antennas are known industry-wide for their IP67 enclosure, rugged construction and excellent performance. They're the antenna of choice in many public safety, transportation and aftermarket fleet applications. The antenna integrates SISO solutions for UHF, Cellular LTE and Wi-Fi into a low-profile housing.</p> <p>4G Phantom Antennas Dual Band Wi-Fi Phantom Antennas Multi-Band Phantom Antennas 800-5800 MHz Phantom Antennas 902-928 MHz Phantom Antennas</p>	✓	✓	✓	✓	-
	<p>Ultra Phantom Antenna Series</p> <p>Our unique patented Ultra Phantom single-band antenna is a rugged low-profile antenna for outdoor or indoor applications. The Ultra Phantom features vertical polarization, low visibility, wide bandwidth and a low angle radiation pattern that is superior to traditional gain antennas in most applications.</p> <p>Learn More</p>	-	✓	-	-	-
	<p>5G Phantom Antenna Series</p> <p>5G Phantom antennas deliver global cellular coverage, even for regions where the lower 600 MHz band is required. They offer high levels of average efficiency, over 80% up to 4200 MHz, and gain up to 6.0 dBi in an IP67-rated, compact form factor.</p> <p>5G Phantom Antennas - On Ground 5G Phantom Antennas - No Ground Required</p>	-	-	-	✓	✓
	<p>DBA6171 IP67 Hinged Dipole Series</p> <p>DBA6171xx series 5G swivel blade antennas support harsh environments with both IP67 (outdoor) and non-rated (indoor) configurations. With excellent performance from 617-7125 MHz the design is ruggedized to support high shock, vibration and humidity environments that may be experienced over the life of the product.</p> <p>Learn More</p>	-	-	-	✓	✓

Vehicle Whip Antennas




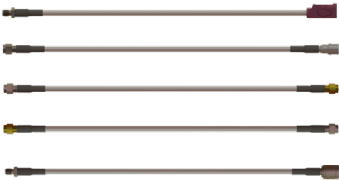
Our broad portfolio of single and multi-band 1/4, 1/2, and 5/8 wave whip antennas covers 27 MHz - 2500 MHz. Types include base loaded, shock spring, elastomer spring, no ground plane, coil, and elevated feed. Available with rugged construction, waterproof, with gold-plated push pin contacts, injection molded bases, and in black and chrome.

	Product Series	Common Configurations				
		VHF	UHF	700 MHz	800 MHz	900 MHz
	<p>A Series Antennas</p> <p>Featuring items such as stainless-steel whips, housings constructed with ABS material injected molded around a solid brass insert, and gold-plated push pin contacts make A-base antennas a match for demanding mobile radio communications.</p> <p>Learn More</p>	✓	✓	✓	✓	✓
	<p>B, C and CW Series Mobile Load Coil Antennas</p> <p>These mobile antennas are designed and built for demanding applications and typically outlast the cars they are mounted on. The antennas are manufactured in over 100 variations and each model is permanently marked for model and frequency.</p> <p>Learn More</p>	✓	✓	-	-	-
	<p>Elastomer Spring Antennas</p> <p>Elastomer spring antennas provides increased flexibility, better shape retention and eliminate electronic/road noise compared to stainless steel springs.</p> <p>Learn More</p>	✓	✓	✓	✓	✓
	<p>Multi-Band/Wideband Antennas</p> <p>Multi-Band or wideband whip antennas can provide more adaptable frequency coverage and can cover multiple frequencies or bands from a single antenna.</p> <p>Learn More</p>	Frequency coverage dependent on model				

Antenna Accessories

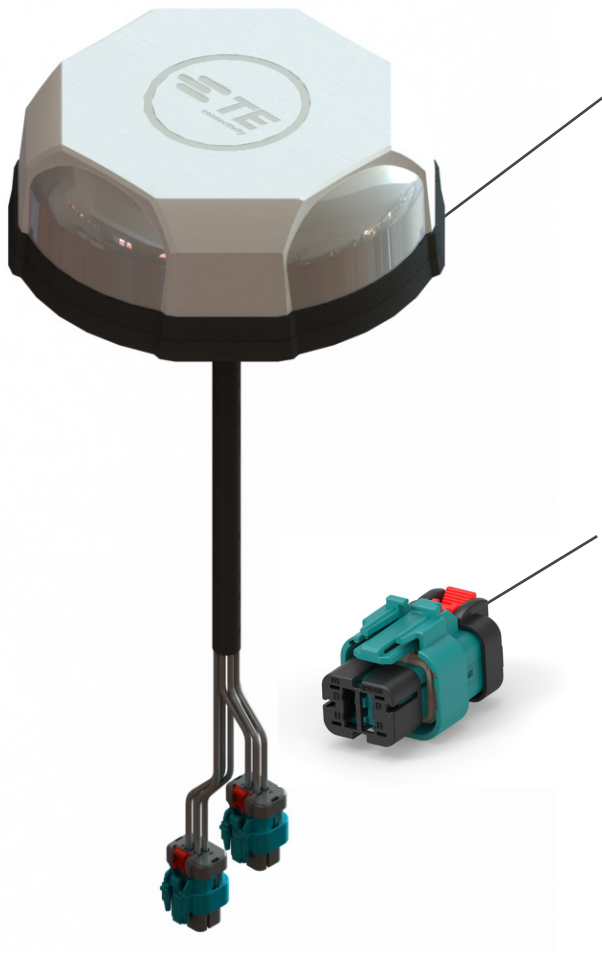
Cables - Coaxial cable and cable assemblies optimized for a variety of locations, signal losses and shielding requirements.

Connectors and Mounts - RF Connectors and mounts for a variety of applications and markets.

Product Series	
	<p style="text-align: center;">Antenna Mounts</p> <p>Our broad range of permanent, NMO and magnetic antenna mounts are the perfect accompaniment to our broad range of antennas. The mount range includes mounts for a number of connector options, both at the antenna and radio end of the mount. Some mounts are also available without connector for direct connection to a radio or for integrators to install their own.</p> <p style="text-align: center;">Learn More</p>
	<p style="text-align: center;">RF Connectors</p> <p>Our RF coaxial cable connectors are engineered and are available in small sizes, with tight tolerance electrical characteristics, and in materials that are rugged but not heavy and manufactured to withstand high use in harsh environments. These connectors are manufactured with crimp, solder, and clamp terminations to enable easy installation.</p> <p style="text-align: center;">Learn More</p>
	<p style="text-align: center;">AMPSEAL 16 Connector Series</p> <p>AMPSEAL 16 connectors are designed for off-road, heavy-duty industrial, recreational and agricultural applications. With an operating temperature of up to 150°C, the range is suitable for extended on-engine, after-treatment, and powertrain applications. The AMPSEAL 16 connectors are sealed connectors offering rugged reliability and preventing moisture and dirt from contaminating connections. The installation time is reduced as the receptacle and pin housings come fully assembled in a one-piece design.</p> <p style="text-align: center;">Learn More</p>
	<p style="text-align: center;">RF Cables</p> <p>RF cables assemblies come pre-built from the factory at custom sizes to serve a wide variety of RF applications including testing, transmission and the receiving of signals. Designed to carry an RF signal along its center contact (often made up of copper or other highly conductive element), it can move a variety of signals from the source to a desired location with a minimum of interference or loss.</p> <p style="text-align: center;">Learn More</p>

AMPSEAL 16 Coaxial Connectorized Vehicle Antennas

TE's expertise in both connectors and antennas positions the company perfectly to offer an ideal rugged solution for today's industrial vehicle market. The rigorously tested and reliable antennas, combined with high-quality AMPSEAL 16 connectors, provide multi-port antennas capable of supporting Wi-Fi, 5G, GNSS, Bluetooth, and more from a single unit. These antenna and connector combinations are perfectly suited for industrial, agricultural, and construction vehicles.



TE Vehicle Antennas

TE's broad range of vehicle antennas are built to withstand harsh or more rugged environments compared to antennas that may be placed in a static location.

Because of this, our vehicle antenna portfolio undergoes a range of electrical, mechanical and environmental tests which vary according to their use case. Example tests can include: shock; vibration; wind survival, temperature; humidity and many more.

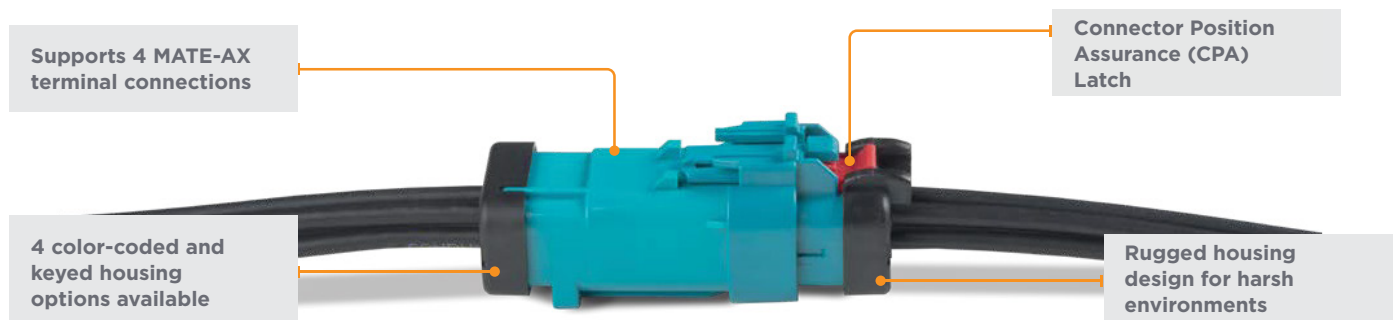
AMPSEAL 16 Coaxial Connectors

Designed specifically for sealed, robust coaxial connection needs in heavy-duty off highway applications. AMPSEAL 16 connectors are IP67/IP69K rated.

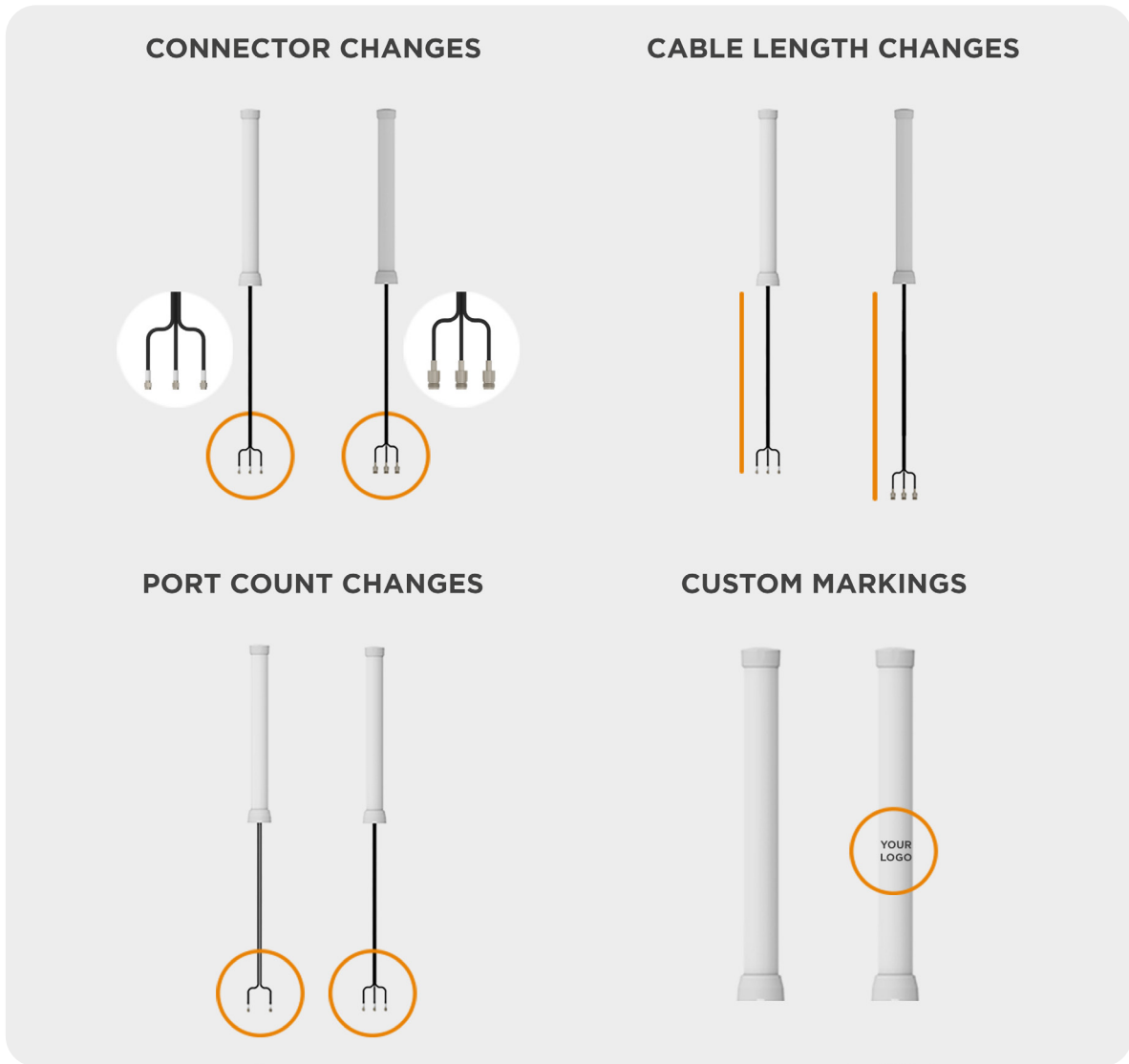
Supporting GMSL performance requirements up to 6GHz using MATE-AX miniaturized coaxial terminals with RG174 or RTK031 50 ohm coaxial cable.

TE offers a full line of AMPSEAL 16 coaxial cable-to-cable, cable-to-board and bulkhead mounted products for connections throughout a vehicle.

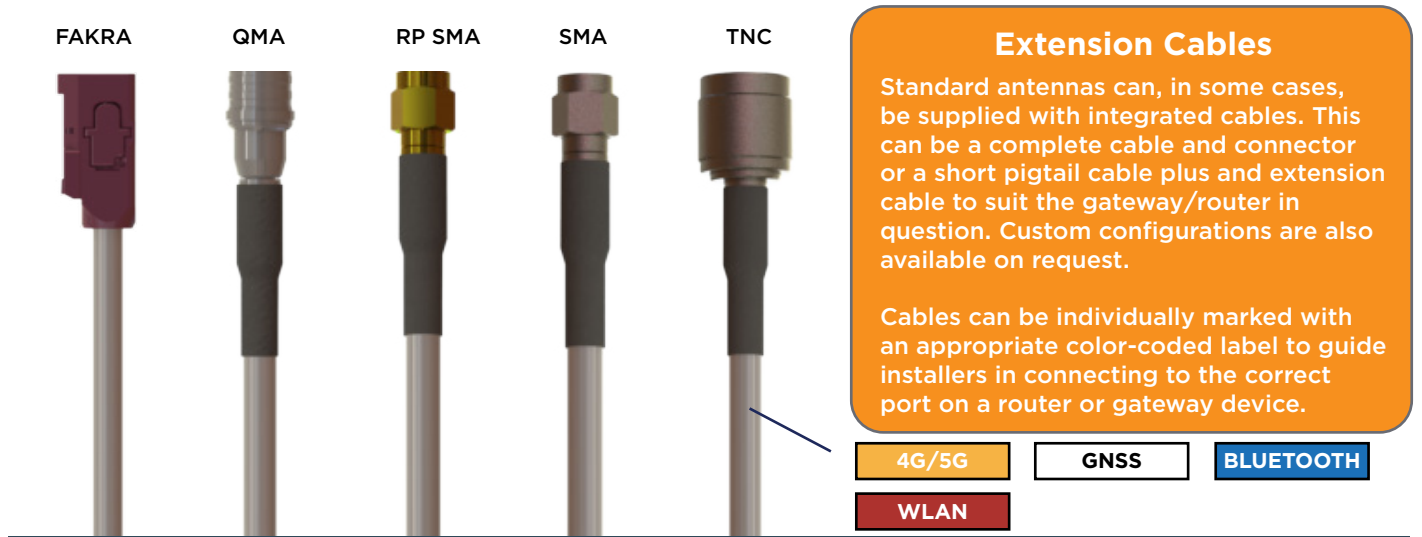
AMPSEAL 16 Coaxial Connector Features



Antenna Customization Options



Connector and Cable Examples



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