

M990F M980F M970F M960F M950F M940F M930F Low-Profile Series Mobility M2M IoT Antenna Specifications
Multi-Carrier Multi MIMO Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi MIMO Multi-Band WiFi 6 / WiFi HaLow / Bluetooth (2.4GHz)

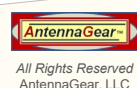
4G LTE CBRS 5G NR Frequency Range Bluetooth (2.4GHz) WiFi 6 Frequency Range	617-960MHz / 1710-6000MHz 2.4-2.5GHz / 4.9-6GHz (Concurrent)
4G CBRS 5G NR Avg. Peak Gain: <i>Isotropic</i> WiFi 6 / Bluetooth Avg. Peak Gain: <i>Isotropic</i>	(3dBi) 617-960MHz / (5.5dBi) 1710-3800MHz / (5.5dBi) 4900-6000MHz / (5.3dBi) CBRS LTE 3.5GHz (9dBi) 2.4GHz / (9dBi) 5GHz~6GHz
Typical Efficiency 4G 5G Elements	617-960MHz >60% 1710-3800MHz >65% 4900-6000MHz >85%
Typical Efficiency WiFi / Bluetooth Elements	>70%
Isolation 4G 5G Elements Isolation WiFi / Bluetooth Elements	>12dB >14dB
Correlation Co-efficient 4G 5G Elements Correlation Co-efficient WiFi / BT Elements	<0.2 <0.1
Nominal Impedance	Omni Directional / Vertical
4G LTE CBRS 5G NR Frequency Range Bluetooth (2.4GHz) WiFi 6 Frequency Range	50Ω
GPS GNSS Specifications	GPS Glonass Galileo QZSS Compass <i>In-Band Frequency Interference Filter for LTE B13 B14</i>
Frequency Range	1562-1612MHz
LNA Gain	29dB ± 2dB
VSWR	<2.0:1
Out of Band Rejection	>45dB (@ > +/- 100MHz f)
Typical Noise Figure	<-2dB
Notch Filter Rejection @787MHz	24dB
Operating Voltage	3-5V DC
Typical Current	15mA
Mechanical / Environmental Specifications	
Antenna Housing	High Impact UV Stable ABS Polymer (Black or White) Housing Height: 65mm (2.56") / Base Length: 200mm (7.87") / Base Width: 60mm (2.36")
Connector Types	FAKRA Connector Ends
15ft Coax Cables (All Cables Full Length)	Cellular 4G 5G AGA200 Coax / Multi Band WiFi AGA200 Coax / GPS GNSS AGA100 Coax (Custom cable length options are available)
Mounting Bolt	Stainless Steel Mounting Bolt: Length 24mm (0.95") / Diameter: 30mm (1.18") Diameter w/Anti Rotation Perma Seal Baseplate Pad
Operating Temp	-40° / +80°C (-40° / +176°F)
Ingress Protection	IP69K



M990F M980F M970F M960F Low-Profile Series Antenna Configuration Options (FAKRA)

<p>M990F 9-Element Configurations</p>	<p>M990F-BB-4CG4W: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 4 x Multi-Band WiFi 6 – (Black) M990F-BW-4CG4W: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 4 x Multi-Band WiFi 6 – (White)</p> <p>M990F-BB-6CG2W: Multi-MIMO x 6 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (Black) M990F-BW-6CG2W: Multi-MIMO x 6 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (White)</p> <p>M990F-BB-2CG6W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 6 x Multi-Band WiFi 6 – (Black) M990F-BW-2CG6W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 6 x Multi-Band WiFi 6 – (White)</p> <p>M990F-BB-8CG: Multi-MIMO 8 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (Black) M990F-BW-8CG: Multi-MIMO 8 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (White)</p> <p>M990F-BB-8WG: Multi-MIMO 8 x Multi-Band WiFi 6 / GPS GNSS – (Black) M990F-BW-8WG: Multi-MIMO 8 x Multi-Band WiFi 6 / GPS GNSS – (White)</p>
<p>M980F 8-Element Configurations</p>	<p>M980F-BB-4CG3W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 3 x Multi-Band WiFi 6 – (Black) M980F-BW-4CG3W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 3 x Multi-Band WiFi 6 – (White)</p> <p>M980F-BB-4C4W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / Multi MIMO 4 x Multi-Band WiFi 6 – (Black) M980F-BW-4C4W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / Multi MIMO 4 x Multi-Band WiFi 6 – (White)</p> <p>M980F-BB-2C6W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi MIMO 6 x Multi-Band WiFi 6 – (Black) M980F-BW-2C6W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi MIMO 6 x Multi-Band WiFi 6 – (White)</p> <p>M980F-BB-6C2W: Multi MIMO x 6 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 6 – (Black) M980F-BW-6C2W: Multi MIMO x 6 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 6 – (White)</p> <p>M980F-BB-8C: Multi-MIMO 8 x Cellular 4G LTE CBRS 5G NR – (Black) M980F-BW-8C: Multi-MIMO 8 x Cellular 4G LTE CBRS 5G NR – (White)</p> <p>M980F-BB-8W: Multi MIMO 8 x Multi-Band WiFi 6 – (Black) M980F-BW-8W: Multi MIMO 8 x Multi-Band WiFi 6 – (White)</p>
<p>M970F 7-Element Configurations</p>	<p>M970F-BB-4CG2W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (Black) M970F-BW-4CG2W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (White)</p> <p>M970F-BB-2CG4W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 4 x Multi-Band WiFi 6 – (Black) M970F-BW-2CG4W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 4 x Multi-Band WiFi 6 – (White)</p> <p>M970F-BB-4C3W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 6 – (Black) M970F-BW-4C3W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 6 – (White)</p> <p>M970F-BB-6CG: Multi-MIMO 6 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (Black) M970F-BW-6CG: Multi-MIMO 6 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (White)</p> <p>M970F-BB-6WG: Multi-MIMO 6 x Multi-Band WiFi 6 / GPS GNSS – (Black) M970F-BW-6WG: Multi-MIMO 6 x Multi-Band WiFi 6 / GPS GNSS – (White)</p>
<p>M960F 6-Element Configurations</p>	<p>M960F-BB-2CG3W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 3 x Multi-Band WiFi 6 – (Black) M960F-BW-2CG3W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 3 x Multi-Band WiFi 6 – (White)</p> <p>M960F-BB-2C4W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi-MIMO 4 x Multi-Band WiFi 6 – (Black) M960F-BW-2C4W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi-MIMO 4 x Multi-Band WiFi 6 – (White)</p> <p>M960F-BB-4C2W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 6 – (Black) M960F-BW-4C2W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 6 – (White)</p> <p>M960F-BB-6C: Multi-MIMO 6 x Cellular 4G LTE CBRS 5G NR – (Black) M960F-BW-6C: Multi-MIMO 6 x Cellular 4G LTE CBRS 5G NR – (White)</p> <p>M960F-BB-6W: Multi-MIMO 6 x Multi-Band WiFi 6 – (Black) M960F-BW-6W: Multi-MIMO 6 x Multi-Band WiFi 6 – (White)</p> <p>M960F-BB-5WG: Multi-MIMO 5 x Multi-Band WiFi 6 / GPS GNSS – (Black) M960F-BW-5WG: Multi-MIMO 5 x Multi-Band WiFi 6 / GPS GNSS – (White)</p>

M990F M980F M970F M960F M950F M940F M930F Low-Profile Series Antennas Include Built in Ground Plane / Full Length 15ft Coax Cables
 "Built To Spec" Custom Cable Options are Available. Contact us for details.





M900F Enterprise Series Mobility M2M IoT Antennas (FAKRA)
 MIMO Cellular 4G LTE CBRS 5G NR / GPS GNSS
 MIMO Multi-Band WiFi 6 / WiFi HaLow / Bluetooth
 Built-In Ground Plane / Bolt Mount

M950F M940F M930F Low-Profile Series Antenna Configuration Options (FAKRA)

<p>M950F 5-Element Configurations</p>	<p>M950F-BB-2CG2W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (Black) M950F-BW-2CG2W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (White)</p> <p>M950F-BB-2C3W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 6 – (Black) M950F-BW-2C3W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 6 – (White)</p> <p>M950F-BB-4CG: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS – (Black) M950F-BW-4CG: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS – (White)</p> <p>M950F-BB-4WG: Multi-MIMO x 4 Multi-Band WiFi 6 / GPS GNSS – (Black) M950F-BW-4WG: Multi-MIMO x 4 Multi-Band WiFi 6 / GPS GNSS – (White)</p> <p>M950F-BB-4WG: Multi-MIMO x 4 Multi-Band WiFi 6 / GPS GNSS – (Black) M950F-BW-4WG: Multi-MIMO x 4 Multi-Band WiFi 6 / GPS GNSS – (White)</p> <p>M950F-BB-5W: Multi MIMO 5 x Multi-Band WiFi 6 – (Black) M950F-BW-5W: Multi MIMO 5 x Multi-Band WiFi 6 – (White)</p>
<p>M940F 4-Element Configurations</p>	<p>M940F-BB-2CGW: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-Band WiFi 6 – (Black) M940F-BW-2CGW: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-Band WiFi 6 – (White)</p> <p>M940F-BB-2C2W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 6 – (Black) M940F-BW-2C2W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 6 – (White)</p> <p>M940F-BB-4C: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR – (Black) M940F-BW-4C: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR – (White)</p>
<p>M930F 3-Element Configurations</p>	<p>M930F-BB-2CG: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS – (Black) M930F-BW-2CG: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS – (White)</p> <p>M930F-BB-2CW: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi-Band WiFi 6 – (Black) M930F-BW-2CW: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi-Band WiFi 6 – (White)</p> <p>M930F-BB-2WG: MIMO x 2 Multi-Band WiFi 6 / GPS GNSS – (Black) M930F-BW-2WG: MIMO x 2 Multi-Band WiFi 6 / GPS GNSS – (White)</p> <p>M930F-BB-3W: MIMO 3 x Multi-Band WiFi 6 – (Black) M930F-BW-3W: MIMO 3 x Multi-Band WiFi 6 – (White)</p>

M900F Low-Profile Series Antenna Housing Color Options
 Black / White



M900F Low-Profile Enterprise Series Antenna Coax Cable Labels (FAKRA)
 CELL / WIFI / GPS / Bluetooth

Cell FAKRA-D

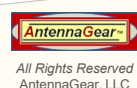
WiFi FAKRA-I

GPS FAKRA-C

Bluetooth FAKRA-G



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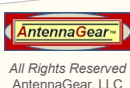


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 MIMO Cellular 4G LTE CBRS 5G NR / GPS GNSS
 MIMO Multi-Band WiFi 6 / WiFi HaLow / Bluetooth
 Built-In Ground Plane / Bolt Mount

Supported Cellular Bands	
5G NR Bands	n1 n2 n3 n5 n7 n8 n12 n13 n14 n18 n20 n25 n26 n28 n29 n30 n38 n40 n41 n48-CBRS n66 n71 n75 n76 n77 n78 n79 C-band
4G LTE Bands	B1 B2 B3 B4 B5 B7 B8 B12 B13 B14-FirstNet B17 B18 B19 B20 B25 B26 B28 B29 B30 B32 B38 B39 B40 B41 B42 B43 B46-LAA B48-CBRS B66 B71
3G Bands	B1 B2 B3 B4 B5 B6 B8 B9 B19
Supported Cellular Service Provider Networks	
5G NR Bands	n1 n2 n3 n5 n7 n8 n12 n13 n14 n18 n20 n25 n26 n28 n29 n30 n38 n40 n41 n48-CBRS n66 n71 n75 n76 n77 n78 n79 C-band
4G LTE Bands	B1 B2 B3 B4 B5 B7 B8 B12 B13 B14-FirstNet B17 B18 B19 B20 B25 B26 B28 B29 B30 B32 B38 B39 B40 B41 B42 B43 B46-LAA B48-CBRS B66 B71
3G Bands	B1 B2 B3 B4 B5 B6 B8 B9 B19
Supported WiFi IEEE Standards	
WiFi 1-6	WiFi 1 Wif 2 (802.11ba) WiFi 3 (802.11g) WiFi 4 (802.11n) WiFi 5 (802.11ac) Wifii 6 6E (802.11ax)
* WiFi HaLow	WiFi HaLow (802.11ah) * Contact Us For M900F HaLow WiFi Configuration Options



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M990F M980F M970F M960F M950F M940F M930F Enterprise Series Antennas
 Dimensions

Height: 65mm (2.56") / Base Length 200mm (7.87") / Base Width 60mm (2.36")

Top View

Width
60mm (2.36")



Length 200mm (7.87")

Side View

Height
65mm (2.56")



Mounting Bolt
Length 24mm (0.95")
Diameter 30mm (1.18")



Stainless Steel Mounting Bolt
Length 24mm (0.95")
Diameter 30mm (1.18")

Baseplate Pad
Anti-Rotation
Perma-Seal Adhesive





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M990F M980F M970F M960F M950F M940F M930F Enterprise Series Antennas
 Optional Mounting Adapters

M900F Low-Profile Series Antenna
 w/ Optional M-Lander Mag Mount Adapter
 Sold Separately



Optional: Rugged M-Lander
 Adjustable Magnetic Mount Adapter
 Sold Separately

M900F Low-Profile Series Antenna
 w/ Optional L-Bracket Mount
 Sold Separately



Optional: L-Bracket Mount
 w/U-Bolt Set
 Sold Separately

