

FortiExtender Accessories

FANT-3IN1-TG-5M-FEV



Features

2× 5G/4G LTE (600 MHz - 6 GHz) MIMO Antenna

1x active GNSS antenna of GPS/ GLONASS/ BeiDou/ Galileo with front end SAW filter and low-noise amplifier

5m long low loss and high efficiency/ peak gain outdoor antenna cable (300 mm RG-174 cable + 4700 mm TGC-200 cable) with SMA male connectors

IP67 Rated Waterproof Enclosure

RoHS and REACH Compliant

Vehicle Rooftop or Outdoor Install Antenna

The FANT-3IN1-TG-5M-FEV is a three-in-one 5G/LTE/ GNSS permanent mount antenna with 5m long low loss antenna cable for vehicle roof or fixed outdoor applications. It has a fully IP67 rated waterproof and weather robust Polycarbonate (PC) enclosure and base. The three antennas inside support 5G/4G LTE and GPS/GLONASS/BeiDou/ Galileo. The FANT-3IN1-TG-5M-FEV delivers powerful MIMO antenna technology for 5G/4G LTE and an optimized patch antenna of GPS/GLONASS/BeiDou/Galileo for location positioning.

5G/LTE Antenna Performance

5G/4G ANTENNA											
Frequency (MHz)		5G NR Band 71	LTE700	GSM 850/900	5G NR Band	DCS	PCS	UMTS1	LTE2600	5G NR Band 77, 78, 79	LTE5200 Wi-Fi 5800
		617 ~698	698 ~824	824 ~960	1427 ~1518	1710 ~1880	1850 ~1990	1920 ~2170	2300 ~2690	3300 ~3800	5150 ~5925
Efficiency (%)											
MIMO 1	5m	21.5	22.7	40.5	33.8	37.2	26.1	23.7	29.5	37.0	33.8
MIMO 2	5m	18.5	23.2	38.6	34.2	35.9	25.6	23.4	28.4	37.1	32.8
Average Gain (dB)											
MIMO 1	5m	-6.67	-6.45	-3.92	-4.71	-4.30	-5.83	-6.26	-5.30	-4.32	-4.71
MIMO 2	5m	-7.32	-6.35	-4.13	-4.66	-4.45	-5.92	-6.31	-5.46	-4.30	-4.84
Peak Gain (dBi)											
MIMO 1	5m	-1.92	-0.37	2.96	2.22	2.72	0.23	0.03	2.24	4.28	3.33
MIMO 2	5m	-2.48	-0.56	2.44	2.08	3.07	0.38	0.03	2.28	4.26	3.20
Impedance		50 Ω									
Polarization		Linear									
Radiation Pattern		Omni									
Max. input power		10W									



GNSS Antenna Performance

GNSS NAME	GPS	GLONASS	BeiDou	Galileo
COVERED BANDS	L1 (1575.42 MHz)	L1CR (1575.42 MHz) L1PT (1602 MHz)	B1 (1561 MHz)	E2 (1561 MHz) L1 (1575.42 MHz)
GNSS ELECTRICAL				
Frequency (MHz)		1561	1575.42	1602
VSWR (max.)		2.5	2.5	2.5
Passive Antenna Efficiency (%) (without cable loss)		40.02	48.39	44.29
Passive Antenna Gain at Zenith (dBic) (without cable loss)		3.75	4.44	4.54
Axial Ratio (dB)		20	11	15
Polarization			RHCP	
Impedance			50 Ω	
Cable			RG-174	
Connector			SMA (M)	

Active GNSS Antenna LNA and SAW Filter

LNA and Filter Electrical Properties				
Frequency (MHz)	1561	1575.42	1602	
VSWR (max.)	2.0:1	2.0:1	2.0:1	
Gain@1.8V (dBic)	28.8 dB	28.8 dB	28 dB	
Gain@3.0V (dBic)	29 dB	29 dB	28.3 dB	
Gain@5.5V (dBic)	29.6 dB	29.4 dB	28.7 dB	
Noise@1.8V (dB)	2.8 dB	2.3 dB	2.8 dB	
Noise@3.0V (dB)	2.8 dB	2.2 dB	2.8 dB	
Noise@5.5V (dB)	2.9 dB	2.3 dB	2.8 dB	
Power consumption@1.8V (mA)		8.7 mA		
Power consumption@3.0V (mA)		9.0 mA		
Power consumption@5.5V (mA)		11 mA		

Total Specification (Through Antenna, SAW Filter, and LNA)

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Frequency (MHz)	1561	1575.42	1602	
Gain@3V (dBic)	31.7 ±3	32.4 ±3	32.4 ±3	
Output Impedance		50 Ω		



Specifications

FANT-3IN1-TG-5M-FEV	
Mechanical	
Height	57.47 mm
Planner Dimension	0160 mm
Casing	PC
Cable	0.3 m RG-174LL with 4.7 m TGC-200 for 5G/4G - Fully Customizable 0.3 m RG-174LL with 4.7 m TGC-200 for GNSS - Fully Customizable
Connector	5G/4G SMA-Plug - Fully Customizable GNSS SMA-Plug - Fully Customizable
Thread	18.23 mm
Thread Diameter	M22
Waterproof	IP67
Sealant	Rubber Stopper and O-Ring
Weight	2.7 kg
Environmental	
Ingress Protection	IP67
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH
Cable Pull	RG-174 4 kg
Mounting	
Vehicle	Roof mount
Outdoor	Wall/pole mount (mounting bracket is needed, purchasable accessory)



Antenna 5G/LTE/3G Bands

5G/4G Bands			
5G NR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA			
Band Number	Uplink	Downlink	Covered
1	UL: 1920 to 1980	DL: 2110 to 2170	✓
2	UL: 1850 to 1910	DL: 1930 to 1990	✓
3	UL: 1710 to 1785	DL: 1805 to 1880	✓
4	UL: 1710 to 1755	DL: 2110 to 2155	✓
5	UL: 824 to 849	DL: 869 to 894	✓
7	UL: 2500 to 2570	DL: 2620 to 2690	✓
8	UL: 880 to 915	DL: 925 to 960	✓
9	UL: 1749.9 to 1784.9	DL: 1844.9 to 1879.9	✓
11	UL: 1427.9 to 1447.9	DL: 1475.9 to 1495.9	✓
12	UL: 699 to 716	DL: 729 to 746	✓
13	UL: 777 to 787	DL: 746 to 756	✓
14	UL: 788 to 798	DL: 758 to 768	✓
17	UL: 704 to 716	DL: 734 to 746	✓
18	UL: 815 to 830	DL: 860 to 875	✓
19	UL: 830 to 845	DL: 875 to 890	✓
20	UL: 832 to 862	DL: 791 to 821	✓
21	UL: 1447.9 to 1462.9	DL: 1495.9 to 1510.9	✓
22	UL: 3410 to 3490	DL: 3510 to 3590	✓
23	UL: 2000 to 2020	DL: 2180 to 2200	✓
24	UL: 1625.5 to 1660.5	DL: 1525 to 1559	✓
25	UL: 1850 to 1915	DL: 1930 to 1995	✓
26	UL: 814 to 849	DL: 859 to 894	✓
27	UL: 807 to 824	DL: 852 to 869	✓
28	UL: 703 to 748	DL: 758 to 803	✓
29	UL: to	DL: 717 to 728	✓
30	UL: 2305 to 2315	DL: 2350 to 2360	✓
31	UL: 452.5 to 457.5	DL: 462.5 to 467.5	✗
32	UL: to	DL: 1452 to 1496	✓
35		1850 to 1910	✓
38		2570 to 2620	✓
39		1880 to 1920	✓
40		2300 to 2400	✓
41		2496 to 2690	✓
42		3400 to 3600	✓
43		3600 to 3800	✓
48		3550 to 3700	✓
66	UL: 1710 to 1780	DL: 2110 to 2200	✓
71		617 to 698	✓
74/75/76		1427 to 1518	✓
78		3300 to 3800	✓
79		4400 to 5000	✓

* Covered Bands represent greater than 20% efficiency.



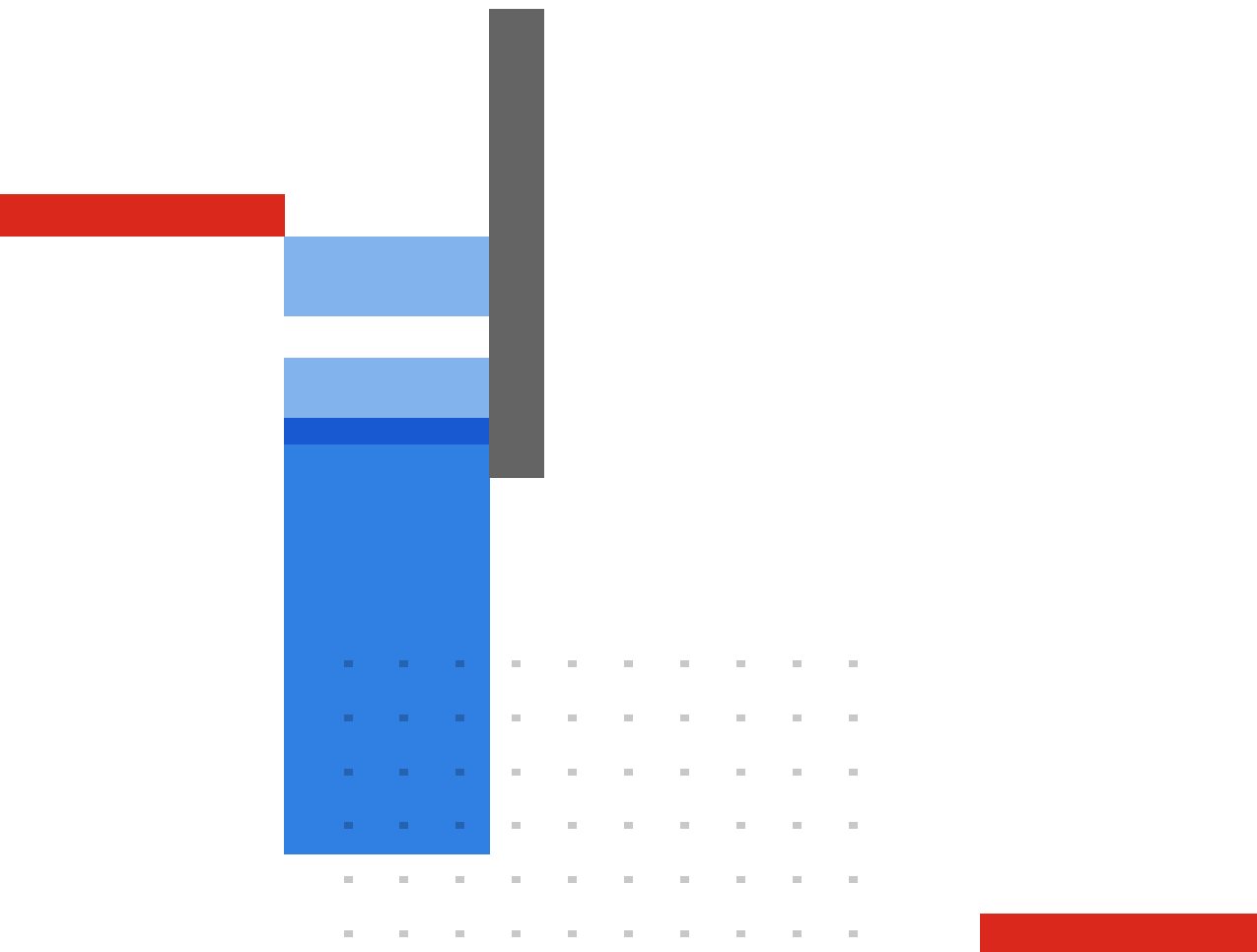
Ordering Information

Product	SKU	Description
FortiExtender Antenna	FANT-3IN1-TG-5M-FEV	3-in-1 permanent vehicle roof mount antenna for FEV-211F and FEV-211F-AM. Outdoor waterproof antenna with 2× 5G/LTE + 1x active GNSS and 5 meter antenna cable with SMA male connectors.



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