DATASHEET COMBINATION ANTENNAS

Smarteq™ LPCA-MIMO 5G Family Low Profile Combination Antenna

5-in-1 Cellular + GNSS + WiFi

Smarteq™ LPCA-MIMO

Description

Low profile configurable antenna designed to support multi-system solutions for heavy vehicles, ambulances, forest machines or Internet On Board services.

Technologies

- 4G/5G
- WiFi 6E/WiFi 7
- GNSS
  - GPS
  - Galileo
  - Glonass
  - Beidou

Features

- Up to 5-in-1 antenna
- 5G and WiFi 6E/WiFi 7
- 2x Cellular Main: 617-960/1710-2690/3300-5000MHz
- 2x Cellular Secondary/ Wi-Fi 6E: 1427-7200MHz
- 1x GNSS: GPS, Galileo, Glonass, Beidou
- LNA gain 30dB with pre-filter
- Approved according to ECE-R118

PCTEL an Amphenol company

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Smarteq™ LPCA-MIMO 5G by Smarteq, a PCTEL company, offers excellent RF performance in a discreet rugged, low-profile design supporting, Cellular MIMO 4x4 LTE/5G, GNSS or 2x2 LTE/5G and 2x2 MIMO WiFi 6E/WiFi 7 in a low profile casing with durable design. The antenna platform is configurable enabling adaption to your antenna system needs. Smarteq™ LPCA-MIMO 5G standard configuration contains two cellular band antennas designed for 617-960/1710-2690/3300-5000MHz, two secondary LTE/WiFi 6E/WiFi 7 antennas 1427-7125MHz and a LNA equipped GNSS antenna. Smarteq™ LPCA-MIMO antenna platform is designed to support multi system solutions making it perfect for fleet management, track and trace, navigation, cargo handling and V2X. Dual feed GNSS antenna enables excellent Axial ratio and gain. Pre-filtered LNA ensures functionality in a combination antenna.

Features

- Up to 5-in-1 antenna
- 5G and WiFi 6E/WiFi 7
- 2x Cellular Main: 617-960/1710-2690/3300-5000MHz
- 2x Cellular Secondary/Wi-Fi 6E: 1427-7200MHz
- 1x GNSS: GPS, Galileo, Glonass, Beidou
- LNA gain 30dB with pre-filter
- Approved according to ECE-R118

Applications

- Public safety
- Fleet management
- Navigation / Positioning
- Agriculture, construction equipment
- V2X
- Cargo/load handling

Certifications

RoHS COMPLIANT

SPECIFICATIONS

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Selection of LPCA Models

Configurations	Part Number	Antenna Ports				
		Cellular 5G/LTE	Cellular 5G/LTE	GNSS+	LTE-Sec WiFi 6E/ WiFi 7	LTE-Sec WiFi 6E/ WiFi 7
Smarteq™ LPCA-MIMO 5G	**710673**	Fakra-m/D	Fakra-m/D			
Smarteq™ LPCA-MIMO 5G WiFi/LTE-Sec	**710674**	Fakra-m/D	Fakra-m/D		Fakra-m/I	
Smarteq™ LPCA-MIMO 5G GNSS+	**710675**	Fakra-m/D	Fakra-m/D	Fakra-m/C		
Smarteq™ LPCA-MIMO 5G WiFi /LTE-Sec GNSS+	**710676**	Fakra-m/D	Fakra-m/D	Fakra-m/C	Fakra-m/I	
Smarteq™ LPCA-MIMO 5G MIMO WiFi/LTE-Sec	**710677**	Fakra-m/D	Fakra-m/D		Fakra-m/I	Fakra-m/I
Smarteq™ LPCA-MIMO 5G MIMO WiFi/LTE-Sec GNSS+	**710678**	Fakra-m/D	Fakra-m/D	Fakra-m/C	Fakra-m/I	Fakra-m/I
Smarteq™ LPCA-MIMO 5G (SMA)	**710746**	SMA-m	SMA-m			
Smarteq™ LPCA-MIMO 5G WiFi/LTE-Sec (SMA)	**710747**	SMA-m	SMA-m		RP SMA-m	
Smarteq™ LPCA-MIMO 5G GNSS+ (SMA)	**710748**	SMA-m	SMA-m	SMA-m		
Smarteq™ LPCA-MIMO 5G WiFi /LTE-Sec GNSS+ (SMA)	**710749**	SMA-m	SMA-m	SMA-m	RP SMA-m	
Smarteq™ LPCA-MIMO 5G MIMO WiFi/LTE-Sec (SMA)	**710750**	SMA-m	SMA-m		RP SMA-m	RP SMA-m
Smarteq™ LPCA-MIMO 5G MIMO WiFi/LTE-Sec GNSS+ (SMA)	**710751**	SMA-m	SMA-m	SMA-m	RP SMA-m	RP SMA-m

Electrical Specifications

2x Main Cellular LTE/5G	Frequencies				
	617-698 MHz	698-960 MHz	1710-2690 MHz	3300-440 MHz	4400-5000 MHz
VSWR (Typical)*	< 3:1	< 2.7:1	< 2.1:1	< 1.9:1	< 5:1
Peak Gain*	1dBi	3.3dBi	7.5dBi	6.3dBi	5.2dBi
Antenna Efficiency*	~40%	~65%	~78%	~58%	~35%
Isolation Port 1 to 2	13dB	13dB	26dB	26dB	38dB
Isolation Port 1 to 3	23dB	17dB	31dB	24dB	32dB
Isolation Port 1 to 4	15dB	13dB	19dB	26dB	32dB
Correlation Factor	<0.04 on ground plane				
Impedance	50Ω				
Polarization	Linear				
Radiation Characteristics	Omnidirectional				
Max Power	10W				
DC Short	Yes				

Measurements are made on Ø0.3 ground plane 0.3m cable.

SPECIFICATIONS

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Electrical Specifications

GPS/Glonass/Galileo/Beidou		
Frequency	1559-1610 MHz	
Impedance	50Ω	
Polarization	RHCP	
VSWR	< 2:1	
Gain Passive (Peak Gain)	**1585 MHz**	4.5dBic
	GPS	3.0dBic
	Glonass	2.0dBic
	Galileo	2.0dBic
	Beidou	1.5dBic
Active Gain	30 + 1 dB	
Noise Figure	<2.5dB including pre-filter	
Out-of-Band Rejection	**< 960 MHz** **> 1710 MHz**	> 60dB > 60dB
Supply Voltage	2.4 - 6V	
Typical Current Consumption	8 - 10mA	

	Frequencies			
2x Secondary LTE/5G/WiFi-6E	1427-1510 MHz	1710-2690 MHz	3300-5000 MHz	4900-7200 MHz
VSWR (Typical)*	2:1	2:1	2.5:1	2:1
Peak Gain*	6.5dBi	7dBi	6.5dBi	9dBi
Antenna Efficiency*	78%	80%	75%	70%
Isolation Port 3 to 4	15dB	13dB	15dB	20dB
Impedance	50Ω			
Polarization	Linear			
Radiation Characteristics	Omnidirectional			
Max Power	10W			
DC Short	Yes			

Measurements are made on Ø0.3 ground plane 0.3m cable.

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Mechanical and Environmental Specifications (All Models)

Physical

Dimensions (L x W x H)	280 x 120 x 50mm		
Color	Black, other colors available upon request		
Installation	Hole mount, Ø19mm; Installation thickness ≤ 6mm		
Cable Type	RG316		
Connector	According to table above.		
Cable Lengths	**Port**	**System**	**Length**
	1	Cellular	500mm
	2	Cellular	530mm
	3	GNSS+	560mm
	4	LTE-Sec/WiFi 6E/WiFi 7	470mm
	5	LTE-Sec/WiFi 6E/WiFi 7	440mm
Temperature (Storage / Operating)	-40°C to +85°C		
IP Class	IP67		
Compliance / Certifications	REACH, RoHS compliant. Certified according to 2014/53/EU Radio Equipment Directive (RED) Type approval: E5 (ECE R10.5)		

Other

Accessories	**Part Number**
Slitted Nut	710598
Extension Nut	710206

Extension Cables	**Part Number**	**Connector 1** Type	Gender	**Connector 2** Type	Gender
LL58 2.5 m	710606	FAKRA	Female Code Z	SMA	Male
	710608	FAKRA	Female Code D	FAKRA	Female Code D
	710609	FAKRA	Female Code C	FAKRA	Female Code C
	710610	FAKRA	Female Code I	FAKRA	Female Code I
LL58 5 m	710607	FAKRA	Female Code Z	SMA	Male
	710611	FAKRA	Female Code D	FAKRA	Female Code D
	710612	FAKRA	Female Code C	FAKRA	Female Code C
	710613	FAKRA	Female Code I	FAKRA	Female Code I

CONTACT US

For more information about this product contact your sales representative or visit

> pctel.com/antenna-products

Solving Complex Wireless Challenges

PCTEL, an Amphenol company, is a leading global provider of wireless technology solutions, including purpose-built Industrial IoT devices, antenna systems, and test and measurement products. Trusted by our customers for decades, we solve complex wireless challenges to help organizations stay connected, transform, and grow.

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