Products
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1.0/2.3
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AFI
AMC
BNC / RP-BNC
C
FAKRA SMB
FME
HN
MCX
Mini-UHF
Mini 75 Ohm SMB
MMCX
Precision (APC)
QDS
QMA
QWS
SC
SlimLine BNC
SMA / RP-SMA
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FAKRA SMB connector series

Product Links | Features & Benefits | Applications | Part Numbering System Overview | Mechanical and Color Coding | Cable Groups | Tooling Information | Specs | Interface Drawings | Assembly Instructions

With recent advancements in communications technology and increased consumer demand for a diverse array of on-board telematic services, RF communications systems have become indispensable components of the modern automobile.

To keep RF interconnection costs low and ensure high levels of electrical and mechanical performance for telematic applications, the German and American automotive industries have standardized a high-performing, cost-effective RF connector based on the FAKRA and USCAR standards.

Utilizing a standard metal SMB connector embedded within a plastic housing that can be designed with multiple colored codes for easy identification, FAKRA connectors are designed to perform up to 4GHz and meet the particular mechanical and environmental requirements of the automobile industry.

Amphenol offers both its original FAKRA connectors, which incorporate machined components, as well as its FAKRA II connector series which utilizes die cast as well as stamped and formed components.

Product Links

Single Plugs

Key Code A | Key Code B | Key Code C | Key Code D
Key Code E | Key Code F | Key Code G | Key Code H
Key Code I | Key Code K | Key Code Z

Straight Single Jacks

Key Code A | Key Code B | Key Code C | Key Code D
Key Code E | Key Code F | Key Code G | Key Code H
Key Code I | Key Code K | Key Code Z

Right Angle Single Jacks

Key Code A | Key Code B | Key Code C | Key Code D
Key Code E | Key Code F | Key Code G | Key Code H
Key Code I | Key Code K | Key Code Z

Dual Plugs

Key Code A | Key Code B | Key Code C | Key Code D

Key Code E | Key Code F | Key Code Z

Dual Jacks

Key Code A | Key Code B | Key Code C | Key Code D

Key Code E | Key Code F | Key Code Z

Male PCB Connectors

Key Code A | Key Code B | Key Code C | Key Code D

Key Code E | Key Code F | Key Code G | Key Code H

Key Code I | Key Code K | Key Code Z

Combo Connectors

Cable Connectors | PCB Connectors

Catalog Pages

Features & Benefits

- 12 different mechanical and color codes
- Plastic housing with locking feature and audible clicking noise
- Minimum of 100 mating cycles
- Frequency range of DC - 4 GHz
- Usable on multiple coaxial cables such as RG-58, RF-174, RG-316, RG-178, and other micro-cables
- Available in numerous connector configurations such as straight and right angle for cable as well as edge-launch and PCB designs

Applications

- Global Positioning Satellite
- Satellite Radio
- Vehicular Internet Access
- Remote Vehicle Diagnostics
- Bluetooth

Part Numbering System Overview

Single Series- FA1

F	A	1	-	N	X	S	P	-	C	*	*	-	#
Series				**Tab Location**	**Keying Codes**	**Style**	**Gender**		**Attachment**				**Special**
				North South East West		**S**traight **R**ight Angle	**P**(Male) **J**(Female)		C P	# C	# B		

Dual Series- FA2													
F	**A**	**2**	**-**	**N**	**X**	**S**	**P**	**-**	**C**	*****	*****	**-**	**#**
Series				**Tab Location** North South East West	**Keying Codes**	**Style** **S**traight **R**ight Angle	**Gender** **P**(Male) **J**(Female)		**Attachment**				**Special**
									C	#	#		
									P	C	B		

Note: For 2nd generation product, the part # begins with 2FA... instead of just FA...

Cable Group

	Cable Group Codes
00	RG-58/RG-174 Combo Design
01	RG 174, 188, 316
04	RG 58, 141
09	Cables with .057 OD
10	RG-178, .071OD Cables
62	RG-62
08	0.8DV Cable for Hirose U.FL Connector

Special Codes (Female)

	Special Codes (Female)
0	Standard
3	360° Design (R/A only)
6	Clip provision 180°

Special Codes (Male)

	Special Codes (Male)
0	Standard Bracket
1	Standard (Single)
9	Standard (Dual)
X	Special Bracket

Special Codes (Male PCB)

	Special Codes (Male PCB)
0	Edge Card
1	Edge Card with Support Legs
2	Vertical Mount
6	R/A Extended Nose (Gold)
8	R/A Extended Nose (Tin)
9	R/A Extended Nose (Nickel)
M	Die Cast R/A
S	Stamped & Formed R/A
X	Straight SMT PCB

Note: For the -6, -8 and -9, add an "A" to the end for assembled part w/housing.

Tooling Information

Recommended Tooling (Daniel's Manufacturing)						
	RG-174, RG-316, Cables			RG-58		
	Center Pin	Ferrule(Single)	Ferrule(Dual)	Center Pin	Ferrule(Single)	Ferrule(Dual)
Hand Crimp Tool	AFM8	HX4	HX4	AFM8	HX4	HX4
Pneumatic Crimp Tool	WA22	HX23	HX23	WA22	HX23	HX23
Die Set (Positioner)	K727	Y119 or Y1831	Y1831	K1470	Y188 or Y1832	Y1832
Depth Setting	4 or 5*	-	-	6 or 7*	-	-

Please note: The dual ferrule die sets can be used on the single ferrule designs.
* Depth setting should be used at minimum setting which will yield wire minimum 5 lbs pull-off force.
* Depth setting requirements depend upon several factors including wire manufacturer + grade.

FAKRA SMB Specifications

Electrical		
Impedance	50 ©	
Frequency Range	DC - 4 GHz	
Performance Spec	SAE-USCAR-17, 18	
VSWR		**DC - 2 GHz 2 GHz - 4 GHz**
	Spec requirement	1.40 max 1.50 max
	Straight SMB (cable group 1)	1.15 max 1.25 max
	Right angle SMB (cable group 1)	1.20 max 1.35 max
	Straight SMB (cable group 4)	1.10 max 1.15 max
Insertion Loss	Spec requirement: < .3 dB max from DC - 3GHz Up to 1 GHz: < .1 dB Up to 2 GHz: < .2 dB Up to 4 GHz: < .3 dB	
Insulation Resistance	1000 M© minimum	
Center Contact Resistance	Center contact: < 20 m© Outer contact: < 10 m©	
Dielectric Withstanding Voltage	> 1,000 VRMS at sea level	
Mechanical		
Mating Durability	100 mating cycles minimum	
Plastic Housing Engagement Force	Engagement: = 20 N Disengagement: = 25 N	
Cable Retention Force	Cable group 1: = 110 N Cable group 4: = 180 N	
Coding	12 mechanical and color codings	
Material		
Plastic Housing	PBT with 15% Glass Fiber	
Secondary Locking Clip	PBT with 15% Glass Fiber	
Center Contact	Male: Brass Female: Beryllium copper	
Body	Brass	
Barrel	Brass	
Retainer Ring	Beryllium copper	
Ferrule	Copper	

Insulator	TFE or TPX
Plating	
Center Contact	Gold
Body	cable types Nickel solder types Nickel, Gold, Tin
Barrel	Nickel
Ferrule	Nickel

Note: These characteristics are typical but may not apply to all connectors.

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