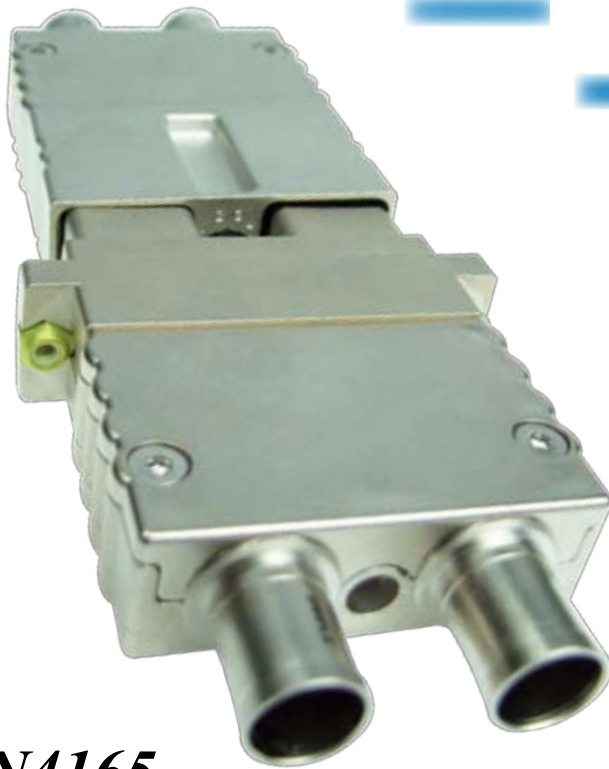


Rectangular Modular

SIM Connector



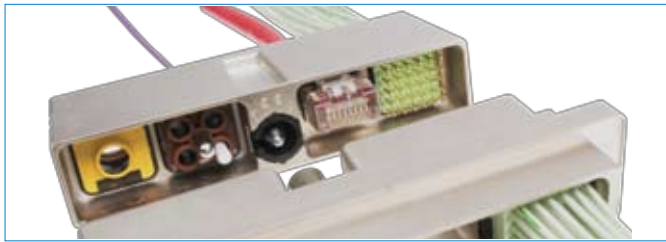
EN4165
MBBN 3330



Amphenol Air LB
Connected to people & technology

Version 1.1

PRESENTATION



SIM Connector is a Rectangular, Modular and Sealed connector, available in Composite or Metallic version, Metallized or not. Thanks to a broad range of Plugs, Receptacles, rear Accessories and Modules, SIM connector is perfectly suited for all applications in harsh environment. SIM connector can be made as a Scoop Proof versions, or in SIM plates to provide a very High Contact Density, and a Compact Design.

Applications in Harsh Environment

Commercial & Civil Airframe (CSS, IFE and Avionics)
Defence
Rail & Mass Transit

SIM connector Qualification

Plugs, Receptacles & Accessories are EN4165 qualified

ROHS & REACH

SIM Connectors & Modules are conform to REACH spec.

Metallic or Composite versions with a nickel plating are conform to ROHS spec.

Standard, Grounded, Shunted or Specific Modules are conform to ROHS spec.

Modules

Power
Signal
Quadrx, Triax, Twinax, Coax
Fiber Optic Termini
RJ45 Ethernet

Contacts

Copper Alloy : Crimp or PCB contacts

Size 22 to 8 : as per SAE-AS 39029 standard
as per EN3155 standard

Size 23 : EN3155 standard pending

ACCESSORIES

Covers and Chimneys
Cable Clamps
Test Shell
Flight Cap for Receptacle
...

MODULES

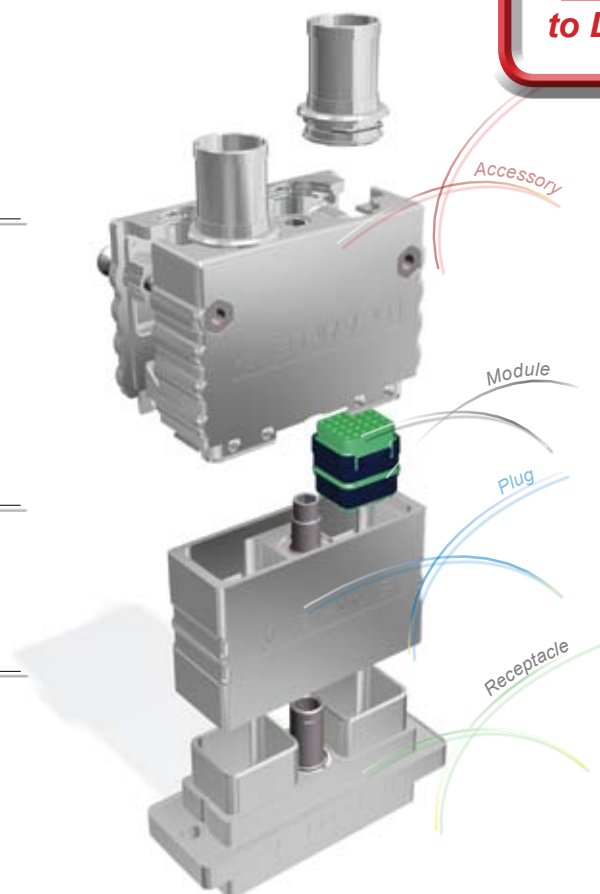
Standard
Grounded
Straight or 90° PCB
Optic
Shunt
...

PLUGS

Clicker Nut
Rack
Reversed Rack

RECEPTACLES

Standard
Short
Flanged
Short Flanged



**Go to
CENTRAL PAGE
to Define your SIM !**



Shells material

Metallic version	: Aluminum
Plating	: Nickel or Cadmium
Composite version	: Thermoplastic
Plating	: Nickel, Cadmium or without

Environmental

Operating Temperature : -55° to +175° C continuously

Salt Spray (BS)

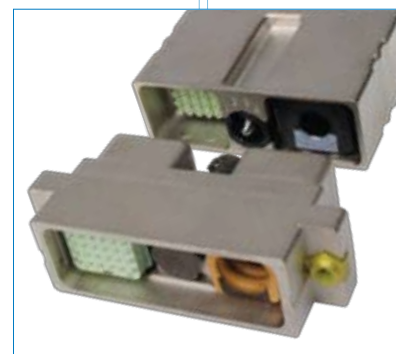
Plug + Receptacle mated		Plating		
		Without	Nickel	Cadmium
Material	Metallic	-	96h	500h
	Composite			



Electrical

Insulation resistance : $\geq$ to 5000 M Ω

	Size of Contacts						
	23	22	20	16	12	8	8
Withstanding voltage	1500 V eff. 50 Hz		1800 V eff. 50 Hz				
Max. Current Rating (A)	5		7,5	13	23	46	80



Mechanical

Shocks	: 100g during 10 ms
Vibrations	: 20g, from 5 to 3000 Hz
Endurance	: 500 full mating and unmating cycles

Sealing

Intercavity	: according to EN 2591 test 324 pressure $\leq$ 11 hPa
Crossing	: a leak $\leq$ to 4 cm ³ /h under differential pressure of 1 bar
Interfacial	: according to EN 2591 test 314 pressure $\leq$ 11 hPa

Module retention in shell

25,4 daN



Metallization resistance

Metallization continuity by conductive plating and grounding fingers

Metallic version	
- Nickel plating	: < 1 m Ω under 1 Amp per connection
- Cadmium plating	: < 2,5 m Ω under 1 Amp per connection
Composite version, Nickel and Cadmium plating	
	: < 3 m Ω under 1 Amp per connection

PART NUMBERING SYSTEM

SIM 2 - * - * - * - * - * - *

Material

Metallic standard : N
Composite standard : S
Metallic Shielded : D
Composite Shielded : B

Shell Size

for 4 modules : 8
for 2 modules : 4

Shell Type

PLUGS

Clicker Nut : 0
Rack : 8
Reversed Rack : 9

RECEPTACLES

Standard : 2
Short : 3
Flanged : 4
Short Flanged : 5

Plating

Without Plating : *nothing*
Black Nickel : N
Bright Nickel : K
Olive Drab Cadmium : V

Polarization

Supplied without polarizing Nut or Key : *nothing*

Supplied with
polarizing Nut or Key

[purple] : A
[yellow] : B
[green] : C
[blue] : D
[orange] : E
[white] : F
[standard] : G

Nut or Key position

Not mounted : *nothing*
Position 1 : 1
Position 2 : 2
Position 3 : 3
Position 4 : 4
Position 5 : 5
Position 6 : 6

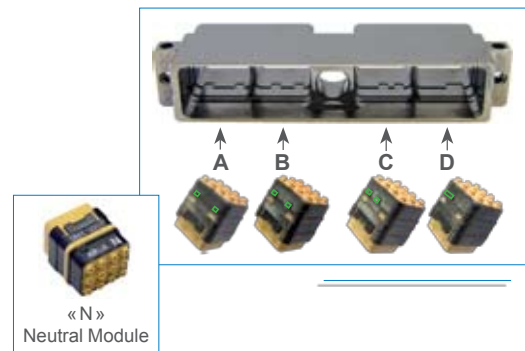
OPTIONS

POLARIZATION SYSTEM

Polarization

SIM Connector has been designed with a polarization system :

- ▣ Between Plugs and Receptacles (for mating), thanks to polarization nuts and keys
- ▣ For each cavity inside Plugs and Receptacles, thanks to a specific design using slots inside each cavity
 - ✓ Version 2 modules : Cavities A and B fitted respectively with A and B (or neutral N) polarized modules
 - ✓ Version 4 modules : Cavities A, B, C and D fitted respectively with A, B, C and D (or neutral N) polarized modules



On Receptacles : Polarizing Nuts

	A	B	C	D	E	F	G
							
	Purple	Yellow	Green	Blue	Orange	White	Standard
	006114 210 01	006114 210 02	006114 210 03	006114 210 04	006114 210 05	006114 210 06	006114 210 07

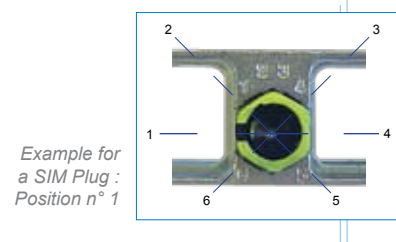
On Plugs : Polarizing Keys

	A	B	C	D	E	F	G
							
	Purple	Yellow	Green	Blue	Orange	White	Standard
	006114 200 01	006114 200 02	006114 200 03	006114 200 04	006114 200 05	006114 200 06	006114 200 07

Polarizing Combinations

The polarization system between plug and receptacle offers 36 polarizing combinations : 6 polarization nuts and keys (A to F) being mounted according to 6 positions (by rotation).

Polarization nuts and keys can be supplied either mounted in the SIM connector, or not.



Polarization Nuts Assembly Instructions

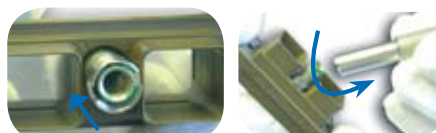
- ① Place the seal in the nut groove and use a weak thread locker
- ② Insert the nut by the rear of the receptacle according to the desired polarization
- ③ Engage the fixing screw-nut on the polarizing nut
- ④ Apply a Torque to the recommended value from 0,10 to 0,13 daN.m



Seal



Position n° 6



Polarization Keys Assembly Instructions

- ① On the Interface side of the Plug : Place the Key according to the wished polarization



Polarization Position of the Plug
=
Polarization Position of the Receptacle

Part Numbering System

(EXAMPLE) SIM*0000 P*

Peripheral sealing
[sealed] E
[not sealed] M

Polarization
[N, A, B, C, D]

(EXAMPLE) 335* 7020 501

Peripheral sealing
[sealed] 1
[not sealed] 0

N neutral polarization
by default



Protection of Modules during Transportation

A Rigid Protective Cap is also available to avoid contact damages (pin contacts bended, dust in socket contacts ...) during transportation of cable harnesses :

- ✓ Suited for both Pin and Socket Modules
- ✓ Suited for Modules with or without Peripheral Sealing



P/N : SIM201

All Pin Modules [equipped with Pin Contacts]
All Socket Modules [equipped with Socket Contacts]

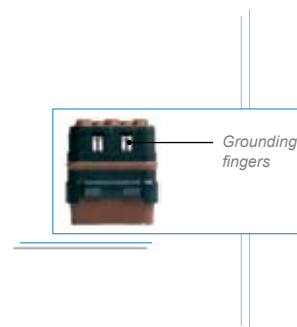
can be mounted into both

Plugs
Receptacles

STANDARD MODULES					CRIMPED CONTACTS					TOOLS		
Module	Drawing	Layout	Air LB P/N Pin Module	Air LB P/N Socket Module	Size	Type	EN 3155 standard	Others standards	Air LB P/N	Crimping Tool	Locator	Insertion Extraction
		30 cts size 23	SIM * 3023 P *	SIM * 3023 S *	23	S	Pending	BACC47HB1	001704 001 02	M22520/02-01	K1461 (Daniels)	001112 010 25
						P		BACC47HA1	001714 001 02			
		20 cts size 22	SIM * 2022 P *	SIM * 2022 S *	22	S	003 S 2222	SAE-AS39029 / 57-354	001704 100 02	M 22520/2-01	M 22520/2-06 M 22520/7-06	M 81969 / 14-01
						P	008 P 2222	SAE-AS39029 / 58-360	001714 100 02	M 22520/7-01	M 22520/2-09 M 22520/7-07	001112 100 25
		12 cts size 20	SIM * 1220 P *	SIM * 1220 S *	20	S	003 S 2020	SAE-AS39029 / 57-357	001704 203 02	M 22520/1-01 M 22520/2-01 M 22520/7-01	M 22520/1-04 M 22520/2-10 M 22520/7-08	M 81969 / 14-10 001112 250 25
						P	008 P 2020	SAE-AS39029 / 58-363	001714 203 02			
		8 cts size 16	SIM * 0816 P *	SIM * 0816 S *	16	S	003 S 1616	SAE-AS39029 / 57-358	001704 301 02	M 22520/1-01 M 22520/7-01	M 22520/1-04 M 22520/7-04	M 81969/14-03 001112 300 25
						P	008 P 1616	SAE-AS39029 / 58-364	001714 301 02			
		4 cts size 12	SIM * 0412 P *	SIM * 0412 S *	12	S	003 S 1212	SAE-AS39029 / 57-359	001704 400 02	M22520/1-01	M22520/1-04	M 81969/14-04 001112 400 25
						P	008 P 1212	SAE-AS39029 / 58-365	001714 400 02			
		1 ct size 8	SIM * 0108 P *	SIM * 0108 S *	8 46A	S	066 F 0808	/	001704 700 02	M300 BT	SP593	Extract. only M 81969/14-06 001112 700 25
						P	065 M 0808		001714 700 02			
		1 ct size 8	SIM * 0108 P *	SIM * 0108 S *	8 80A	S	/	ASNE 0825 LW 0800	001704 780 03	M 22520/23-01 Die-Set M 22520/23-02 414DA8N	4664-2	M 81969/14-06
						P		ASNE 0824 KV 0800	001714 780 03	M 22520/23 Die-Set 414DA8N	4664-1	
		1 ct Quadrax anti rotate polarizer side	SIM * 0118 P *	SIM * 0118 S *	Q U A D R A X	S	075 F 08	/	001704 705 02	int : M 22520/2-01 ext : M 22520/5-01	int : K709 ext : M 22520/5-45	Extract. only M 81969/14-06 001112 700 25
						P	075 M 08		001714 705 02			
		1 ct Quadrax anti rotate polarizer opposite side	SIM * 0128 P *	SIM * 0128 S *		S	075 F 08		001704 705 02			
						P	075 M 08		001714 705 02			
		5 cts size 22 + 6 cts size 16	SIM * 9901 P *	SIM * 9901 S *	22	S	003 S 2222	SAE-AS39029 / 57-354	001704 100 02	M 22520/2-01 M 22520/7-01	M 22520/2-06 M 22520/7-06 M 22520/2-09 M 22520/7-07	M 81969 / 14-01 001112 100 25
						P	008 P 2222	SAE-AS39029 / 58-360	001714 100 02			
					16	S	003 S 1616	SAE-AS39029 / 57-358	001704 301 02	M 22520/1-01 M 22520/7-01	M 22520/1-04 M 22520/7-04	M 81969 / 14-10 001112 250 25
						P	008 P 1616	SAE-AS39029 / 58-364	001714 301 02			

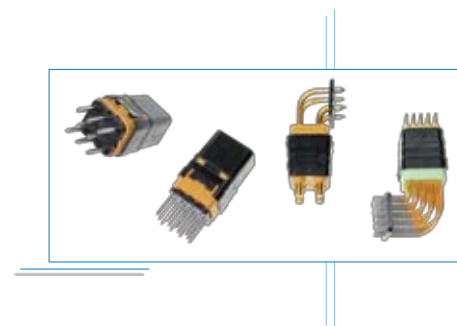
GROUNDING MODULES				CONTACTS		
Module	Drawing	Layout	With Peripheral Sealing	Size	Type	Air LB P/N
		8 cts size 16	SIM EG 0816 P*	16	P	001714 301 02
		4 cts size 12	SIM EG 0412 P*	12		001714 400 02
		1 ct size 8 Quadrax anti-rotate polarizer side	SIM EG 0118 P*	8		001714 705 02
		1 ct size 8 Quadrax anti-rotate polarizer opposite side	SIM EG 0128 P*			

Only available in pin version



SHUNT MODULES					CONTACTS		
Module	Drawing	Layout	With Peripheral Sealing	Without peripheral sealing	Size	Type	Air LB P/N
		20 cts size 22 5 x 4 cts shunted	SIM EZ 2022 P*	SIM MZ 2022 P*	22	P	001714 100 02
		20 cts size 22 3 x 4 cts shunted 4 x 2 cts shunted	SIM EZ 2A22 P*	SIM MZ 2A22 P*			
		20 cts size 22 10 x 2 cts shunted	SIM EZ 2B22 P*	SIM MZ 2B22 P*			

MODULES with STRAIGHT PCB CONTACTS		MODULES with 90° PCB CONTACTS		CONTACTS
Air LB P/N Pin Module	Air LB P/N Socket Module	Air LB P/N Pin Module	Air LB P/N Socket Module	Size
SIM * 3023 P*P	SIM * 3023 S*P	335* 7010 501	335* 7020 501	23
SIM * 2022 P*P	SIM * 2022 S*P	335* 7011 501	335* 7021 501	22
SIM * 1220 P*P	SIM * 1220 S*P	335* 7012 501	335* 7022 501	20
SIM * 0816 P*P	SIM * 0816 S*P	335* 7013 501	335* 7023 501	16
SIM * 0412 P*P	SIM * 0412 S*P	335* 7014 501	335* 7024 501	12
SIM * 9901 P*P	SIM * 9901 S*P	335* 7015 501	335* 7025 501	5cts size 22 + 6cts size 16



SPECIFIC MODULES						CONTACTS	TOOLS
Module	Drawing	Layout	Air LB P/N Pin Module	Air LB P/N Socket Module	Standard	Air LB P/N	Insertion Extraction
		6 optic termini Amphelux® and Luxcis® (ferule .059 inch)	SIM*O 06LU P*	SIM * O 06LU S *	ARINC 801	Consult us	001112 300 25
		4 optic termini Elio® (ferule .098 inch)	SIM*O 04EL P*	SIM * O 04EL S *	EN 4701 EN 4531-101		006101 009 00
		Ethernet RJ45 Metallized	SIM M D 0145 PN	SIM M D 0145 SN			
		Ethernet RJ45 Not Metallized	SIM M N 0145 PN	SIM M N 0145 SN			
		Sealing Module	SIM * L0000 PN	SIM * L0000 SN			

TOOLS FOR MODULES		
Insertion	Extraction	Extraction for RJ45 Modules
006101 006 00	006101 000 00	006101 008 00

DEFINE YOUR CONNECTOR

Choose
The Material

METALLIC

COMPOSITE

- ✓ Metallic : rigid
- ✓ Composite : lightweight

Choose
The Shielding

STANDARD

SHIELDED

STANDARD

SHIELDED

- ✓ EMI shielding
- Standard : NO
- Shielded : YES

Choose
The Plating

Ni

Cd

Ni

Cd

WITHOUT

Ni

Cd

- ✓ Salt Spray Resistance (page 2)
- Ni = Nickel (black or bright)
- Cd = Cadmium (olive drab)

CONFIGURATIONS

1

2

3

4

5

6

7

SEE ON PAGES
8 TO 14

CONFIGURATION N°1

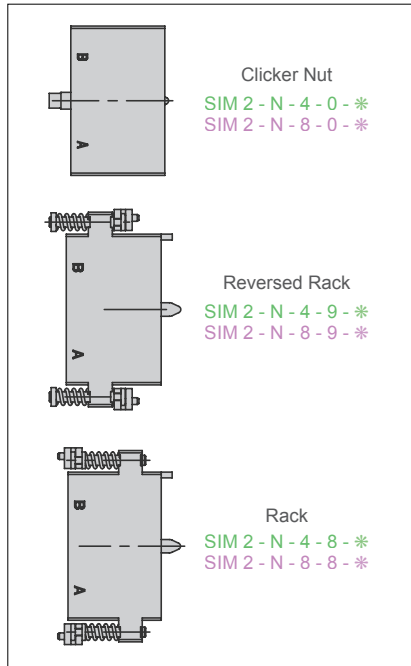
■ Metallic SIM Connector with Nickel Plating

- ✓ Choose your Shell Type : Plugs, Receptacles or Rear Accessories
- ✓ Choose your Shell Size : for 2 or 4 modules
- ✓ Choose your Plating (*) : Black Nickel (N) or Bright Nickel (K)

Legend

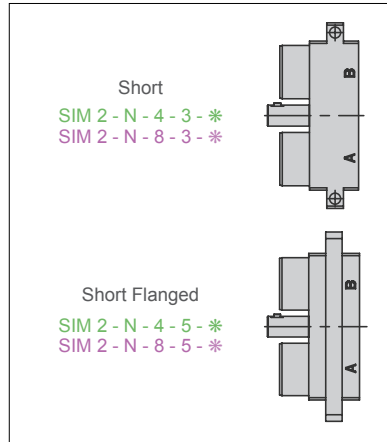
- Shell size for 2 modules
- Shell size for 4 modules

PLUGS

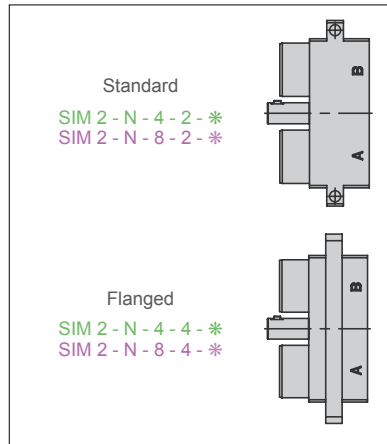


RECEPTACES

WIRE TO PCB INTERCONNECTION



WIRE TO WIRE INTERCONNECTION



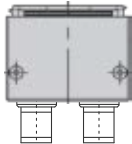
No BACKSHELL
OPTIONS FOR
SHORT
RECEPTACLE

REAR ACCESSORIES

Metallic for Plugs (for shielded continuity)

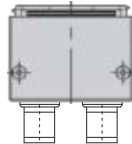
Clicker Nut Plug Cover

SIM - AD - 3 - 7 - *
SIM - AD - 6 - 7 - *



Rack Plug Cover

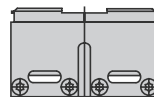
SIM - AD - 3 - 8 - *
SIM - AD - 6 - 8 - *



Metallic for Plugs and Receptacles

Cable Clamp

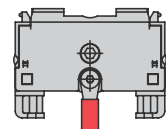
SIM - AN - 3 - 0 - *
SIM - AN - 6 - 0 - *



Composite for Clicker Nut plug and Receptacles

Adjustable Cable Clamp

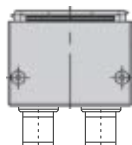
3351 6022 020
3351 6024 020



Metallic for Receptacles (for shielded continuity)

Receptacle Cover

SIM - AD - 3 - 4 - *
SIM - AD - 6 - 4 - *



COMPOSITE BACKSHELLS CAN ALSO BE MOUNTED WITH
METALLIC PLUGS & RECEPTACES

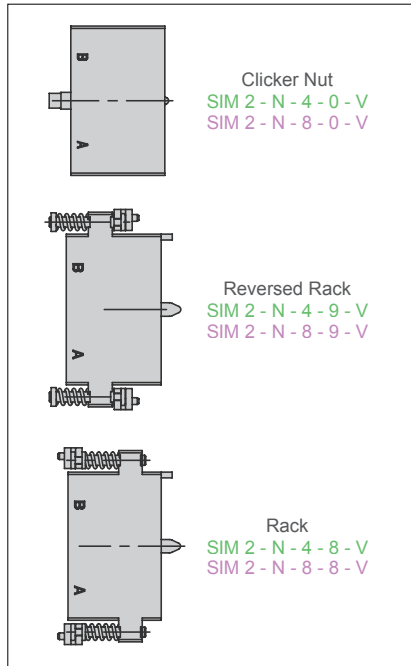
Legend

- Shell size for 2 modules
- Shell size for 4 modules

■ Metallic SIM Connector with Cadmium Plating

- ✓ Choose your Shell Type : Plugs, Receptacles or Rear Accessories
- ✓ Choose your Shell Size : for 2 or 4 modules

PLUGS



RECEPTACLES

WIRE TO PCB INTERCONNECTION

Short
SIM 2 - N - 4 - 3 - V
SIM 2 - N - 8 - 3 - V

Short Flanged
SIM 2 - N - 4 - 5 - V
SIM 2 - N - 8 - 5 - V

WIRE TO WIRE INTERCONNECTION

Standard
SIM 2 - N - 4 - 2 - V
SIM 2 - N - 8 - 2 - V

Flanged
SIM 2 - N - 4 - 4 - V
SIM 2 - N - 8 - 4 - V

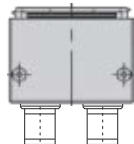
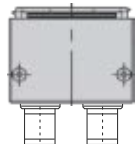
No BACKSHELL
OPTIONS FOR
SHORT
RECEPTACLE

REAR ACCESSORIES

Metallic for Plugs
(for shielded continuity)

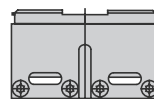
Clicker Nut Cover
SIM - AD - 3 - 7 - V
SIM - AD - 6 - 7 - V

Rack Cover
SIM - AD - 3 - 8 - V
SIM - AD - 6 - 8 - V



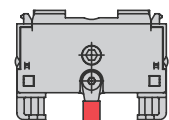
Metallic for Plugs and Receptacles

Cable Clamp
SIM - AN - 3 - 0 - V
SIM - AN - 6 - 0 - V



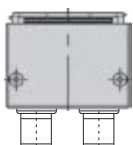
Composite for Clicker Nut Plug
and Receptacles

Adjustable Cable Clamp
3351 6022 028
3351 6024 028



Metallic for Receptacles
(for shielded continuity)

Receptacle Cover
SIM - AD - 3 - 4 - V
SIM - AD - 6 - 4 - V



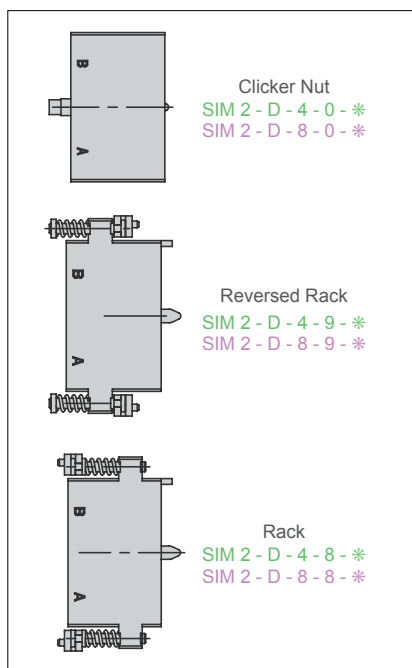
COMPOSITE BACKSHELLS CAN ALSO BE MOUNTED
WITH METALLIC PLUGS & RECEPTACLES

- Shell size for 2 modules
- Shell size for 4 modules

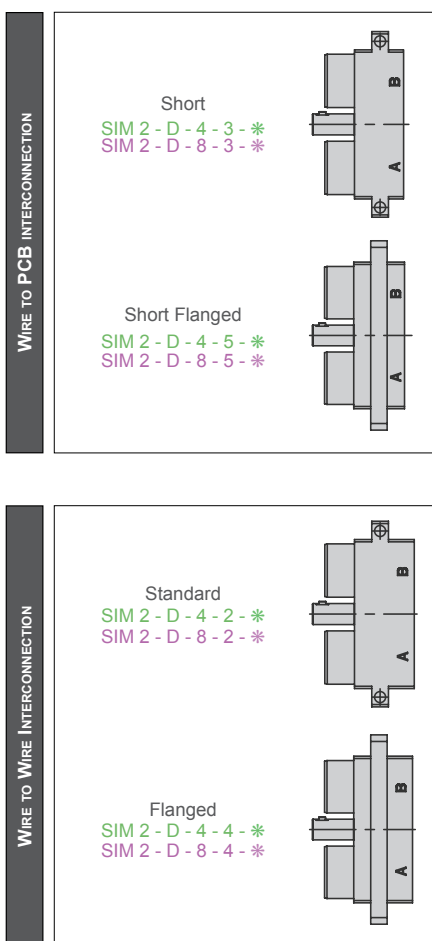
Shielded Metallic SIM Connector with Nickel Plating

- ✓ Choose your Shell Type : Plugs, Receptacles or Rear Accessories
- ✓ Choose your Shell Size : for 2 or 4 modules
- ✓ Choose your Plating (*) : Black Nickel (N) or Bright Nickel (K)

PLUGS

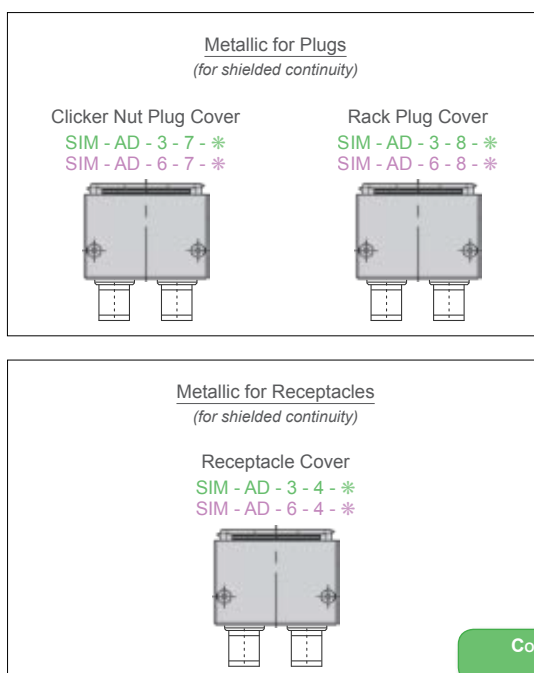


RECEPTACLES



No BACKSHELL
OPTIONS FOR
SHORT
RECEPTACLE

REAR ACCESSORIES

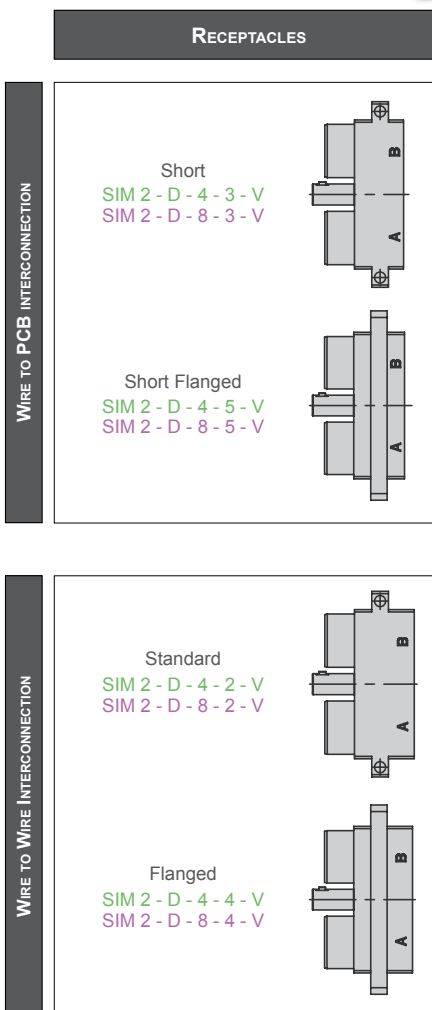
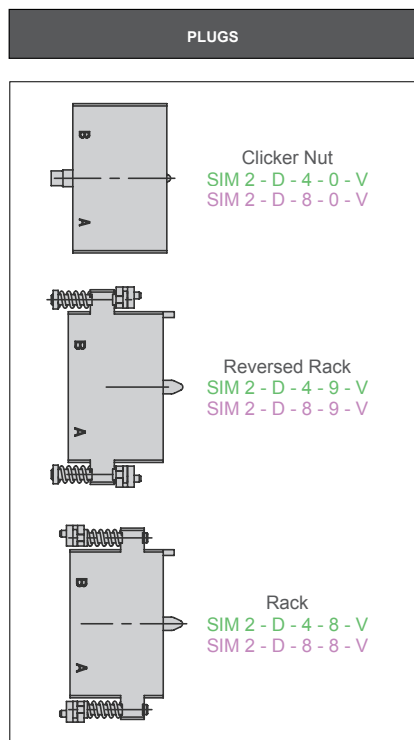


COMPOSITE BACKSHELLS CAN ALSO BE MOUNTED
WITH METALLIC PLUGS & RECEPTACLES

- Shell size for 2 modules
- Shell size for 4 modules

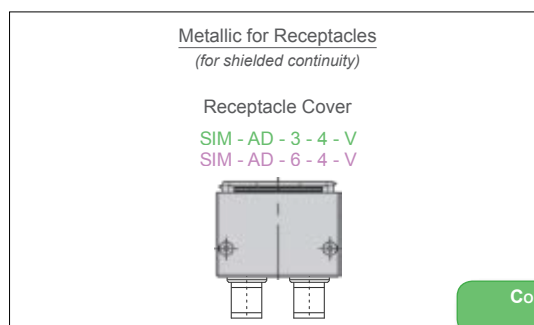
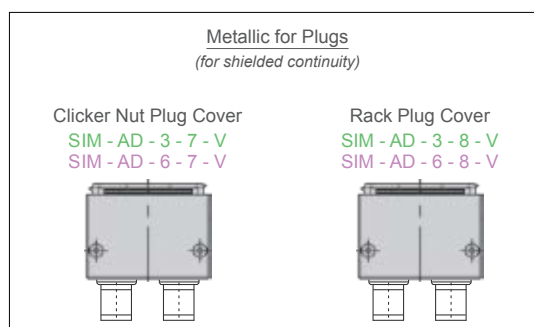
Shielded Metallic SIM Connector with Cadmium Plating

- ✓ Choose your Shell Type : Plugs, Receptacles or Rear Accessories
- ✓ Choose your Shell Size : for 2 or 4 modules



No BACKSHELL
OPTIONS FOR
SHORT
RECEPTACLE

REAR ACCESSORIES



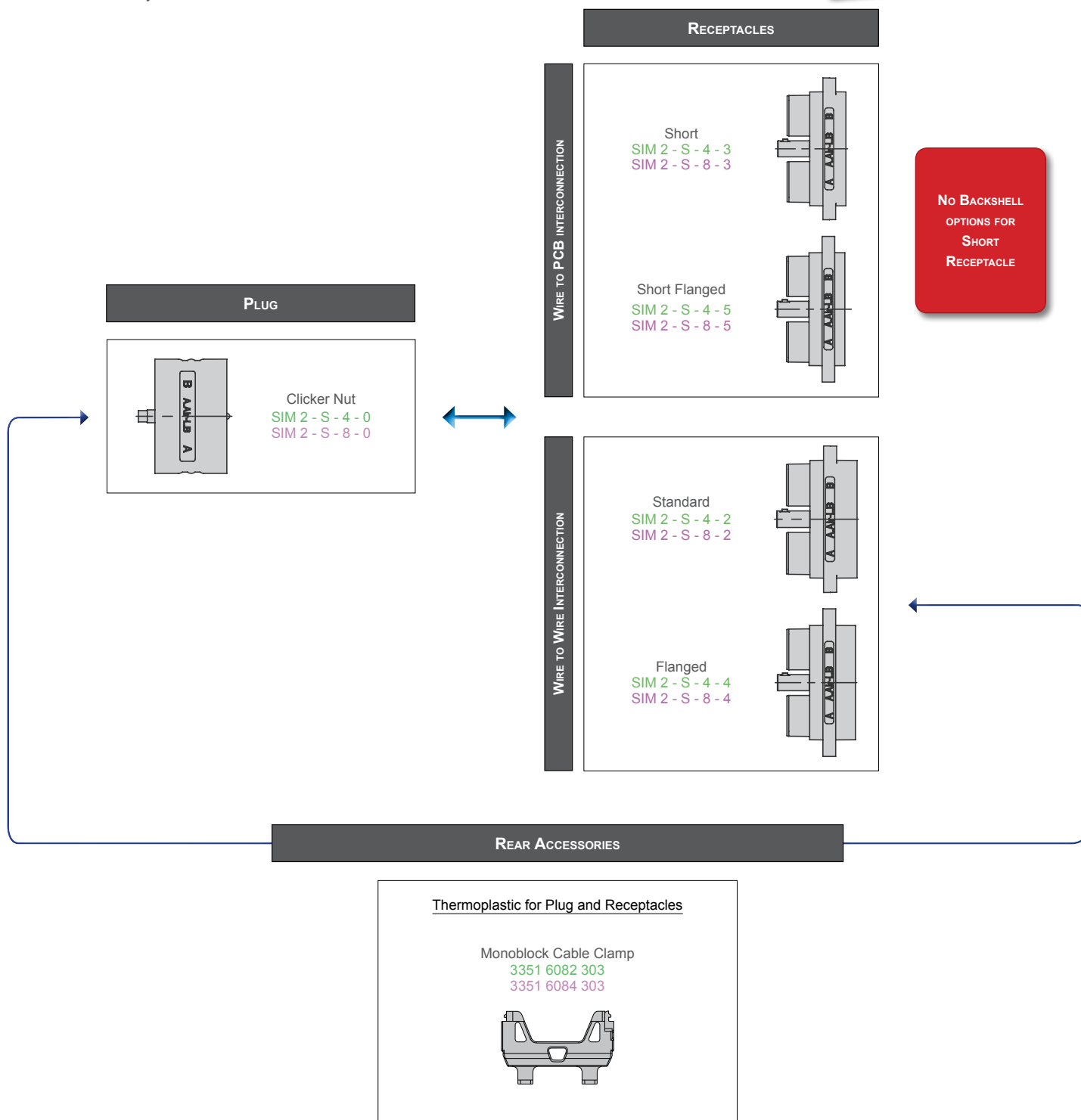
**COMPOSITE BACKSHELLS CAN ALSO BE MOUNTED
WITH METALLIC PLUGS & RECEPTACLES**

Legend

- Shell size for 2 modules
- Shell size for 4 modules

Composite SIM Connector without Plating

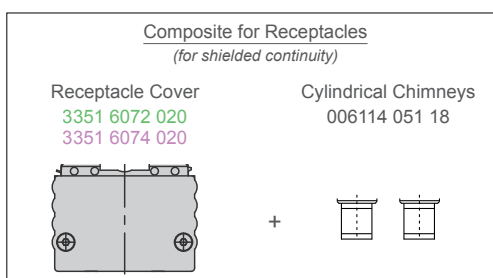
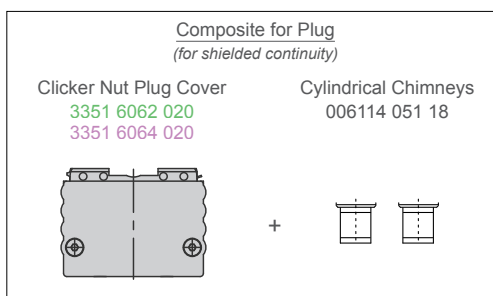
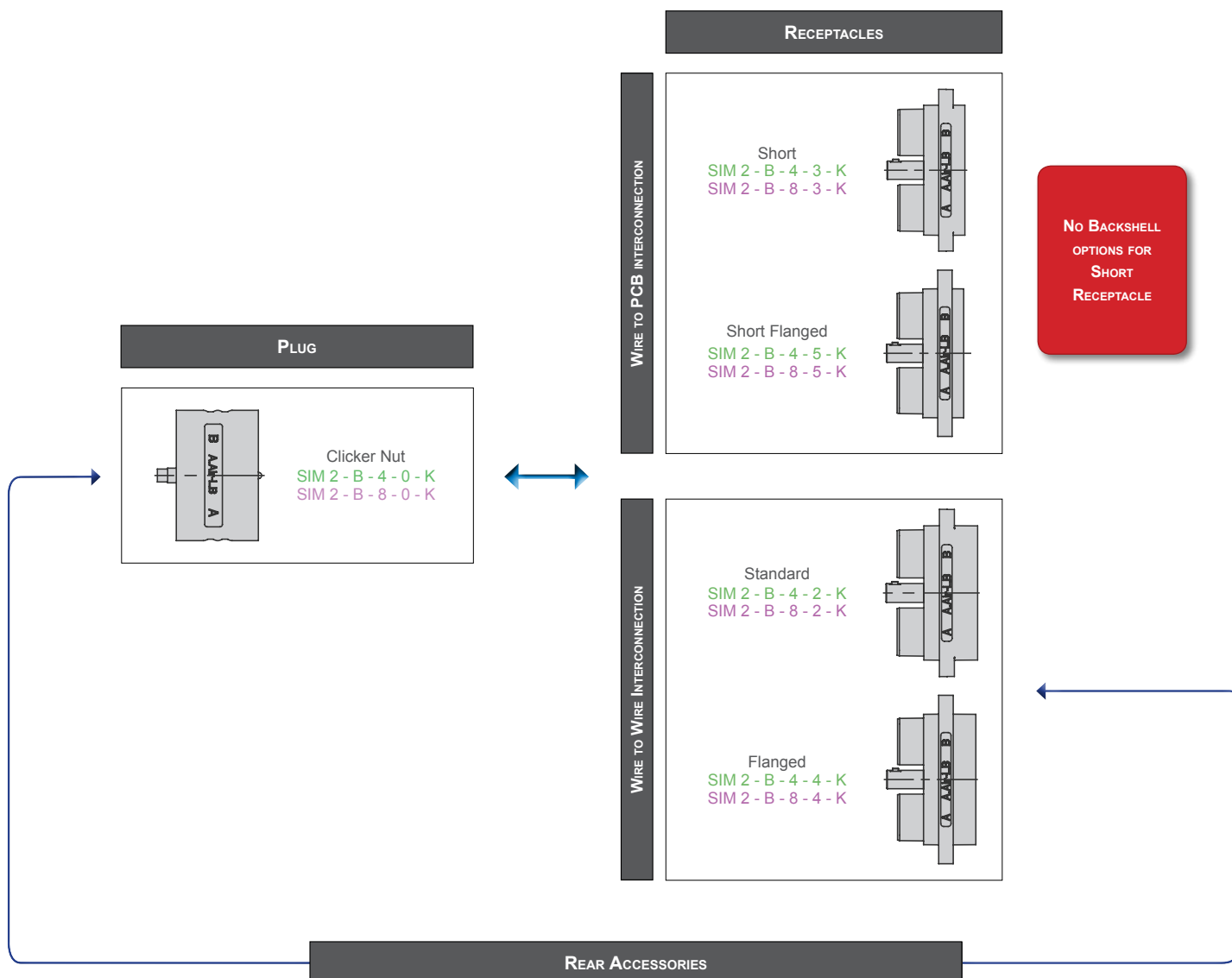
- ✓ Choose your Shell Type : Plugs, Receptacles or Rear Accessories
- ✓ Choose your Shell Size : for 2 or 4 modules



- Shell size for 2 modules
- Shell size for 4 modules

Shielded Composite SIM Connector with Nickel Plating

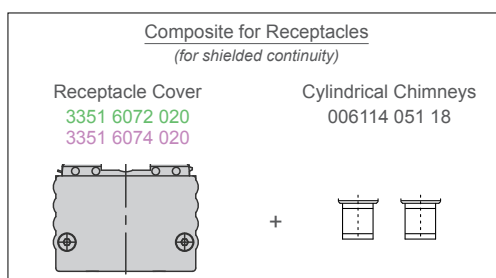
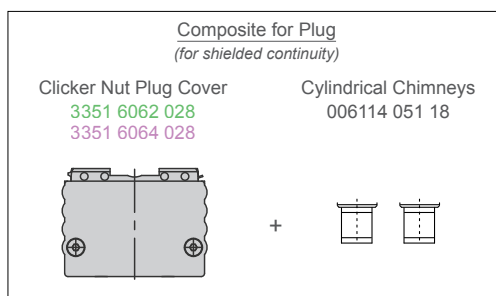
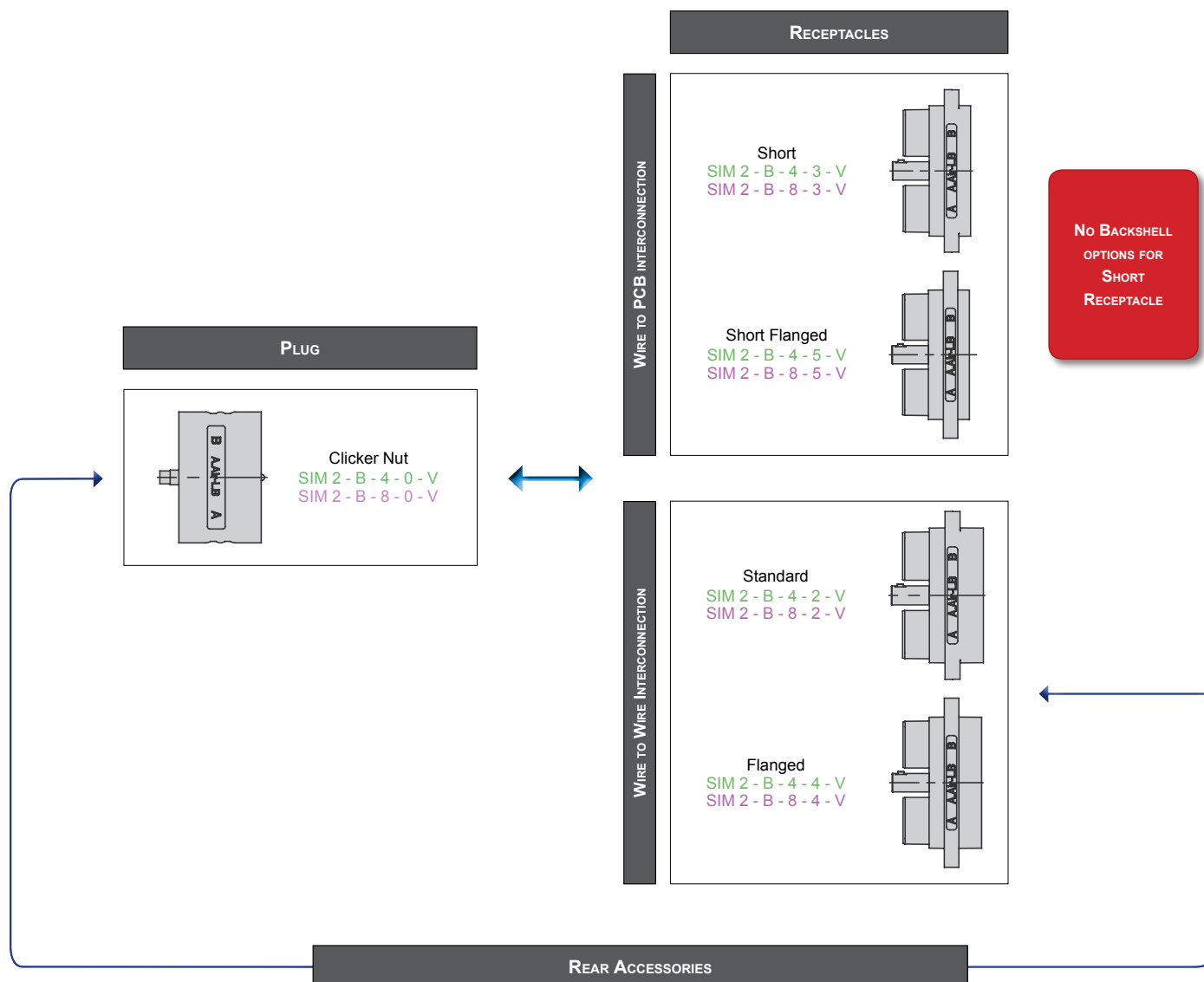
- ✓ Choose your Shell Type : Plugs, Receptacles or Rear Accessories
- ✓ Choose your Shell Size : for 2 or 4 modules



- Shell size for 2 modules
- Shell size for 4 modules

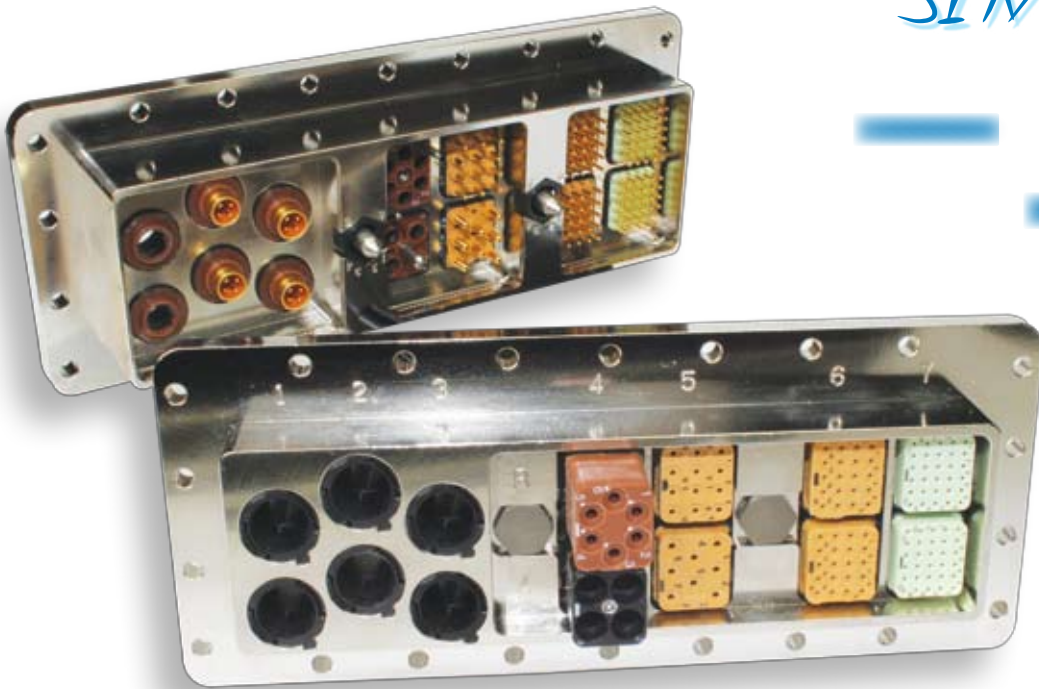
Shielded Composite SIM Connector with Cadmium Plating

- ✓ Choose your Shell Type : Plugs, Receptacles or Rear Accessories
- ✓ Choose your Shell Size : for 2 or 4 modules



Rectangular Modular

SIM Plates



SIM Connectors

For others requirements, please consult the Amphenol AIR LB SIM Connector Catalogue



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Version 1.1

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