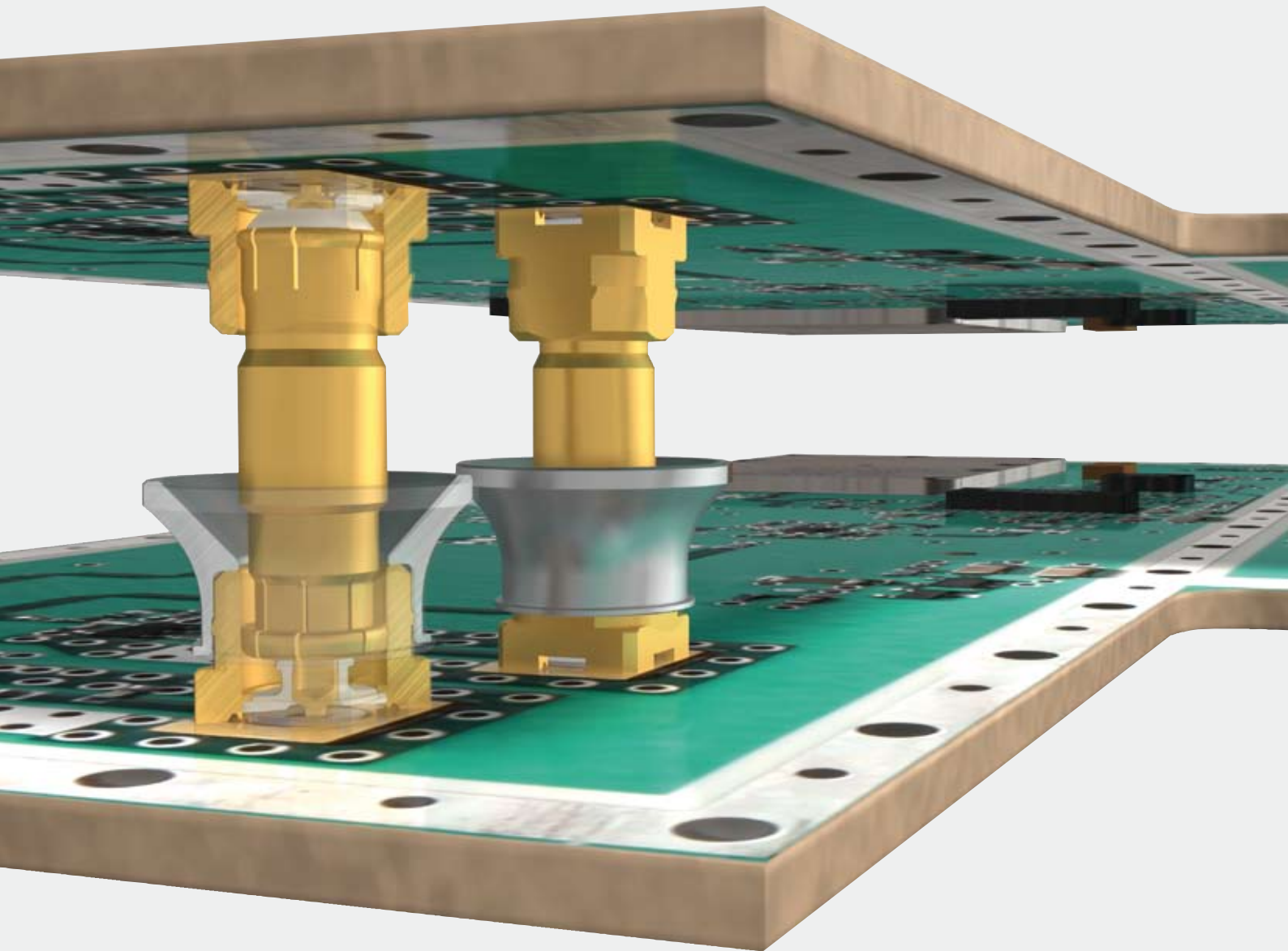


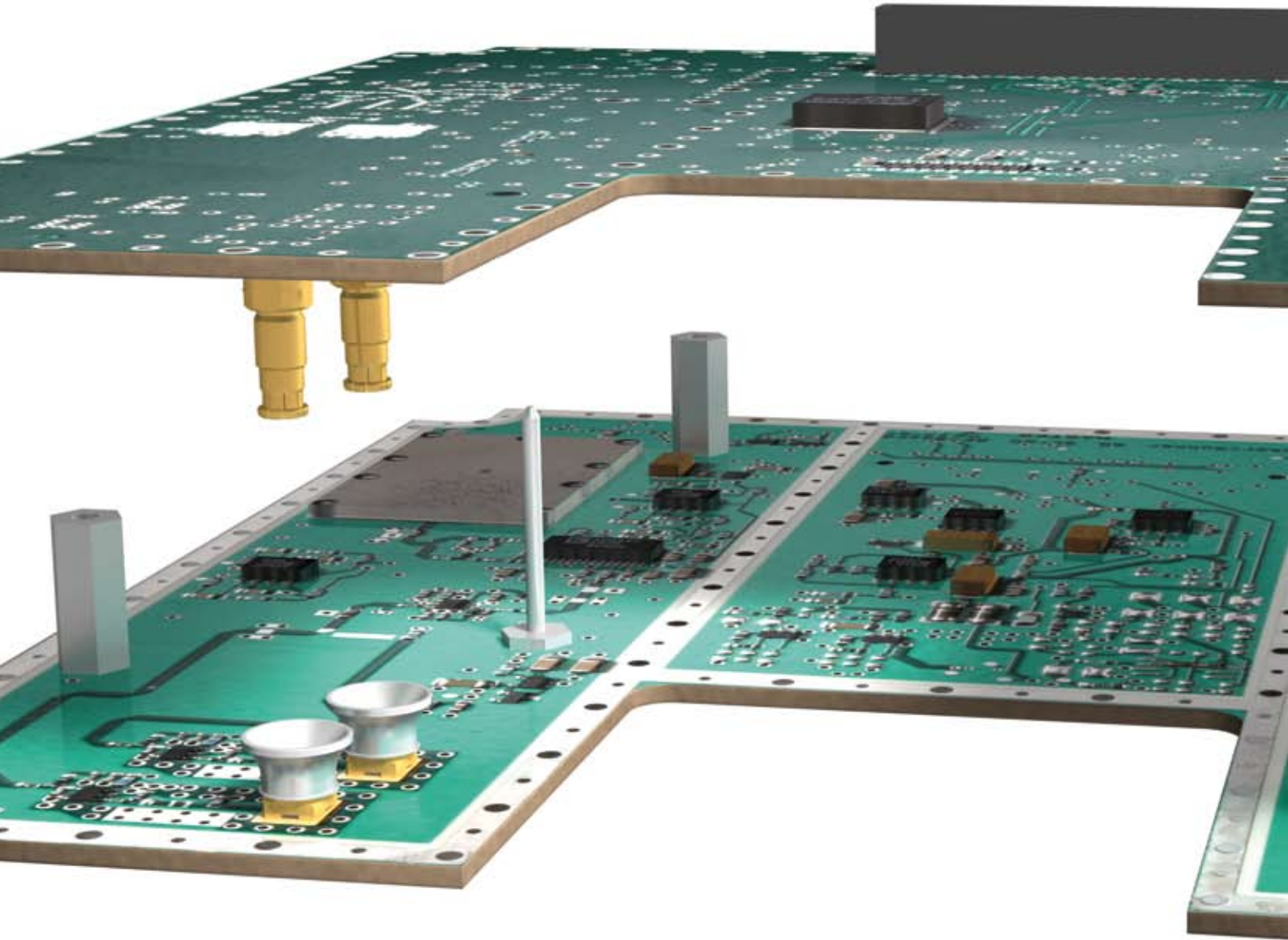
Board-to-Board Connections

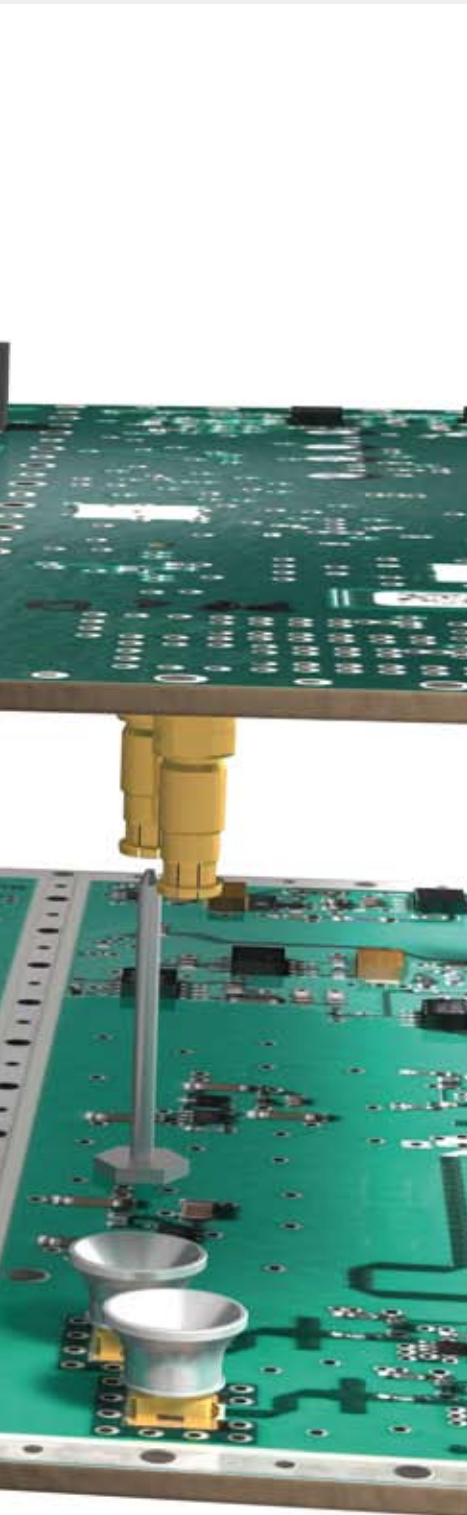
MBX/MMBX Connectors

Edition 2010



Innovative Connections





Your partner for system solutions

The HUBER+SUHNER Group is a leading global supplier of components and systems for electrical and optical connectivity.

Our customers in Communications, Industrial and Transportation markets appreciate that we are specialists with detailed knowledge of practical applications. We offer technical expertise in radio frequency technology, fiber optics and low-frequency under one roof, thus providing a unique basis for continual innovation focused on the needs of our customers all over the world.

HUBER+SUHNER MBX and MMBX connectors are especially developed for board-to-board and board-to-module RF interconnections. The mechanical design is outstanding, allowing the MMBX and MBX to cope with mechanical misalignment in radial and axial directions and still hold an excellent electrical performance. The MMBX and MBX are the answer to higher integration and miniaturisation. They are the perfect solution for multiple connections from board-to-board and complex stack-ups in radio module applications. The MMBX and MBX series offers a wide range of connectors for various applications.

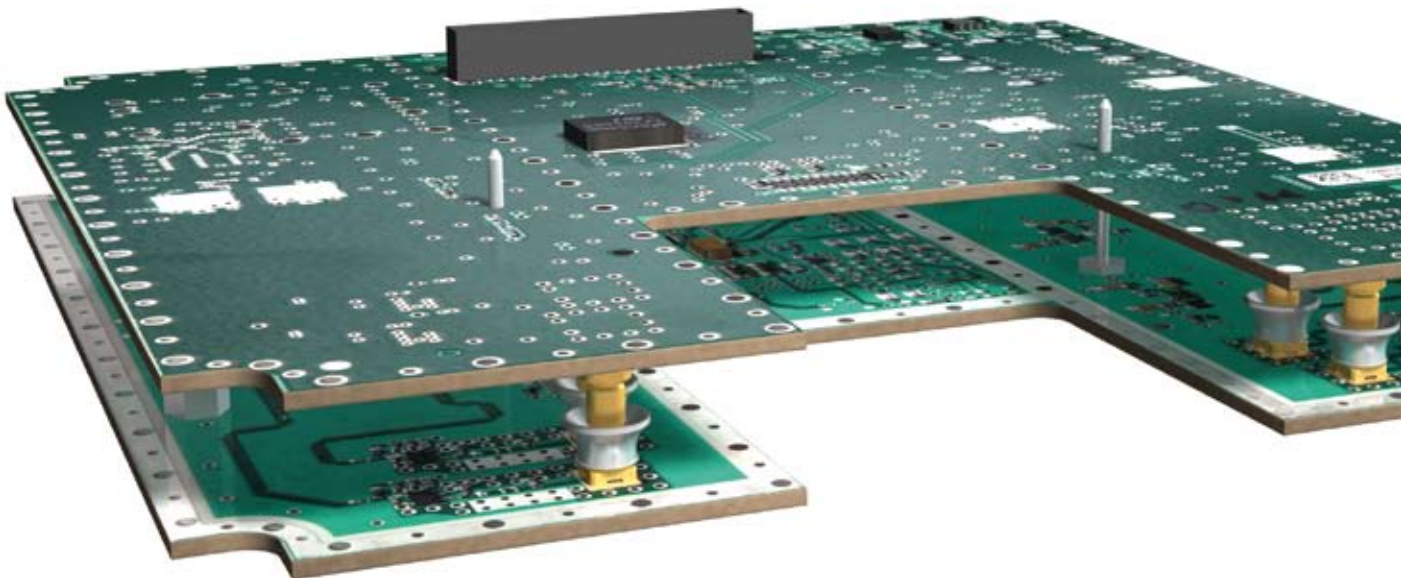
Features and Benefits

Features

- Direct board-to-board connection
- Compensating mechanical misalignment in axial (up to ± 1.2 mm) and radial direction
- No mechanical stress on piece parts or solder joints
- Blind mateable
- Excellent RF performance
- Good power handling

Benefits

- Lower total cost of ownership
Thanks to the distinguished axial float (± 1.2 mm) more complex board-to-board structures are possible (tolerance chain). Module housings and other parts no longer need to be so precisely machined.
- Miniaturization
The design of more compact modules (transceivers, remote radio units) are possible with board-to-board distances as low as 6.7 mm (MMBX). This enables designs of smaller modules with less weight and lower cost.
- Higher output power
The MMBX and MBX connectors can handle high power requirements in a module environment where high ambient temperatures are given. This opens new possibilities for module designs without active cooling but high output power.
- Reliable connection
The MMBX and MBX design is such that no mechanical stress applies to the piece parts and solder joints and therefore ensures high reliability.
- Secure mating and assembling process:
The MMBX and MBX allow direct blind mateable board-to-board connections.



Mechanical features

	Axial float	Minimum board-to-board distance
MBX	±1.2 mm	13.0 mm
MMBX	± 0.3 mm	6.7 mm

Design features

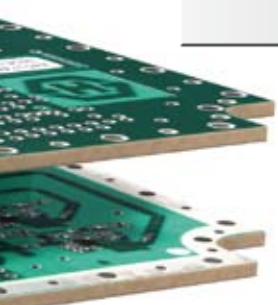


The MMBX and MBX design is such that no mechanical stress applies to the piece parts and solder joints and therefore ensures high reliability.

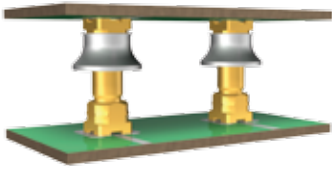
Power

MBX
MMBX

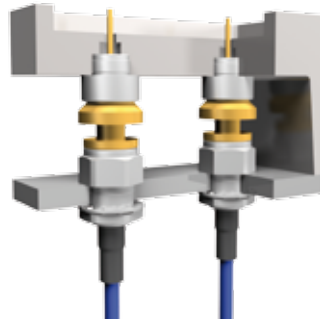
Up to 260 W



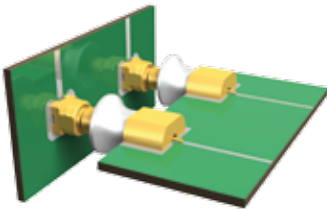
Applications



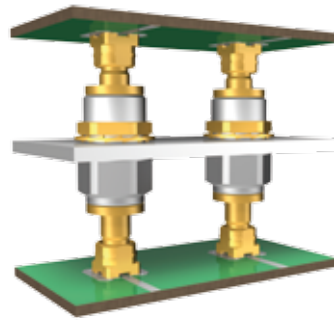
Board-to-Board connection



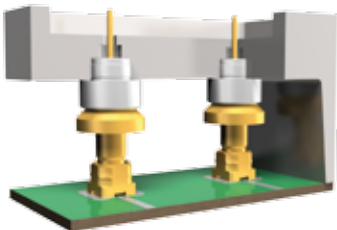
Panel-to-Panel connection



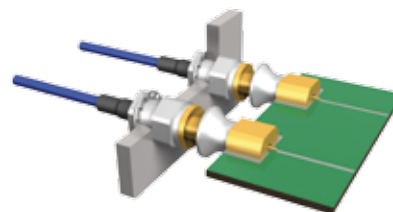
Board-to-Board connection right angle



Board-to-Board through a panel



Board-to-Panel connection (filter)



Board-to-Panel connection right angle

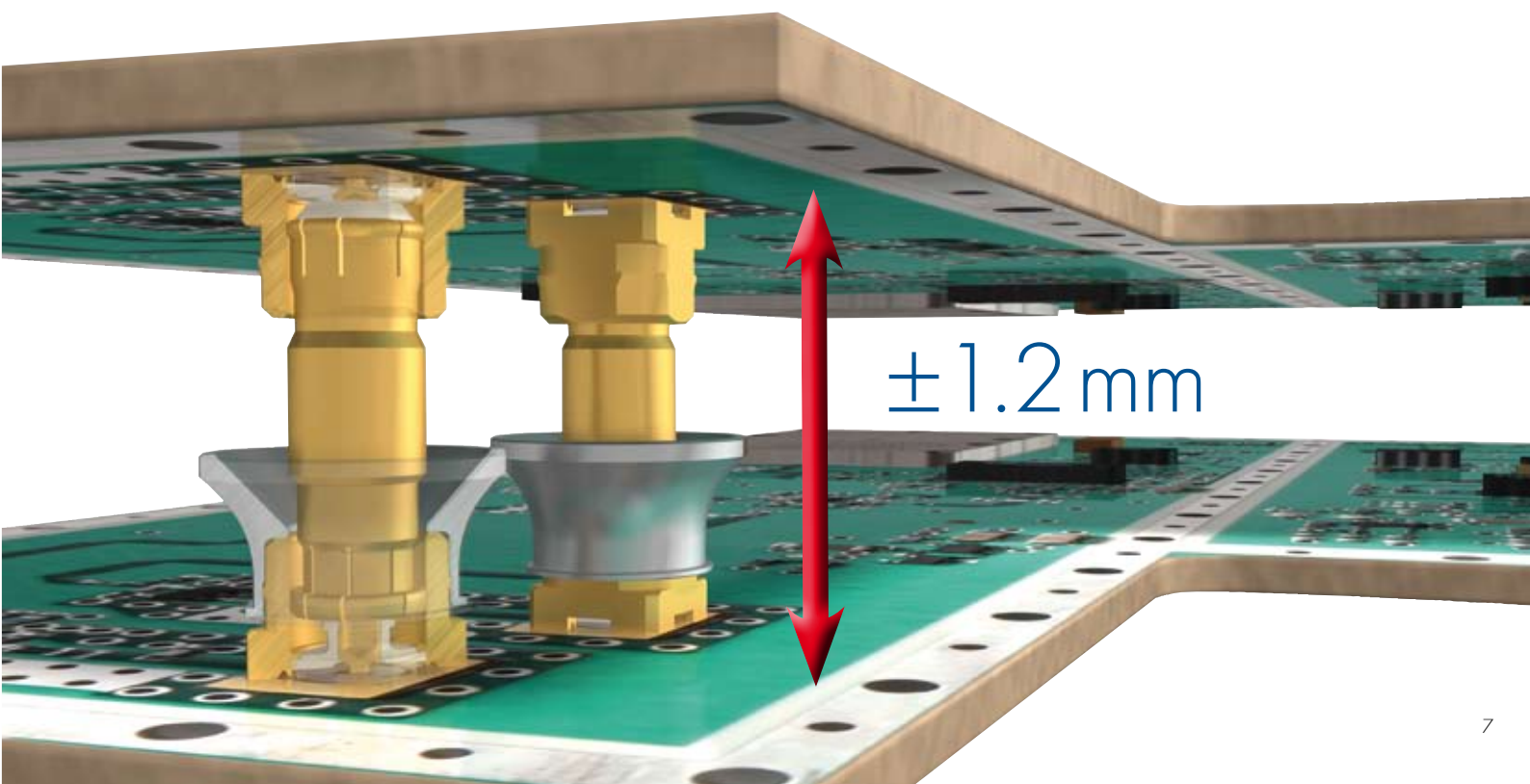
Overview MBX/MMBX

MBX

Characteristics	Requirements
Frequency	DC ... 6 GHz
Axial float (misalignment)	± 1.2 mm
Radial float (misalignment)	depending on the adapter ± 0.6 mm (at 13 mm board-to-board distance) ± 1.0 mm (≥ 18 mm board-to-board distance)
Minimum board-to-board distance	13 mm
Power	typical 260 W at 2.4 GHz at room temperature

MMBX

Characteristics	Requirements
Frequency	DC ... 12.4 GHz
Axial float (misalignment)	± 0.3 mm
Radial float (misalignment)	depending on the adapter length ± 0.4 mm (at 6.7 mm board-to-board distance)
Minimum board-to-board distance	6.7 mm
Power	typical 260 W at 2.4 GHz at room temperature



Technical Data of MBX PCB Connectors - Board-to-Board

Electrical data	Requirements			
Impedance	50 Ω			
Frequency range	DC ... 6 GHz			
Dielectric withstanding voltage (at sea level)	1 kV rms, 50 Hz			
Working voltage (at sea level)	\leq 330 V rms, 50 Hz			
Insulation resistance	\geq 1 G Ω			
Contact resistance - centre contact - outer contact	\leq 5 m Ω \leq 2.5 m Ω			
Return loss	typical values for a board-to-board connection (measured on a board)			
	axial misalignment	DC ... 2.5 GHz	2.5 ... 4 GHz	4 ... 6 GHz
	\pm 1.2 mm	22 dB	19 dB	15 dB
	\pm 0.8 mm	23 dB	20 dB	16 dB
	\pm 0.4 mm	26 dB	21 dB	18 dB
RF-leakage (interface only)	\geq 70 dB (DC ... 6 GHz)			
Power	typical 260 W at 2.4 GHz at room temperature			

Mechanical data	Requirements
Engagement force (slide-side)	\leq 15 N / 3.4 lbs
Disengagement force (slide-side)	\leq 15 N / 3.4 lbs
Durability (matings)	100
Axial float (misalignment)	\pm 1.2 mm
Radial float (misalignment)	depending on the adapter \pm 0.6 mm (at 13 mm board-to-board distance) \pm 1.0 mm (\geq 18 mm board-to-board distance)

Environmental data	Test conditions
Temperature range	- 55 °C ... + 155 °C / - 67 °F ... + 311 °F
Climatic category	55 / 155 / 10
Thermal shock	MIL-STD-202, Method 107 G, Condition B1
Moisture resistance	MIL-STD-202, Method 106 F
Corrosion	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204 D, Condition A
Mechanical shock	MIL-STD-202, Method 213 B, Condition B

Processing data	Requirements
Adherent to the print - shearing - pulling (vertical to PCB)	\geq 150 N / 33.7 lbs. \geq 150 N / 33.7 lbs.

Material data		
Connector parts	Material	Plating
Centre contact	brass/bronze/copper-beryllium alloy	SUCOPRO
Outer contact	brass/bronze	SUCOPRO
Body	brass	SUCOPRO/SUCOPLATE®
Insulators	LCP/PTFE/PFA	

Technical Data of MBX Cable Connectors

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 6 GHz
Dielectric withstanding voltage (at sea level)	750 V rms, 50 Hz
Working voltage (at sea level)	250 V rms, 50 Hz
Insulation resistance	$\geq 1 \text{ G}\Omega$
Contact resistance	
- centre contact	$\leq 5 \text{ m}\Omega$
- outer contact	$\leq 2.5 \text{ m}\Omega$
Return loss (typical values)	$\geq 30 \text{ dB}$ (DC ... 2.5 GHz) $\geq 25 \text{ dB}$ (2.5 ... 6 GHz)

Mechanical data	Requirements
Engagement force	max. 30 N / max. 6.7 lbs
Disengagement force	8 - 30 N / 1.8 - 6.7 lbs
Durability (matings)	100

Environmental data	Test conditions
Temperature range	- 55 °C ... + 155 °C / - 67 °F ... + 311 °F
Climatic category	55 / 155 / 10
Thermal shock	MIL-STD-202, Method 107 G, Condition A1
Moisture resistance	MIL-STD-202, Method 106 F
Corrosion	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204 D, Condition A
Mechanical shock	MIL-STD-202, Method 213 B, Condition B

Material data		
Connector parts	Material	Plating
Centre contact	brass / bronze / copper-beryllium alloy	SUCOPRO
Outer contact	bronze / copper-beryllium alloy	SUCOPRO
Body	brass	SUCOPRO / SUCOPLATE®
Crimp ferrules	copper	gold / SUCOPLATE®
Insulators	LCP / PTFE / PFA	

Technical Data of MBX Adaptors between Series

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 6 GHz
Dielectric withstanding voltage (at sea level)	1 kV rms, 50 Hz
Working voltage (at sea level)	\leq 330 V rms, 50 Hz
Insulation resistance	\geq 1 G Ω
Contact resistance	
- centre contact	\leq 5 m Ω
- outer contact	\leq 2.5 m Ω
Return loss (typical values)	\geq 30 dB (DC ... 6 GHz)

Mechanical data	Requirements
Engagement force	max. 30 N / max. 6.7 lbs
Disengagement force	8 - 30 N / 1.8 - 6.7 lbs
Durability (matings)	500

Environmental data	Test conditions
Temperature range	- 55 °C ... + 155 °C / - 67 °F ... + 311 °F
Climatic category	55 / 155 / 10
Thermal shock	MIL-STD-202, Method 107 G, Condition B1
Moisture resistance	MIL-STD-202, Method 106 F
Corrosion	MIL-STD-202, Method 101, Condition B

Material data		
Connector parts	Material	Plating
Centre contact	brass / bronze / copper-beryllium alloy	SUCOPRO
Outer contact	brass / bronze	SUCOPRO
Body	brass / bronze	SUCOPRO
Insulators	LCP / PTFE / PFA	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

MBX PCB Connectors

Straight PCB jacks (female)

- Surface mount type SMT

HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Notes	Fig.
82_MBX-S50-0-1/111_NM	84094200	tape and reel	ML 173		1
82_MBX-S50-0-1/111_NH	84094199	bulk 100 pcs.	ML 173		1
82_MBX-S50-0-1/111_NE	84104680	single	ML 173		1
82_MBX-S50-0-2/113_NM	84094288	tape and reel	ML 173		2
82_MBX-S50-0-2/113_NH	84094287	bulk 100 pcs.	ML 173		2
82_MBX-S50-0-2/113_NE	84104681	single	ML 173		2

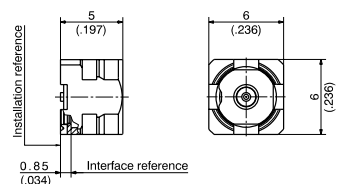


Fig. 1

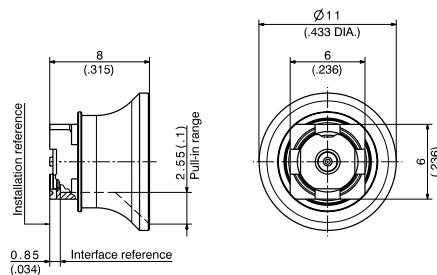


Fig. 2

MBX PCB Connectors

Straight PCB jacks (female)

HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Notes	Fig.
82_MBX-50-0-3/111_NM	84094369	tape and reel	ML 174		1
82_MBX-50-0-3/111_NH	84094366	bulk 100 pcs.	ML 174		1
82_MBX-50-0-3/111_NE	84104683	single	ML 174		1
82_MBX-50-0-4/113_NM	84094406	tape and reel	ML 174		2
82_MBX-50-0-4/113_NH	84094405	bulk 100 pcs.	ML 174		2
82_MBX-50-0-4/113_NE	84104684	single	ML 174		2

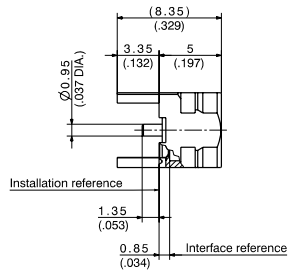


Fig. 1

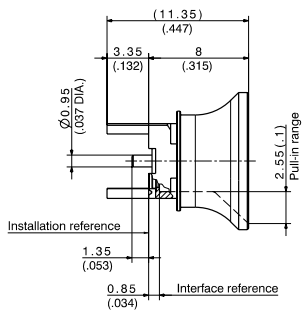
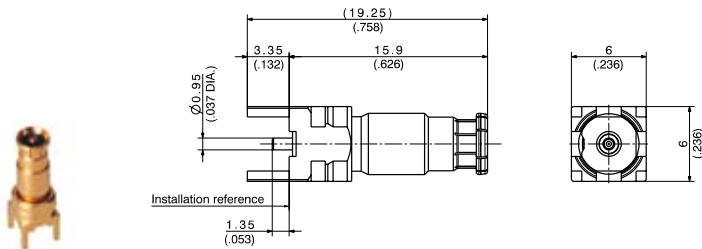


Fig. 2

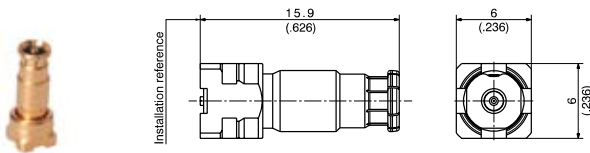
MBX PCB Connectors

Straight PCB plugs (male)

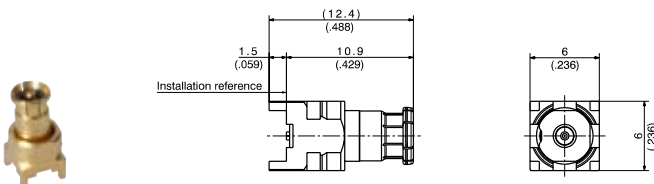
HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Notes
81_MBX-50-0-3 / 111_NM	84094392	tape and reel	ML 174	
81_MBX-50-0-3 / 111_NH	84094396	bulk 100 pcs.	ML 174	
81_MBX-50-0-3 / 111_NE	84104686	single	ML 174	



HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Notes
81_MBX-S50-0-2 / 111_NM	84094306	tape and reel	ML 173	
81_MBX-S50-0-2 / 111_NH	84094305	bulk 100 pcs.	ML 173	
81_MBX-S50-0-2 / 111_NE	84104688	single	ML 173	



HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Notes
95_MBX-50-0-1 / 111_NM	84095992	tape and reel	-	



MBX Adaptors within Series

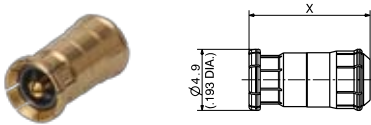
Straight adaptors

- Plug to plug (male)

HUBER+SUHNER type	Item no.	Packaging	Board-to-board distance	Adaptor length X
32_MBX-50-0-1 / 111_NH	84094197	bulk 100 pcs.	13 mm / 0.512 in.	9.7 mm / 0.382 in.
32_MBX-50-0-1 / 111_NE	84104690	single	13 mm / 0.512 in.	9.7 mm / 0.382 in.
32_MBX-50-0-2 / 111_NH	84094285	bulk 100 pcs.	18 mm / 0.709 in.	14.7 mm / 0.579 in.
32_MBX-50-0-2 / 111_NE	84104691	single	18 mm / 0.709 in.	14.7 mm / 0.579 in.
32_MBX-50-0-3 / 111_NH	84094387	bulk 100 pcs.	28 mm / 1.012 in.	24.7 mm / 0.972 in.
32_MBX-50-0-3 / 111_NE	8410492	single	28 mm / 1.012 in.	24.7 mm / 0.972 in.

Adaptors with other lengths available upon request.

Black insulator: slide-side
 White insulator: snap-side

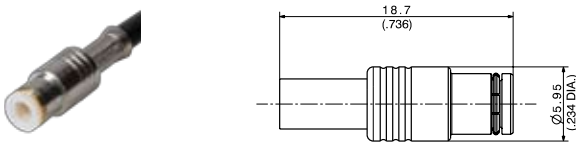


MBX Connectors, Tools and Adaptors

Cable connectors

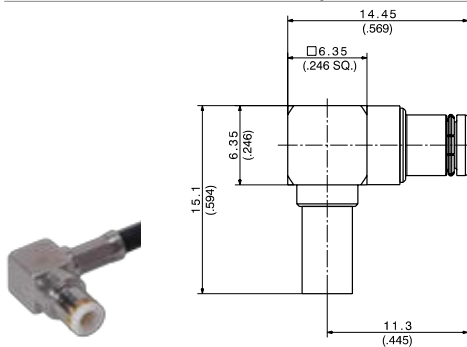
- Straight cable plugs (male)

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_MBX-50-2-1 / 113_NH	84093696	U4 (EF 316 D)	bulk 100 pcs.	0000333519
11_MBX-50-2-1 / 113_NE	84104694	U4 (EF 316 D)	single	0000333519



- Right angle cable plugs (male)

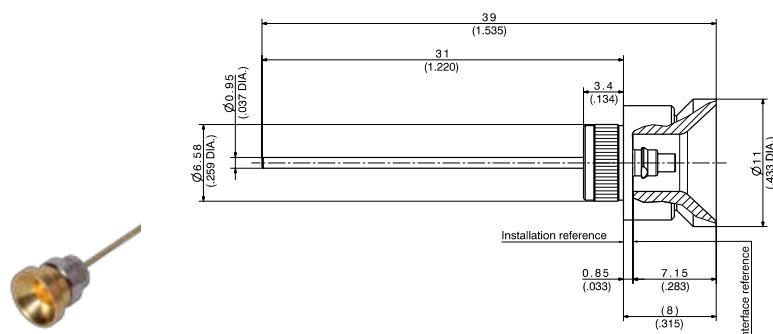
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_MBX-50-2-1 / 113_NH	84093680	U4 (EF 316 D)	bulk 100 pcs.	0000326568
16_MBX-50-2-1 / 113_NE	84104696	U4 (EF 316 D)	single	0000326568



Receptacles with solder end

- Receptacles, jacks (female)

HUBER+SUHNER type	Item no.	Packaging	Assembly style
22_MBX-50-0-1 / 113_NY	84097667	industrial 100 pcs	pressed-in



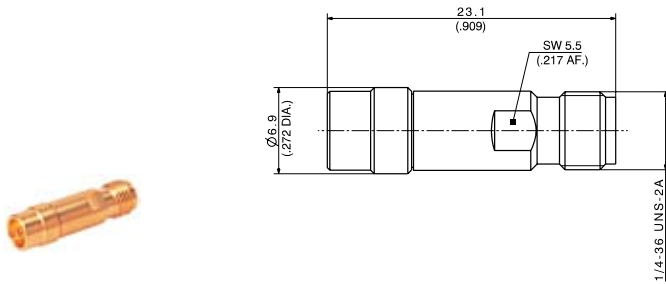
Assembly and disassembly tool for the adapter within series

HUBER+SUHNER type	Item no.	Packaging	Operating instruction
74_Z00-488	84101887	single	-

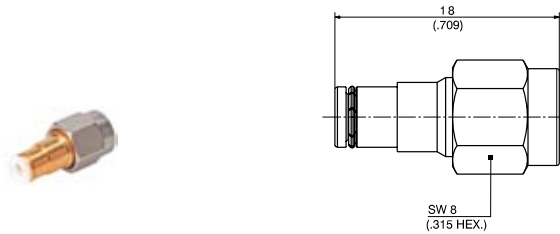


Adaptors between series

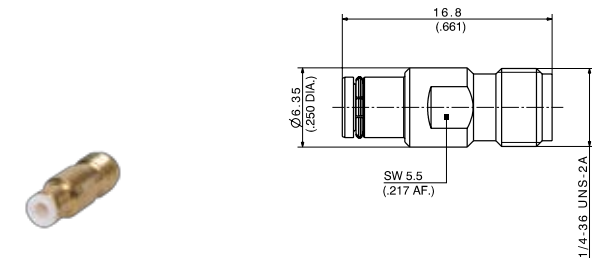
HUBER+SUHNER type	Item no.	Packaging	Interface
31_MBX-SMA-50-1 / 111_NE	84093625	single	MBX jack (f) / SMA jack (f)



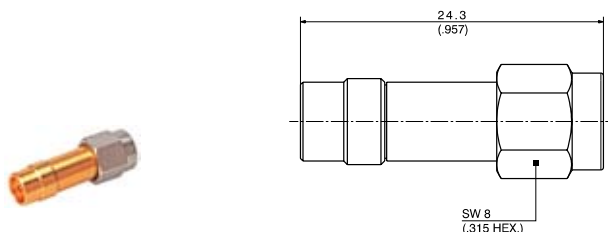
HUBER+SUHNER type	Item no.	Packaging	Interface
32_MBX-SMA-50-1 / 11_NE	84093642	single	MBX plug (m) / SMA plug (m)



HUBER+SUHNER type	Item no.	Packaging	Interface
33_MBX-SMA-50-1 / 111_NE	84093656	single	MBX plug (m) / SMA jack (f)



HUBER+SUHNER type	Item no.	Packaging	Interface
33_SMA-MBX-50-1 / 11_NE	84093662	single	SMA plug (m) / MBX jack (f)



MMBX – Design Guideline

Working range (axial and radial)

In mated condition, the two connecting parts have to be aligned within the dimension given for the axial and radial working range.

The axial working range in this example is $8 \text{ mm} \pm 0.3 \text{ mm}$, the radial working range is $\pm 0.4 \text{ mm}$.

The tolerance for the axial working range depends on the interface ($\text{MMBX} \pm 0.3 \text{ mm}$). The radial working range depends on the length of the adapter: the longer the adapter the higher the radial working range.

Connecting range

The two connecting parts need to be aligned within the connecting range when mating. In order to guarantee a blind mateable connection, the tilted adapter will be guided by the funnel of the opposite connector.

The connecting range therefore depends on the length of the adapter and the pull-in range (size of the funnel). The connecting range in the example is $\pm 0.8 \text{ mm}$ for a pull-in range of 1.8 mm . If the funnel (pull-in range) is smaller than 0.95 mm , a blind mateable assembly process is not possible anymore.

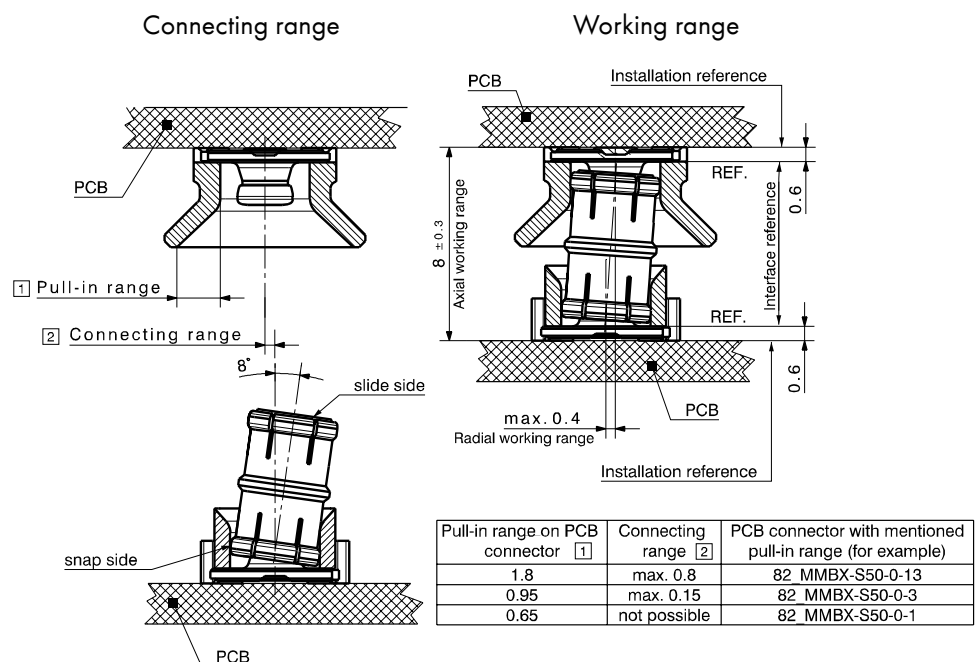
In the case where the connecting range and radial working range are different, the smaller value has to be considered for the alignment of the boards.

Recommendation

HUBER+SUHNER recommend using guiding pins to align the boards within the connecting range and working range and also distance holders to maintain the axial misalignment within the working range.

HUBER+SUHNER provide an outline drawing for every application with the relevant mechanical dimensions that need to be considered when designing-in MMBX.

3D STEP files are available on www.hubersuhner.com.



Technical Data of MMBX PCB Connectors - Board-to-Board

Electrical data	Requirements		
Impedance	50 Ω		
Frequency range	DC ... 12.4 GHz		
Dielectric withstanding voltage (at sea level)	1 kV rms, 50 Hz		
Working voltage (at sea level)	\leq 330 V rms, 50 Hz		
Insulation resistance	\geq 1 G Ω		
Contact resistance - centre contact - outer contact	\leq 5 m Ω \leq 1 m Ω		
Return loss	typical values for a board-to-board connection		
	board-to-board distance	DC ... 2.5 GHz	2.5 ... 6 GHz
	6.7 mm	26 dB	25 dB
	11.65 mm	26 dB	19 dB
20.0 mm	26 dB	19 dB	
RF-leakage (interface only)	\geq 70 dB (DC ... 6 GHz) \geq 60 dB (6 GHz ... 12.4 GHz)		
Power	typical 260 W at 2.4 GHz at room temperature		

Mechanical data	Requirements
Engagement force (slide-side)	\leq 15 N / 3.4 lbs
Disengagement force (slide-side)	\leq 15 N / 3.4 lbs
Durability (matings)	100
Axial float (misalignment)	\pm 0.3 mm
Radial float (misalignment)	depending on the adapter length \pm 0.4 mm (at 6.7 mm board-to-board distance) \pm 0.8 mm (at 11.65 mm board-to-board distance)

Environmental data	Test conditions
Temperature range	- 55 °C ... + 155 °C / - 67 °F ... + 311 °F
Climatic category	55/155/21
Thermal shock	MIL-STD-202, Method 107 G, Condition B1
Moisture resistance	MIL-STD-202, Method 106 F
Corrosion	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204 D, Condition A

Processing data	Requirements
Adherent to the print - shearing - pulling (vertical to PCB)	\geq 150 N / 33.7 lbs. \geq 150 N / 33.7 lbs.

Material data		
Connector parts	Material	Plating
Centre contact	brass/bronze/copper-beryllium alloy	SUCOPRO
Outer contact	brass/bronze	SUCOPRO
Body	brass	SUCOPRO
Insulators	LCP/PTFE/PFA	

Technical Data of MMBX Cable Connectors

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 12.4 GHz
Dielectric withstanding voltage (at sea level)	750 V rms, 50 Hz
Working voltage (at sea level)	250 V rms, 50 Hz
Insulation resistance	≥ 1 GΩ
Contact resistance - centre contact - outer contact	≤ 5 mΩ ≤ 1 mΩ
Return loss (typical values)	≥ 30 dB (DC ... 2.5 GHz) ≥ 25 dB (2.5 ... 6 GHz)

Mechanical data	Requirements
Engagement force	max. 30 N / max. 6.7 lbs
Disengagement force	8 - 30 N / 1.8 - 6.7 lbs
Durability (matings)	100

Environmental data	Test conditions
Temperature range	- 55 °C ... + 155 °C / - 67 °F ... + 311 °F
Climatic category	55 / 155 / 21
Thermal shock	MIL-STD-202, Method 107 G, Condition B1
Moisture resistance	MIL-STD-202, Method 106 F
Corrosion	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204 D, Condition A

Material data		
Connector parts	Material	Plating
Centre contact	copper-beryllium alloy	SUCOPRO
Outer contact	bronze/copper-beryllium alloy	SUCOPRO
Body	brass	SUCOPRO / SUCOPLATE®
Crimp ferrules	E-copper	SUCOPRO / gold / SUCOPLATE®
Insulators	PTFE / PFA	

Technical Data of MMBX Adaptors between Series

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 12.4 GHz
Dielectric withstanding voltage (at sea level)	1 kV rms, 50 Hz
Working voltage (at sea level)	\leq 330 V rms, 50 Hz
Insulation resistance	\geq 1 G Ω
Contact resistance	
- centre contact	\leq 5 m Ω
- outer contact	\leq 1 m Ω
Return loss (typical values)	\geq 30 dB (DC ... 6 GHz)

Mechanical data	Requirements
Engagement force	max. 30 N/max. 6.7 lbs
Disengagement force	8 - 30 N/1.8 - 6.7 lbs
Durability (matings)	500

Environmental data	Test conditions
Temperature range	-55 °C ... + 155 °C / -67 °F ... + 311 °F
Climatic category	55/155/21
Thermal shock	MIL-STD-202, Method 107 G, Condition B1
Moisture resistance	MIL-STD-202, Method 106 F
Corrosion	MIL-STD-202, Method 101, Condition B

Material data		
Connector parts	Material	Plating
Centre contact	copper-beryllium alloy	SUCOPRO
Outer contact	brass/bronze/copper-beryllium alloy	SUCOPRO
Body	brass/bronze/copper-beryllium alloy	SUCOPRO
Insulators	LCP/PTFE/PFA	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

MMBX PCB Connectors

Straight PCB jacks (female)

- Surface mount type SMT

HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Notes	Fig.
82_MMBX-S50-0-1/111_NM	23001783	tape and reel	ML 122	pull-in range 0.65 mm / .0256 in.	1
82_MMBX-S50-0-1/111_NH	23001784	bulk 100 pcs.	ML 122	pull-in range 0.65 mm / .0256 in.	1
82_MMBX-S50-0-1/111_NE	23001785	single	ML 122	pull-in range 0.65 mm / .0256 in.	1
82_MMBX-S50-0-3/111_NM	23031931	tape and reel	ML 122	pull-in range 0.95 mm / .0374 in.	2
82_MMBX-S50-0-3/111_NH	23011273	bulk 100 pcs.	ML 122	pull-in range 0.95 mm / .0374 in.	2
82_MMBX-S50-0-3/111_NE	23015527	single	ML 122	pull-in range 0.95 mm / .0374 in.	2
82_MMBX-S50-0-13/111_NM	23041511	tape and reel	ML 122	pull-in range 1.80 mm / .0709 in.	3
82_MMBX-S50-0-13/111_NH	23036608	bulk 100 pcs.	ML 122	pull-in range 1.80 mm / .0709 in.	3
82_MMBX-S50-0-13/111_NE	84032435	single	ML 122	pull-in range 1.80 mm / .0709 in.	3

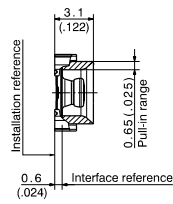


Fig. 1

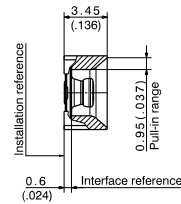


Fig. 2

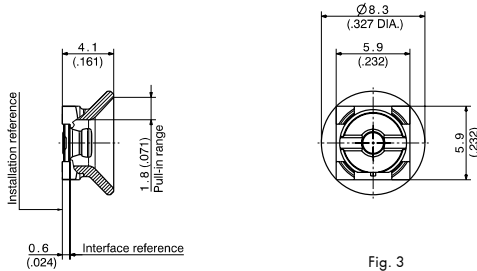


Fig. 3

MMBX PCB Connectors

Straight PCB jacks (female)

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes	Fig.
82_MMBX-50-0-2/111_NM	23001786	tape and reel	ML 15	pull-in range 0.65 mm / .0256 in.	1
82_MMBX-50-0-2/111_NH	23001787	bulk 100 pcs.	ML 15	pull-in range 0.65 mm / .0256 in.	1
82_MMBX-50-0-2/111_NE	23001788	single	ML 15	pull-in range 0.65 mm / .0256 in.	1
82_MMBX-50-0-4/111_NH	23013667	bulk 100 pcs.	ML 15	pull-in range 0.95 mm / .0374 in.	2
82_MMBX-50-0-14/111_NH	23038051	bulk 100 pcs.	ML 15	pull-in range 1.80 mm / .0709 in.	3
82_MMBX-50-0-14/111_NE	84032421	single	ML 15	pull-in range 1.80 mm / .0709 in.	3

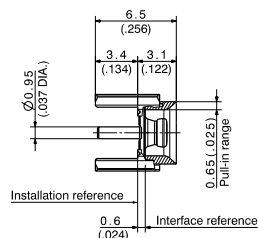


Fig. 1

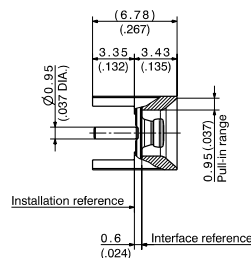


Fig. 2

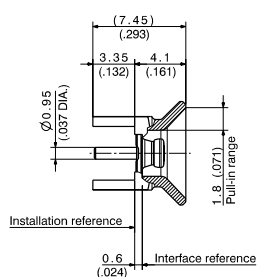
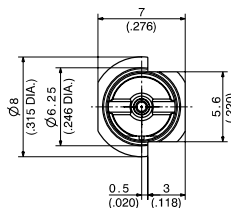
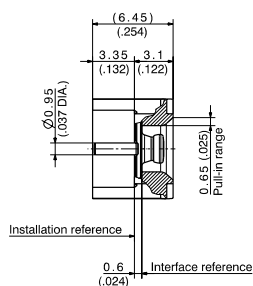


Fig. 3

Straight PCB jacks (female), edge-mount

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
92_MMBX-S50-0-12/111_NM	23038620	tape and reel	ML 147	
92_MMBX-S50-0-12/111_NE	84019159	single	ML 147	

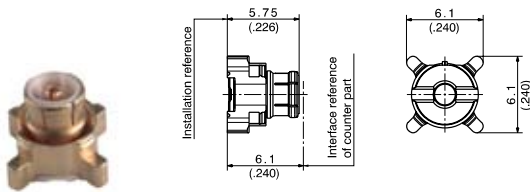


MMBX PCB Connectors

Straight PCB plugs (male)

- Surface mount type SMT

HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Notes
81_MMBX-S50-0-1 / 111_NM	23001780	tape and reel	ML 122	
81_MMBX-S50-0-1 / 111_NH	23001781	bulk 100 pcs.	ML 122	
81_MMBX-S50-0-1 / 111_NE	23001782	single	ML 122	



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes	Fig.
81_MMBX-50-0-2 / 111_NM	23001776	tape and reel	ML 15		1
81_MMBX-50-0-2 / 111_NH	23001778	bulk 100 pcs.	ML 15		1
81_MMBX-50-0-2 / 111_NE	23001779	single	ML 15		1
81_MMBX-50-0-11 / 111_NM	23028072	tape and reel	ML 15		2

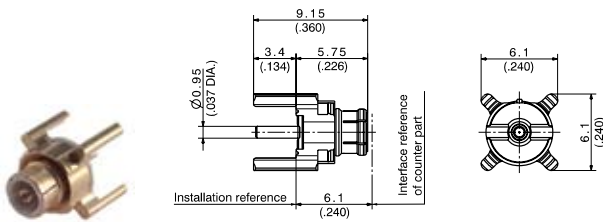


Fig. 1

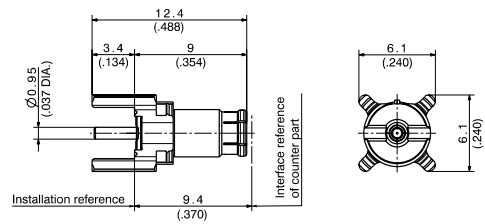


Fig. 2

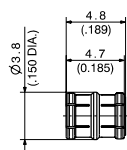
MMBX Adaptors within Series

Straight adaptors

- Plug to plug (male)

HUBER+SUHNER type	Item no.	Packaging	Board-to-board distance	Adaptor length X	Min. pull-in range
32_MMBX-50-0-1/111_NE	23001749	single	6.7 mm / .264 in.	4.7 mm / .158 in.	0.65 mm / .026 in.
32_MMBX-50-0-1/111_NY	84028418	industrial 200 pcs.	6.7 mm / .264 in.	4.7 mm / .158 in.	0.65 mm / .026 in.
32_MMBX-50-0-12/111_NH	84004734	bulk 100 pcs.	8.0 mm / .315 in.	6.0 mm / .236 in.	0.95 mm / .037 in.
32_MMBX-50-0-4/111_NE	23010564	single	10.0 mm / .394 in.	8.0 mm / .315 in.	1.80 mm / .071 in.
32_MMBX-50-0-4/111_NY	23038658	industrial 300 pcs.	10.0 mm / .394 in.	8.0 mm / .315 in.	1.80 mm / .071 in.
32_MMBX-50-0-13/111_NE	84031096	single	12.0 mm / .472 in.	10.0 mm / .417 in.	1.80 mm / .071 in.
32_MMBX-50-0-5/111_NE	84026915	single	14.0 mm / .551 in.	12.0 mm / .472 in.	1.80 mm / .071 in.
32_MMBX-50-0-5/111_NY	23011920	industrial 200 pcs.	14.0 mm / .551 in.	12.0 mm / .472 in.	1.80 mm / .071 in.
32_MMBX-50-0-10/111_NY	23034946	industrial 200 pcs.	15.0 mm / .591 in.	13.0 mm / .512 in.	1.80 mm / .071 in.

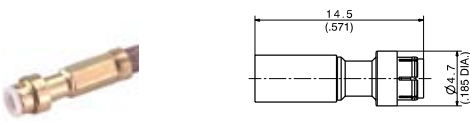
Adaptors with other lengths available upon request



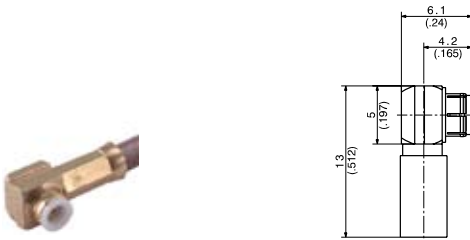
MMBX Connectors, Tools and Adaptors

Cable connectors

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_MMBX-50-2-2/111_NE	23001744	U4 (EF 316 D)	single	27351	1/A



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_MMBX-50-2-2/111_NE	23001746	U4 (EF 316 D)	single	27352	A
16_MMBX-50-2-2/111_NH	84028931	U4 (EF 316 D)	bulk 100 pcs.	27352	A



Receptacles with solder end

HUBER+SUHNER type	Item no.	Packaging	Assembly style	Fig.
22_MMBX-50-0-1/111_NE	2300 8312	single	screwed-in	1
22_MMBX-50-0-2/111_NY	84005177	bulk 100 pcs.	pressed-in	2

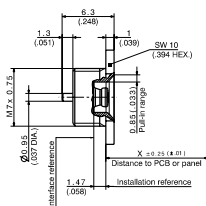


Fig. 1

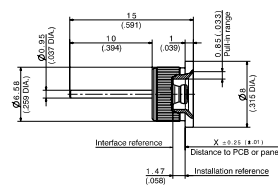


Fig. 2

Assembly and disassembly tool

HUBER+SUHNER type	Item no.	Packaging	Operating instruction	Fig.
74_Z-0-0-437	23023494	single	27378	1
74_Z-0-0-557	84032418	single	0000246815	2



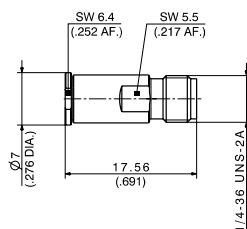
Fig. 1



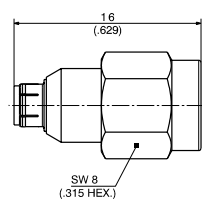
Fig. 2

Adaptors between series

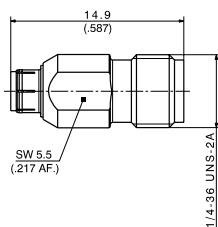
HUBER+SUHNER type	Item no.	Packaging	Interface
31_MMBX-SMA-50-1/111_NE	23004933	single	MMBX jack (f)/SMA jack (f)



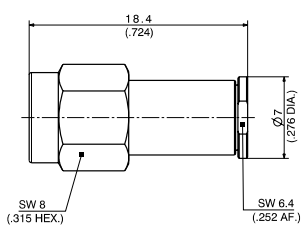
HUBER+SUHNER type	Item no.	Packaging	Interface
32_MMBX-SMA-50-1/119_NE	23004934	single	MMBX plug (m)/SMA plug (m)



HUBER+SUHNER type	Item no.	Packaging	Interface
33_MMBX-SMA-50-1/111_NE	23004937	single	MMBX plug (m)/SMA jack (f)



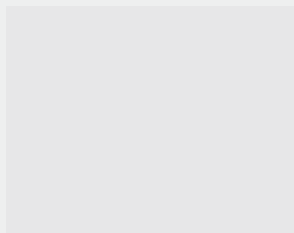
HUBER+SUHNER type	Item no.	Packaging	Interface
33_SMA-MMBX-50-1/119_NE	23004935	single	SMA plug (m)/MMBX jack (f)



HUBER+SUHNER is certified according to
ISO 9001, ISO 14001, ISO/TS 16949 and IRIS.

WAIVER

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