



SERIES QMA, SUBMINIATURE CONNECTORS

DESCRIPTION

HUBER+SUHNER QMA coaxial connectors are available with 50 Ω impedance. The frequency range extends to 18 GHz, depending on the connector and cable type, however most of the QMA connectors are Return Loss optimised for frequencies up to 6 GHz. The interface is based on the SMA dimension, but, instead of a threaded coupling mechanism, a new snap-lock mechanism is used.

The QMA interface has a very similar performance to the SMA, but in addition it offers an easier, faster and safer coupling operation, helping the customers to save significantly time during production of their systems.

The packaging density of QMA is increased compared to SMA connectors thanks to the fact that no torque spanner is required to fasten the coupling nut.

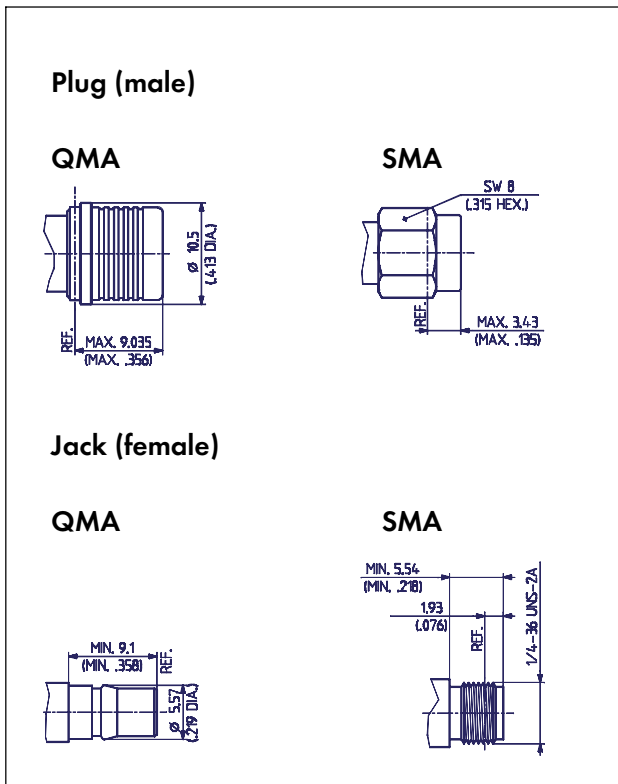
QMA is not intermateable with SMA.

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INTERFACE DIMENSIONS (COMPARED TO SMA)



FEATURES OF QMA CONNECTORS

- > Cycle time improvement for making RF connections (10 times faster to mount than threaded connectors)
- > No torque required
- > Higher packaging density
- > Free-rotating connection when mated
- > Eliminates loosening problems associated with threaded connectors
- > Same performance as SMA up to 6 GHz

HUBER+SUHNER QMA - the cost effective solution for advanced RF interconnections!

IP rating (interface, mated) IP50*

* IP68 variant available

QMA

TECHNICAL DATA

ELECTRICAL DATA	REQUIREMENTS
Impedance	50 Ω
Frequency range	DC to 6 GHz optimized DC to 18 GHz working range [interface]
Dielectric withstanding voltage (at sea level)	1000 V rms, 50 Hz
Working voltage (at sea level)	\leq 480 V rms, 50 Hz
Insulation resistance	$\geq 5 \cdot 10^3$ M Ω
Contact resistance - centre contact - outer contact	≤ 3 m Ω ≤ 2.5 m Ω
RF-leakage	0 ... 3 GHz ≥ -80 dB; 3 ... 6 GHz ≥ -70 dB
Return loss (typical)	DC - 3 GHz ≥ 32 dB; 3 to 6 GHz ≥ 25 dB

MECHANICAL DATA	REQUIREMENTS
Engagement force (typical)	25 N
Disengagement force (typical)	20 N
Retention force for interface	≥ 60 N
Durability (matings)	≥ 100
Distance between connectors	12.4 mm / .49 in. minimum

ENVIRONMENTAL DATA	TEST CONDITIONS
Temperature range	-40°C ... +85°C / -40°F ... +185°F
Thermal shock	IEC 60169-1 16.4 (-40° C / +85° C)
Corrosion	IEC 60169-1 16.7 (48 hrs)
Vibration	IEC-68-2-64 random, 5-20 Hz: 1.29 (m/s ²) ² /Hz 20-500 Hz: -3dB/octave
Damp heat - steady state	IEC 60169-1 16.3 (96 hrs)

MATERIAL DATA		
CONNECTOR PART	MATERIAL	PLATING
Bodies	brass	SUCOPLATE®
Solder bodies	brass	SUCOPRO
Pin contacts	brass	SUCOPRO
Socket contacts	spring bronze	SUCOPRO
Outer contacts	spring bronze	SUCOPLATE®
Insulators	PTFE or PFA	
Crimp ferrules	copper	SUCOPLATE®

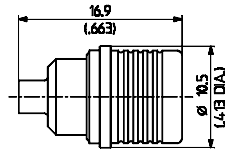
Some connectors may have a specification that differs from the above mentioned data.

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.

CABLE CONNECTORS

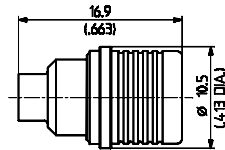
Straight cable plugs (male)

- > for semi-rigid cables, SUCOFORM and MULTIFLEX cables
- > cable entry soldered
- > centre contact plugged-in



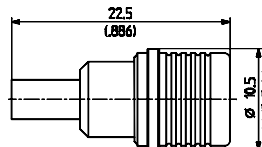
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Notes
11_QMA-50-2-3/133_NE	23017704	Y11,Y3 (Sucoform 86)	single	27428	
11_QMA-50-2-3/133_NH	23017705	Y11,Y3 (Sucoform 86)	bulk 100 pcs.	27428	

- > for semi-rigid cables, SUCOFORM and MULTIFLEX cables
- > cable entry soldered
- > centre contact plugged-in



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Notes
11_QMA-50-3-3/133_NE	23017695	Y12 (Sucoform 141)	single	27428	
11_QMA-50-3-3/133_NH	23017696	Y12 (Sucoform 141)	bulk 100 pcs.	27428	

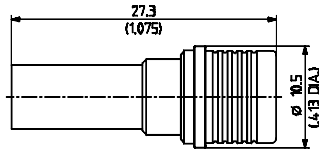
- > for flexible cables
- > HUBER+SUHNER® full crimp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_QMA-50-2-1/133_NE	23017700	U4 (K 02252 D)	single	27427	1 A
11_QMA-50-2-1/133_NH	23017701	U4 (K 02252 D)	bulk 100 pcs.	27427	1 A
11_QMA-50-2-2/133_NE	23017720	U2 (RG 316/U)	single	27427	1 A
11_QMA-50-2-2/133_NH	23017721	U2 (RG 316/U)	bulk 100 pcs.	27427	1 A

> for flexible cables

- > cable entry crimp
- > centre contact soldered

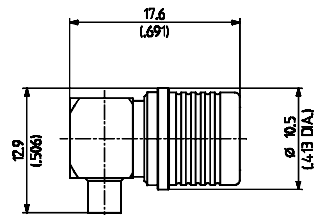


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_QMA-50-3-1/133_NE	23017697	U9,U11 (RG 400/U)	single	27429	B
11_QMA-50-3-1/133_NH	23017698	U9,U11 (RG 400/U)	bulk 100 pcs.	27429	B
11_QMA-50-3-2/133_NE	23017702	U7 (RG 58 C/U)	single	27429	B
11_QMA-50-3-2/133_NH	23017703	U7 (RG 58 C/U)	bulk 100 pcs.	27429	B

Right angle cable plugs (male)

> for semi-rigid cables, SUCOFORM and MULTIFLEX cables

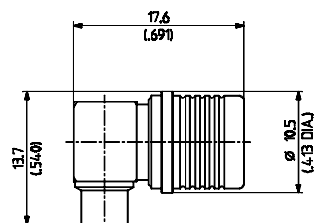
- > cable entry soldered
- > centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Notes
16_QMA-50-2-3/133_NE	23017666	Y11,Y3 (Sucoform 86)	single	27444	
16_QMA-50-2-3/133_NH	23017667	Y11,Y3 (Sucoform 86)	bulk 100 pcs.	27444	

> for semi-rigid cables, SUCOFORM and MULTIFLEX cables

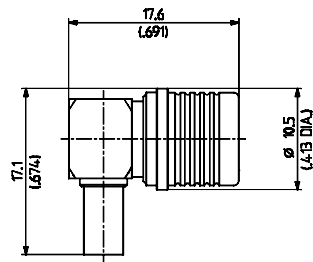
- > cable entry soldered
- > centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Notes
16_QMA-50-3-3/133_NE	23017693	Y5, Y12 (Sucoform 141)	single	27444	
16_QMA-50-3-3/133_NH	23017694	Y5, Y12 (Sucoform 141)	bulk 100 pcs.	27444	

> for flexible cables

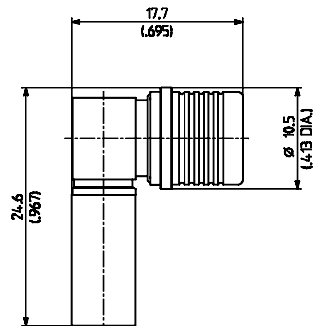
- > cable entry crimp
- > centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_QMA-50-2-1/133_NE	23017654	U4 (K 02252 D)	single	27443	A
16_QMA-50-2-1/133_NH	23017644	U4 (K 02252 D)	bulk 100 pcs.	27443	A
16_QMA-50-2-2/133_NE	23017657	U2 (RG 316/U)	single	27443	A
16_QMA-50-2-2/133_NH	23017658	U2 (RG 316/U)	bulk 100 pcs.	27443	A

> for flexible cables

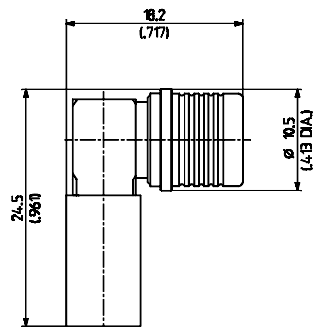
- > cable entry crimp
- > centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_QMA-50-3-1/133_NE	23017686	U9, 11 (RG 400/U)	single	27443	B
16_QMA-50-3-1/133_NH	23017687	U9, 11 (RG 400/U)	bulk 100 pcs.	27443	B
16_QMA-50-3-2/133_NE	23017691	U7 (RG 58 C/U)	single	27443	B
16_QMA-50-3-2/133_NH	23017692	U7 (RG 58 C/U)	bulk 100 pcs.	27443	B

> for flexible cables

- > cable entry crimp
- > centre contact soldered

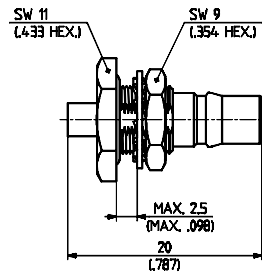


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_QMA-50-4-1/133_NH	23012849	S16 (S 04262 D)	bulk 100 pcs.	27405	C

Straight bulkhead cable jacks (female)

> for semi-rigid cables, SUCOFORM and MULTIFLEX cables

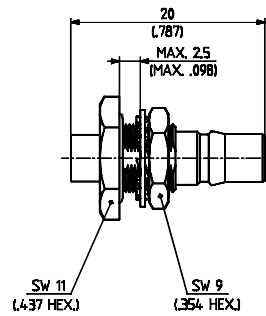
- > cable entry soldered
- > centre contact plugged-in
- > with panel seal



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly Instruction/ Mounting Hole	Notes
24_QMA-50-2-1/111_NE	23017742	Y11,Y3 (Sucoform 86)	single	27428 / ML 20	
24_QMA-50-2-1/111_NH	23017743	Y11,Y3 (Sucoform 86)	bulk 100 pcs.	27428 / ML 20	

> for semi-rigid cables, SUCOFORM and MULTIFLEX cables

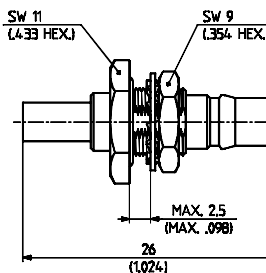
- > cable entry soldered
- > centre contact plugged-in
- > with panel seal



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly Instruction/ Mounting Hole	Notes
24_QMA-50-3-3/111_NE	23017683	Y5, Y12 (Sucoform 141)	single	27428 / ML 20	
24_QMA-50-3-3/111_NH	23017684	Y5, Y12 (Sucoform 141)	bulk 100 pcs.	27428 / ML 20	

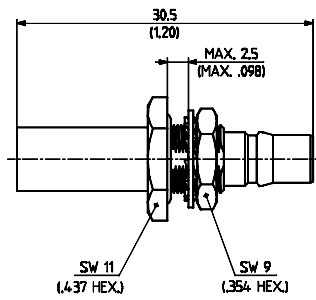
> for flexible cables

- > cable entry crimp
- > centre contact soldered
- > with panel seal



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly Instruction/ Mounting Hole	Crimp insert
24_QMA-50-2-2/133_NE	23017829	U4 (K 02252 D)	single	27429 / ML 20	A
24_QMA-50-2-2/133_NH	23017830	U4 (K 02252 D)	bulk 100 pcs.	27429 / ML 20	A
24_QMA-50-2-3/133_NE	23017837	U2 (RG 316/U)	single	27429 / ML 20	A
24_QMA-50-2-3/133_NH	23017838	U2 (RG 316/U)	bulk 100 pcs.	27429 / ML 20	A

- > for flexible cables
- > cable entry crimp
- > centre contact soldered
- > with panel seal

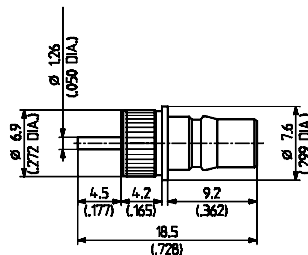


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly Instruction/ Mounting Hole	Crimp insert
24_QMA-50-3-1/133_NE	23017822	U9, 11 (RG 400/U)	single	27429 / ML 20	B
24_QMA-50-3-1/133_NH	23017823	U9, 11 (RG 400/U)	bulk 100 pcs.	27429 / ML 20	B
24_QMA-50-3-2/133_NE	23017795	U7 (RG 58 C/U)	single	27429 / ML 20	B
24_QMA-50-3-2/133_NH	23017796	U7 (RG 58 C/U)	bulk 100 pcs.	27429 / ML 20	B

RECEPTACLES WITH SOLDER END

Receptacles, jacks (female)

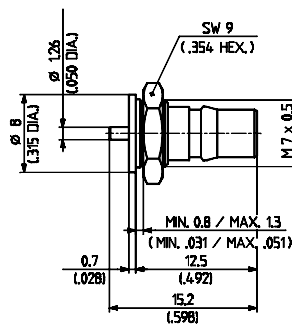
- > bulkhead mounted
- > press-in chassis mount



QMA

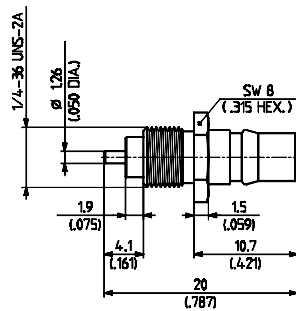
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
22_QMA-50-0-7/111_NH	84009240	bulk 100 pcs.	ML 143	press-in
22_QMA-50-0-7/133_NF	84001926	bulk 50 pcs.	ML 143	press-in

- > bulkhead mounted
- > without panel seal



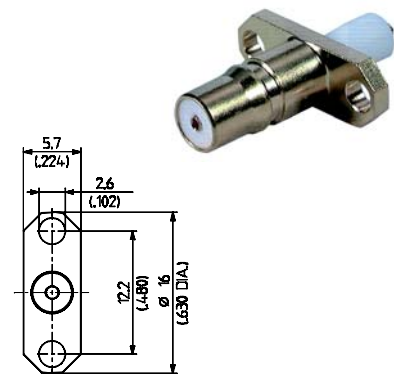
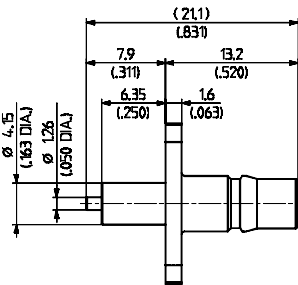
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
22_QMA-50-0-3/133_NH	23018585	bulk 100 pcs.	ML 20	flush dielectric

- > bulkhead mounted
- > without panel seal



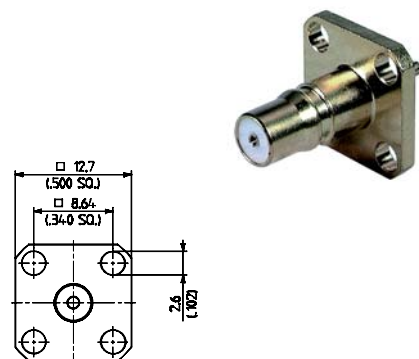
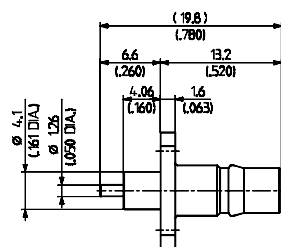
HUBER+SUHNER type	Item no.	Packaging	Notes
22_QMA-50-0-4/133_NH	23022628	bulk 100 pcs.	extended dielectric

- > panel mounted
- > 2-hole flange



HUBER+SUHNER type	Item no.	Packaging	Notes
23_QMA-50-0-2/111_NH	23024985	bulk 100 pcs.	extended dielectric

- > panel mounted
- > 4-hole flange

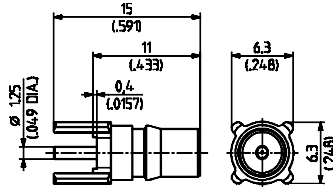


HUBER+SUHNER type	Item no.	Packaging	Notes
23_QMA-50-0-3/111_NH	23025007	bulk 100 pcs.	extended dielectric

PCB CONNECTORS

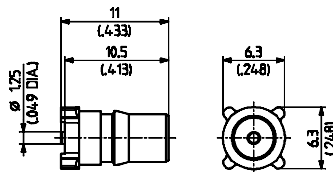
Straight PCB jacks (female)

> with stand-off



HUBER+SUHNER type	Item no.	Packaging	PCB Layout	Notes
82_QMA-50-0-3/111_NH	23017656	bulk 100 pcs.	ML 41	

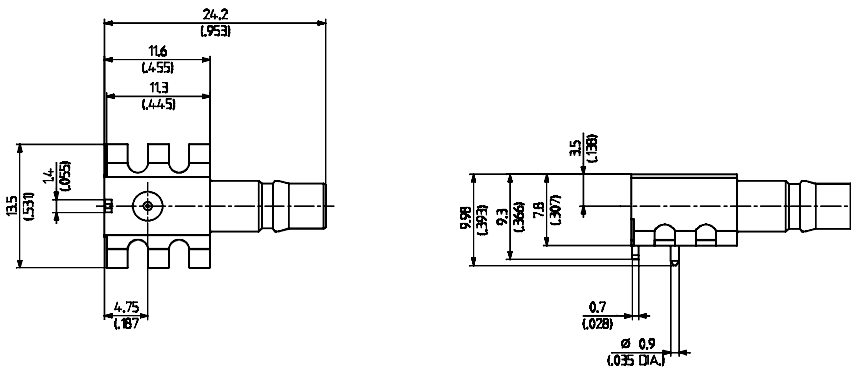
> surface mount type SMT



HUBER+SUHNER type	Item no.	Packaging	PCB Layout	Notes
82_QMA-550-0-2/111_NH	23017631	bulk 100 pcs.	ML 136	

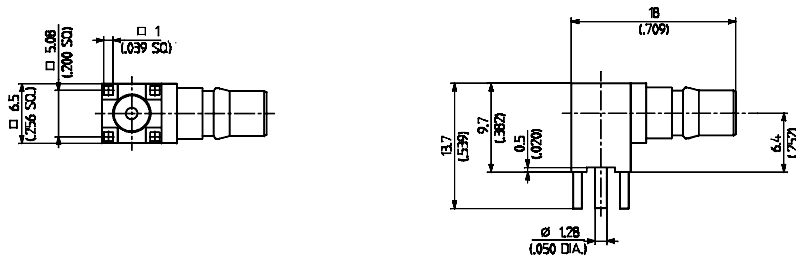
Right angle PCB jacks (female)

> surface mount type SMT (with positioning pin)



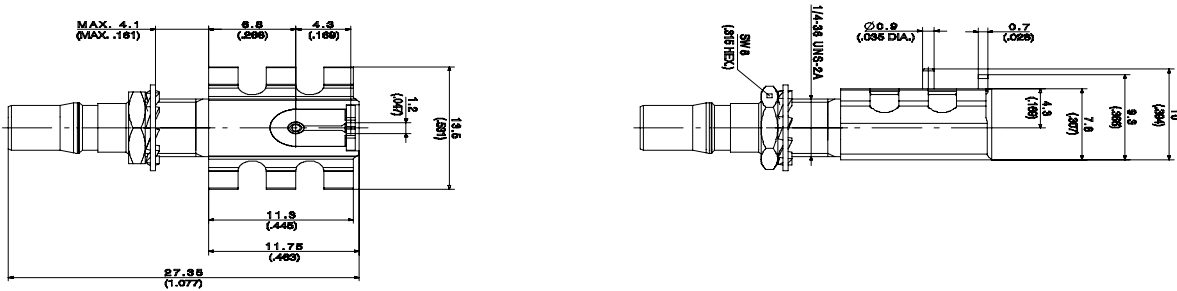
HUBER+SUHNER type	Item no.	Packaging	PCB Layout	Notes
85_QMA-S50-0-2/111_NM	23021299	tape and reel	ML 137	

> with stand-off



HUBER+SUHNER type	Item no.	Packaging	PCB Layout	Notes
85_QMA-50-0-3/111_NH	23021463	bulk 100 pcs.	ML 41	

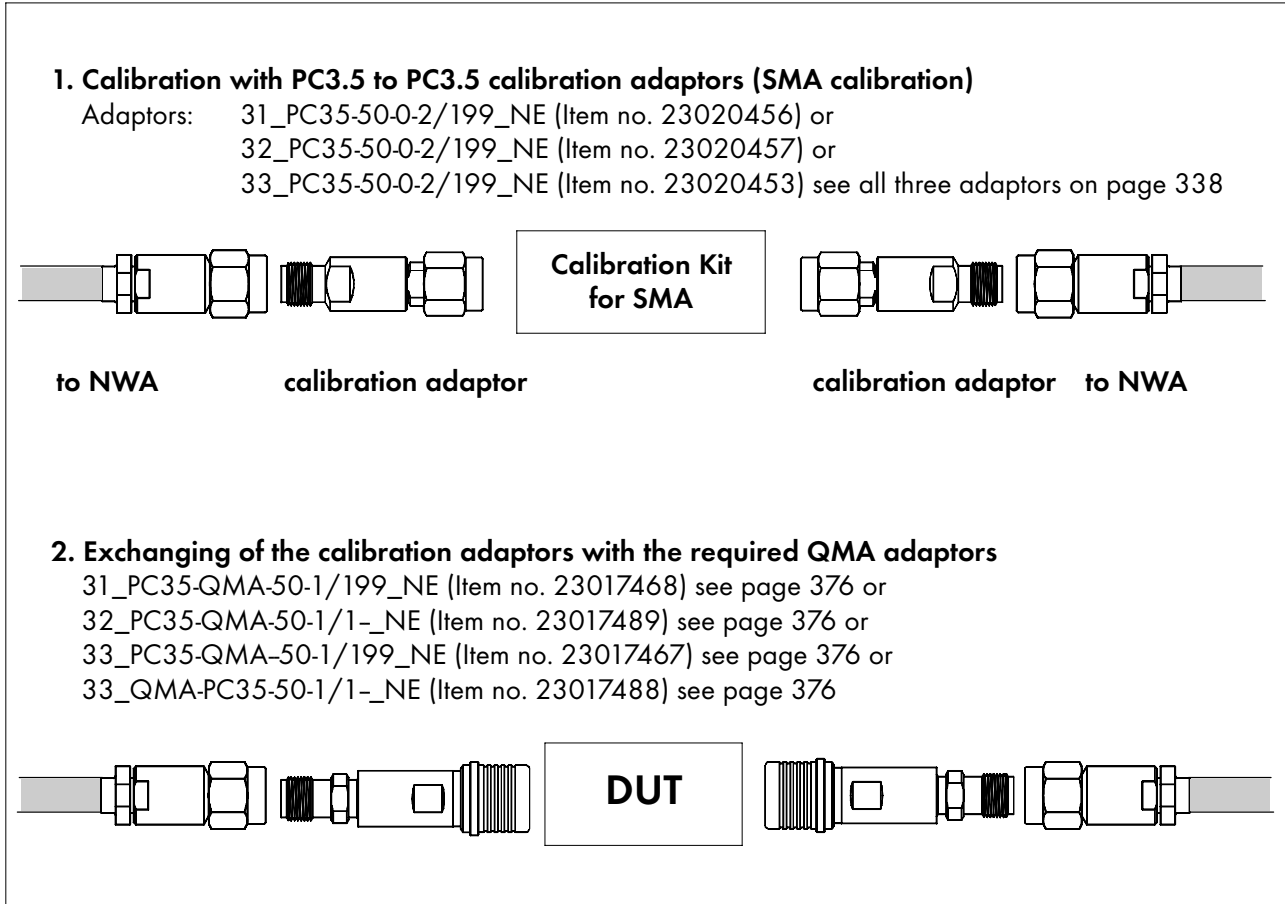
> surface mount type SMT
> bulkhead mounted



HUBER+SUHNER type	Item no.	Packaging	PCB Layout	Notes
85_QMA-S50-0-5/111_NM	84002573	tape and reel	ML 137	

QMA-CALIBRATION WITH ADAPTOR SWAPPING METHOD

For return Loss/VSWR measurement of QMA connectors, HUBER+SUHNER recommends the following calibration method:



QMA

Thanks to the same electrical length and the same return loss behaviour of all these adaptors, the adaptor swapping method can be used (same dimensions of all electrical relevant piece parts in these adaptors).