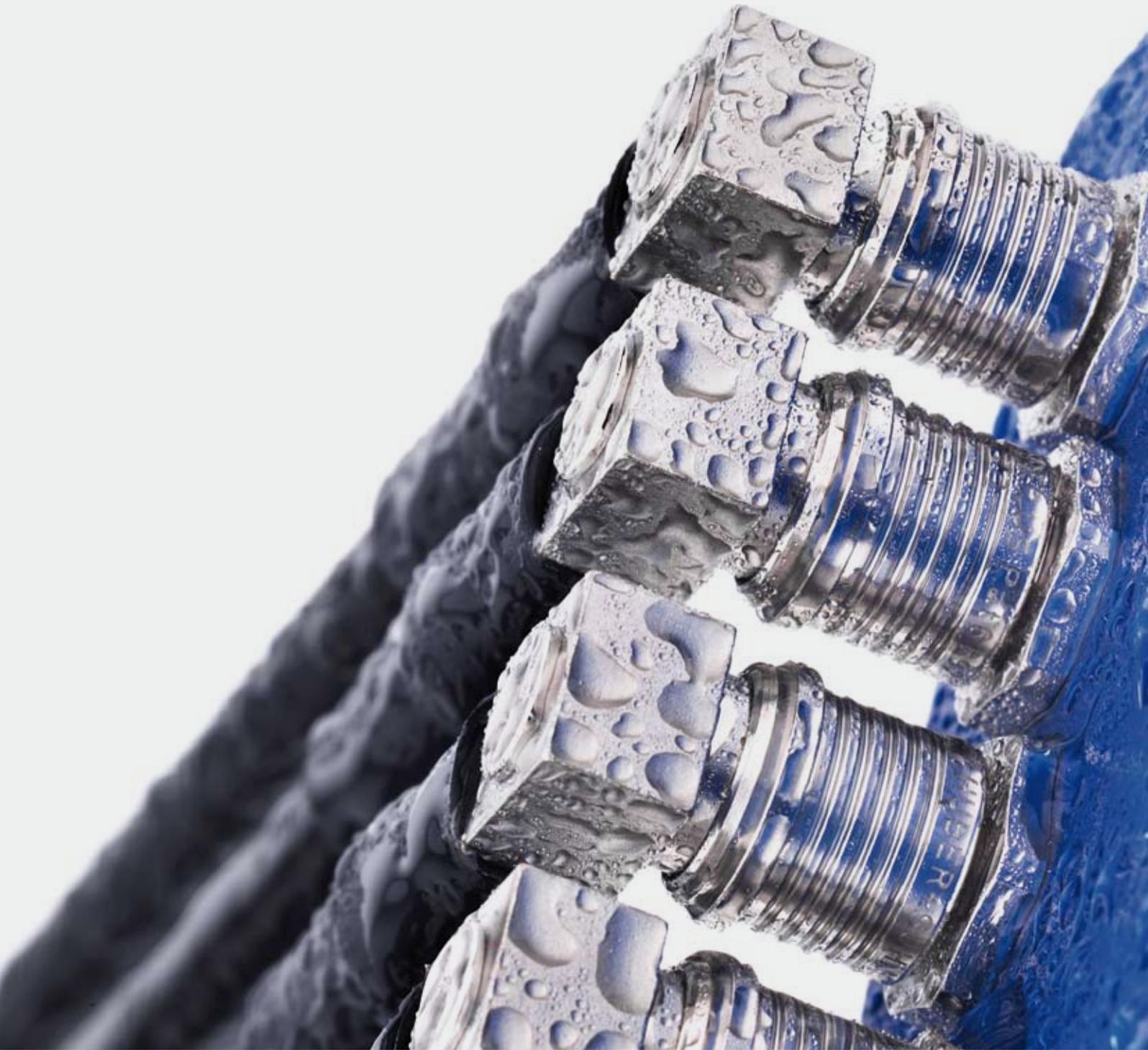


# QMA

## QUICK-LOCK connectors

Edition 2009



Reliable, quick and space saving





### **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.

### **Waterproof QMA interface**

QMA radio frequency connectors are equipped with a QUICK LOCK locking mechanism instead of a threaded connection. This snap-on coupling is fast, reliable, easy and space saving. Many network equipment manufacturers and installation crews can confirm the excellent characteristics of the QMA connector and are profiting from the reduced costs and time.

HUBER+SUHNER, as the developers of the QMA interface, have now further refined the QUICK LOCK mechanism for weather exposed applications, creating the first waterproof QMA solution. Combining long experience with the QMA series and its waterproof application distinguishes HUBER+SUHNER as a most reliable partner.

## Standard QMA product line – application examples

- Base station applications, radio links, WiMAX and LTE applications.
- Modular interconnections in racks can be realised at a higher density with very short installation times.
- Thanks to the fast mating of QMA, easier interconnections are possible within outdoor units.
- QMA provides a stable quick lock connection and is the perfect choice for applications where the screwed connection risks to be loosened (e.g. moving and routing cables).



## Waterproof QMA product line – application examples

- The connector is ideal for base station applications, in units which are exposed to humid environments such as air ventilated cabinets or outdoor modules.
- Compact and quick connections can be realised within or to outdoor radio link modules.
- Interconnections between modules and antennas where small interfaces are needed as in Wi-Fi, W-LAN, WiMAX and DECT applications
- Easy installation of the devices placed on building facades for Mesh networks and video surveillance.
- Outdoor RFID applications which require protection against harsh environmental conditions.





## Standard QMA products

### Cable connectors

Male straight and right angle connectors are available for various dimensions of flexible cables as well as solder types for semi-rigid cables. Straight and bulkhead female crimp and solder types for flexible and semi-rigid cables complete the cable connector range.

### Panel and PCB connectors

Straight flange and bulkhead female receptacles, screw-in and press-mount receptacles, as well as through-hole and SMT PCB connectors are the solution for filters, RXT units and antenna applications.



### Adaptors

Adaptors between series offer solutions for test and measurement applications. Our adaptor QMA-MMBX is the perfect solution for panel to board connections.

Detailed information on standard QMA products is listed in the following catalogues:

- RF coaxial connectors - item no. 644802
- RF microwave components - item no. 84068668
- RF power switch - item no. 84070656



## Features and benefits of standard QMA

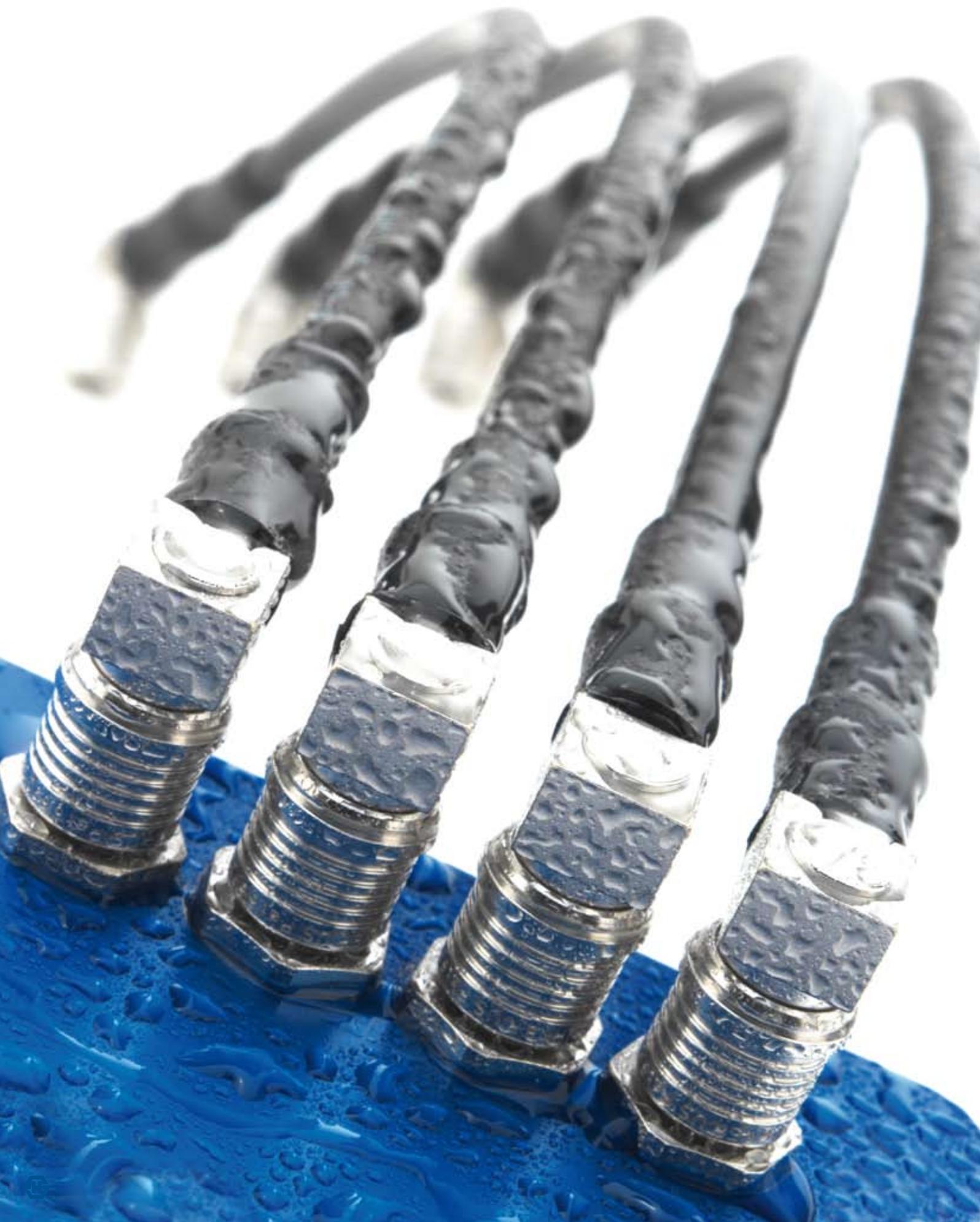
The standard QMA allows easy and 10 times faster mating than the threaded SMA. It offers increased reliability and does not require any fastening torque or tooling for installation. With its 360° rotatable interface, it allows easy routing of the cable assembly without mechanical stressing or electrical performance degradation. The QMA has a higher packing density although its size is equivalent to that of the SMA, since there is no need to observe any wrench clearance. It offers excellent electrical performance and its consistent VSWR performance enables the standard SMA to be replaced. Its return loss has been optimised for the range between DC and 6 GHz.



The QLF® trademark guarantees compatibility between different manufacturers. This ensures that customers will have a reliable second source available ([www.qlf.info](http://www.qlf.info)).



# Waterproof QMA products



Our long experience with QMA radio frequency connectors and our continuous research into new connectivity solutions have enabled HUBER+SUHNER to develop the world's first watertight interface for QMA.

### *Benefits* and key features of waterproof QMA

- IP 68 ingress protection rating when mated
- Intermateable with QLF® certified standard QMA female
- Same outline as standard QMA
- Enhanced temperature rating +105° C

The waterproof QMA provides the true SMA replacement below 6 GHz, where quick locking and watertightness are required.

The waterproof QMA benefits from the features of the standard QMA interface:

- Easy to mate
- 10 times faster than with threaded SMA
- Increased reliability
- No torque or tooling required
- 360° rotatable interface
- Easy routing of cable assembly without mechanical stress or electrical performance degradation
- Higher packing density
- Size equivalent to SMA, but space saving as there is no need for wrench clearance
- Excellent electrical performance
- Consistent VSWR performance enables to replace standard SMA
- Return loss optimised DC – 6 GHz

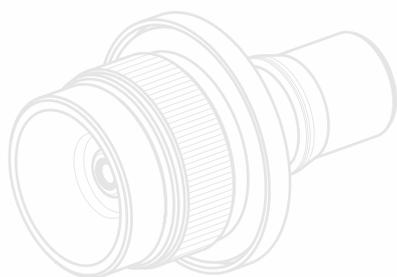
## Specifications for standard and waterproof QMA

### Electrical requirements

Impedance	50 Ohm
Frequency	DC to 18 GHz
Dielectric withstanding voltage	1000 V RMS 50 Hz, sea level
Working voltage	≤ 480 V RMS 50 Hz, sea level
Insulation resistance	5 × 10 <sup>3</sup> MΩ min. (initial)
Contact resistance	
• centre contact	3.0 mΩ max. (initial)
• outer contact	2.5 mΩ max. (initial)
Passive intermodulation	-120 dBc static @ 1.8 GHz 2 × 20 W
Screening effectiveness	
• DC to 3 GHz	-80 dB min.
• 3 to 6 GHz	-70 dB min.
Return loss (typical)	
• DC to 3 GHz	≥ 32 dB
• 3 to 6 GHz	≥ 25 dB

### Mechanical requirements

Mating characteristics	
• engagement force	25 N typical
• disengagement force	20 N typical
Interface retention force	60 N min.
Durability	100 mating cycles min.
Connector pitch	12.4 mm min. center to center



## Environmental data for standard QMA

### Environmental requirements – test conditions for standard QMA

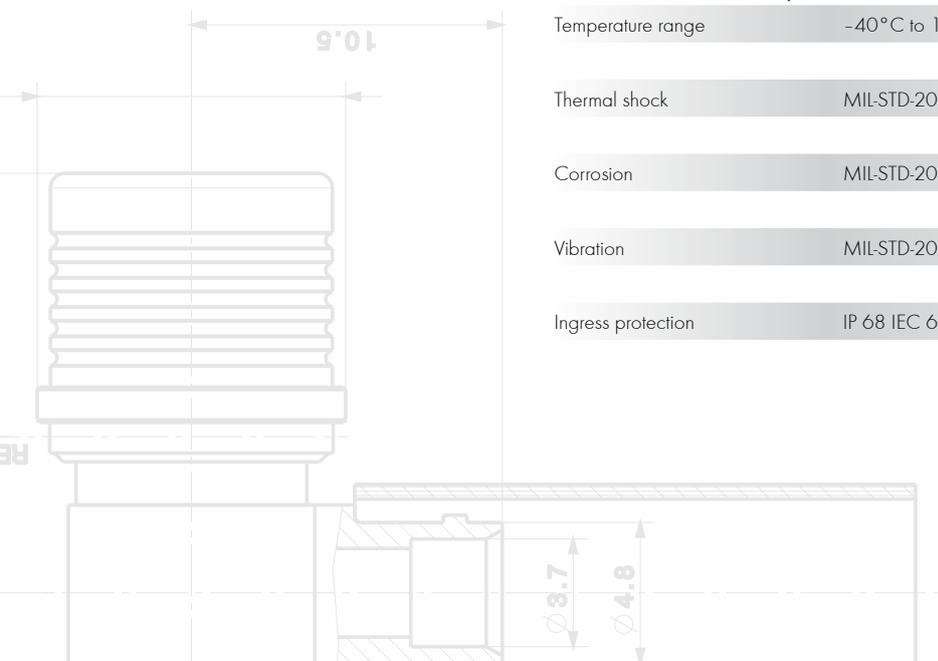
Temperature range	-40°C to +85°C
Thermal shock	IEC 60169-1 16.4 (-40° C / +85° C)
Corrosion	IEC 60169-1 16.7 (48 hrs)
Damp heat	IEC 60169-1 16.3 (96 hrs) steady state
Vibration	IEC-68-2-64 random 5-20 Hz: 1.29 (m/s <sup>2</sup> ) <sup>2</sup> /Hz 20-500 Hz: -3dB/octave

## Environmental data for waterproof QMA



### New environmental requirements – test conditions for waterproof QMA

Temperature range	-40°C to 105°C
Thermal shock	MIL-STD-202, method 107, condition B
Corrosion	MIL-STD-202, method 101, condition D
Vibration	MIL-STD-202, method 204, condition D
Ingress protection	IP 68 IEC 60529, mated condition



## Cable connectors



### Cable plugs (male)

- For semi-rigid cables, SUCOFORM and MULTIFLEX cables
- Cable entry soldered
- Centre contact plugged or soldered

Item No.	HUBER+SUHNER type	Cables (example)	Packaging
84068215	11_QMA-W50-2-6/113_NH	SUCOFORM_86 MULTIFLEX_86	bulk 100 pcs
84068217	11_QMA-W50-3-7/113_NH	SUCOFORM_141 MULTIFLEX_141	bulk 100 pcs
84068219	16_QMA-W50-2-9/113_NH	SUCOFORM_86 MULTIFLEX_86	bulk 100 pcs
84060993	16_QMA-W50-3-5/113_NH	SUCOFORM_141 MULTIFLEX_141	bulk 100 pcs



### Cable plugs (male)

- For flexible cables
- Cable entry crimped
- Centre contact plugged or soldered

Item No.	HUBER+SUHNER type	Cables (example)	Packaging
84023153	11_QMA-W50-4-3/133_NH	S_04162_B-60	bulk 100 pcs
84023140	16_QMA-W50-4-5/133_NH	S_04162_B-60 S_04262_D S_04172_D	bulk 100 pcs



### Straight bulkhead cable jacks (female)

- For semi-rigid cables, SUCOFORM and MULTIFLEX cables
- Cable entry soldered
- Centre contact plugged
- With panel seal

Item No.	HUBER+SUHNER type	Cables (example)	Packaging
23017742	24_QMA-50-2-1/111_NE	MULTIFLEX_86 SUCOFORM_86	single
23017743	24_QMA-50-2-1/111_NH	MULTIFLEX_86 SUCOFORM_141	bulk 100 pcs
23017683	24_QMA-50-3-3/111_NE	MULTIFLEX_141 SUCOFORM_141	single
23017684	24_QMA-50-3-3/111_NH	MULTIFLEX_141 SUCOFORM_141	bulk 100 pcs



### Straight bulkhead cable jacks (female)

- For flexible cables
- Cable entry crimp
- Centre contact soldered
- With panel seal

Item No.	HUBER+SUHNER type	Cables (example)	Packaging
23017830	24_QMA-50-2-2/133_NH	K 02252 D	bulk 100 pcs
23017838	24_QMA-50-2-3/133_NH	RG 316/U	bulk 100 pcs
23017823	24_QMA-50-3-1/133_NH	RG 400/U	bulk 100 pcs
23017796	24_QMA-50-3-2/133_NH	RG 58	bulk 100 pcs

## Receptacle with solder end



### Receptacle jack (female)

- Bulkhead mounted
- With panel seal

Item No.	HUBER+SUHNER type	Packaging
84061333	22_QMA-50-0-34/133_NH	bulk 100 pcs

## Adaptors



- Within series
- Between series
- With panel seal

Item No.	HUBER+SUHNER type	Notes
84012029	34_QMA-50-0-2/133_NE	jack/jack QMA with panel sealing
84017911	34_QMA-SMA-50-1/133_NE	jack QMA/jack SMA with panel sealing
84071040	34_MMBX-QMA-50-2/1-_NY	jack MMBX/jack QMA with panel sealing

## Complementary products

**Protection cap IP68**

Item No.	HUBER+SUHNER type	Packaging
84068119	62_QMA-W0-0-4/-33_E	single

**Termination - 1 Watt, IP68**

Item No.	HUBER+SUHNER type	Packaging
84025816	65_QMA-W-50-0-5/113_NE	single

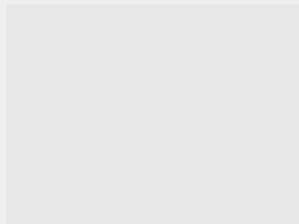
**Lightning protectors**

Available on request. Please visit «[www.hubersuhner.com](http://www.hubersuhner.com)» or contact our representative in your country.

HUBER+SUHNER is certified according to ISO 9001 and ISO 14001.

**WAIVER**

It is exclusively in written agreements that we provide our customers with warrants and representations as to the technical specifications and/or the fitness for any particular purpose. The facts and figures contained herein are carefully compiled to the best of our knowledge, but they are intended for general informational purposes only.



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