FAST MOVING TECHNOLOGY

STÄUBLI

Test accessories HF
Main catalog

Test and Measurement

EN



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STÄUBLI ELECTRICAL CONNECTORS

Connections for Life



Stäubli, as the international technology leader, offers innovative mechatronics solutions in its four divisions: Electrical Connectors, Fluid Connectors, Robotics, and Textile. At Stäubli Electrical Connectors, we develop advanced connection solutions based on the reliable MULTILAM contact technology.

We create connections for life – and our customers are at the center of these connections. We are convinced that solid and stable partnerships directly contribute to our mutual success.

We take on the needs of our partners and deal with the most extraordinary challenges. As a result, we always create, sell and support reliable and long-lasting products for markets with the highest productivity and safety requirements in close cooperation with our customers.

Together for reliable and safe connections

We know that you entrust us with the functionality of your applications and we work hard to ensure this every single day. Thanks to our high level of expertise, our extensive experience and the multiple successful co-operation with our partners, numerous new developments have originated at Stäubli Electrical Connectors and subsequently have become worldwide standards. This includes our MC4 connector portfolio for which we are today the global market leader in photovoltaic. As the Stäubli original, the MC4 represents the result of our constant quest for innovation, quality and safety.

Further examples are the CombiTac modular connector system or the Quick Charging Connector (QCC) for automatic charging systems.

We ensure connections for life together with our long-standing customers in a wide range of industries from renewable energies, power transmission and distribution and E-mobility to industrial automation applications, railway and welding automation, test and measurement and medical devices.

Thus, developing reliable, efficient and safe solutions based on our proven MULTILAM contact technology, which guarantees a high service lifetime in addition to highly efficient power transmission.

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Applications and advantages



Probes – essential equipment for oscilloscopes

The oscilloscope is one of the most important test instruments in electronics. Constant development has substantially enhanced the performance of these devices and expanded their range of applications. In order to display a test signal on these instruments, an electrical connection must be established between the oscilloscope and the object under test. The aim in establishing such a connection is to transmit the signal from the point of measurement to the oscilloscope with a minimum of distortion. Here, various factors must be taken into consideration which call for the use of special probes.

The casings of mains-powered oscilloscopes can become live with dangerous voltages, if, for instance, the protective conductor is interrupted. Persons carrying out measurements then run the risk of an electric shock on touching bare metal parts. In such cases, adequate protection from accidents is assured only with the use of touch-protected test equipment in association with touch-protected test accessories.

Touch-protected and at the same time shielded test accessories are also of increasing importance because the EMC directive prescribes shielded leads for many applications.

For safe use in the high-frequency range, our passive oscilloscope probes of the Isoprobe series and the push-on accessories are rated for voltages to earth of up to max. 1000 V, CAT II, (Isoprobe II) resp. 1000 V, CAT III/600 V, CAT IV (Isoprobe III) and are designed with clearance and creepage distances in accordance with the strict requirements of IEC/EN 61010-031:2015.

The probes Isoprobe and their push-on accessories are designed for voltages up to a maximum of 1000 $V_{r.m.s.}$ between the internal conductor and shield – substantially higher than in conventional oscilloscope probes. This high dielectric strength allows high-frequency signals to be measured even when there is a direct mains connection.

This product range includes passive high-frequency test probes (HF probes) and accessories as well as touch-protected BNC plug connectors, leads, adapters and converters.

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Contents

Page 6 **Overview**
- Oscilloscope probes

Page 8 **The compact**
- Isoprobe IV

Page 10 **The proven**
- Isoprobe II

Page 16 **The strongest**
- Isoprobe III

Page 24 **Accessories**
- Accessories for Isoprobe IV
- Accessories for Isoprobe II and Isoprobe III

Page 31 **BNC Safety Test Leads**

Page 33 **BNC Connectors and BNC Panel-mount Sockets**

Page 38 **BNC Adapters and Adapter Leads**

Page 41 **BNC Adapters and Converters**

Page 42 **BNC Accessories**
- BNC lead coupler
- BNC signal distributor

Page 43 **Appendix**
- Technical information
- Request form
- Index

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General information

Length and color code

For items that are available in more than one color or lead length, write the desired lengths and color codes after the order number instead of the spaces ▭ and * used in the catalog.

20	green-yellow	26	violet
21	black	27	brown
22	red	28	grey
23	blue	29	white
24	yellow	30	orange
25	green	33	transparent

Lead length

The lead length of all standard leads in this catalog refers to the visible length of the cable.

Colour Variations

Due to the use of high-grade types of insulating materials, despite having the same colour code some of our articles may exhibit certain differences in colour (e.g. a silicone-insulated lead fitted with TPE-insulated plugs).

Delivery Time

Many products are available ex-stock. Additional assembly time may be required for those items not ex-stock. Delivery times are available on request.

Small Orders

We request that small value orders are placed with one of our distributors.

Standard and Special Designs

This catalogue details those assembled leads which are most commonly requested. We can of course manufacture to specific requests and are happy to quote for special designs. In addition, please contact us with regards to any special requirements such as alternative surface treatments.

Changes / provisos

All data, illustrations, and drawings in the catalog have been carefully checked. They are in accordance with our experience to date, but no responsibility can be accepted for errors. We also reserve the right to make modifications for design and safety reasons. When designing equipment incorporating our components, it is therefore advisable not to rely solely on the data in the catalog but to consult us to make sure this information is up to date. We shall be pleased to advise you.

Copyright

The use of this catalog for any other purpose, in whatever form, without our prior written consent is not permitted.

European safety standards

All articles comply with the regulations of the following European directives:

- Directive 2011/65/EC (RoHS) on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
- Directive 2014/35/EU (LVD) on the harmonization of the legislation of Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.

Conformity with these directives is demonstrated by compliance with the following harmonized standards:
EN IEC 63000:2018
EN 61010-031:2015

Surfaces

Ag	silver-plated
Au	gold-plated
Ni	nickel-plated
Opt	Optalloy®-finish

Lead insulation

PVC	PVC
TPE	TPE
SIL	SIL

Symbols



Before use, please read the enclosed user information i000.



The assembly instruction MA000 is available for this product.

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OVERVIEW

Oscilloscope probes

Oscilloscope probes in compact design

While the Isoprobe II and Isoprobe III series probes are primarily designed for electricians/power supply company employees, the Isoprobe IV is especially suitable for electronics technicians.

For its particularly compact design and the associated shorter clearances and creepage distances, the Isoprobe IV with CAT III at 300 V has a high level of touch protection.

Comparison of electrical features

Isoprobe IV

	300 V
Bandwidth	CAT III
< 500 MHz	Isoprobe IV



Isoprobe II

	1000 V	600 V
Bandwidth	CAT II	CAT III
< 150 MHz	Isoprobe II 10:1 2,5	
< 250 MHz	Isoprobe II 10:1 HS	
< 500 MHz		Isoprobe II 10:1 ECO



Isoprobe III

	1000 V	600 V
Bandwidth	CAT III	CAT IV
< 35 MHz	Isoprobe III HP	
< 250 MHz	Isoprobe III 10:1 2,5	
< 300 MHz	Isoprobe III 10:1 HS	
< 500 MHz		Isoprobe III 10:1 ECO



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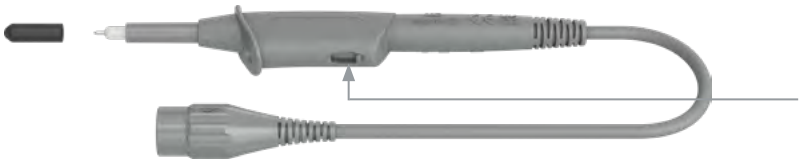
For comparison:

Isoprobe IV in its compact design in addition to probes from the Isoprobe II and Isoprobe III series.

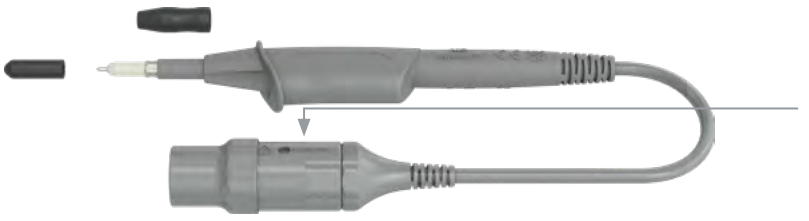
Isoprobe IV



Isoprobe II



Isoprobe III



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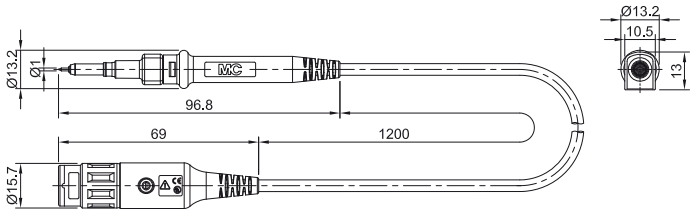
THE COMPACT

Oscilloscope probes in compact design

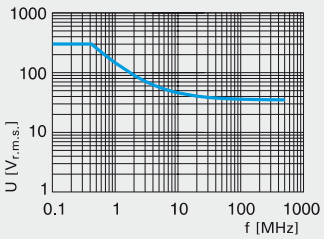
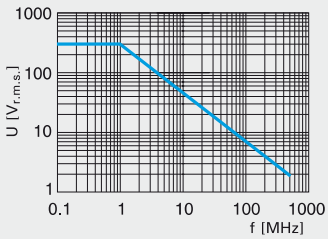
Isoprobe IV – 10:1

Safety high-frequency 10:1 test probe of compact design. With wide frequency range combined with low input capacitance. Highly flexible PVC-insulated coaxial connecting lead with BNC plug with integrated compensation unit. Facility for connecting reference lead in the front part of the probe.





Order No.	Type		Lead length [cm]	Colour
68.9366-12028	Isoprobe IV - 10:1	PVC CE UK CA	120	28

Technical Data		
	Shield/earth	Probe tip/shield
Rated voltage (frequency-dependent)	Max. 300 V, CAT III 	Max. 300 $V_{r.m.s}$ 
Dividing ratio	10:1	
Input capacitance	11 pF	
Compensation range (works setting)	10 pF…25 pF (15 pF)	
Input resistance	10 MΩ	
Frequency range	0…500 MHz	
Rise time	0.9 ns	
Lead length	120 cm	

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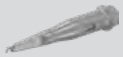
SET Isoprobe IV – 10:1

The Isoprobe IV - 10:1 set includes the necessary accessories for the professionally equipped electronics technician.



Order No.	Type	Rated voltage		Colour
68.9433-28	SET Isoprobe IV – 10:1	Max. 300 V, CAT III	CE UKCA	28

Supplied components

68.9366-12028	Isoprobe IV – 10:1	Safety high-frequency test probe, see page 8	
68.9369-28	HC400	Attachable hook clip, see page 24	
68.9443-21	GS400	Attachable reference contact, see page 24	
68.9444-01521	GM400	Reference lead, see page 25	
68.9376	BA400	Attachable BNC adapter, see page 24	
68.9513	SCC	Color markings, see page 25	

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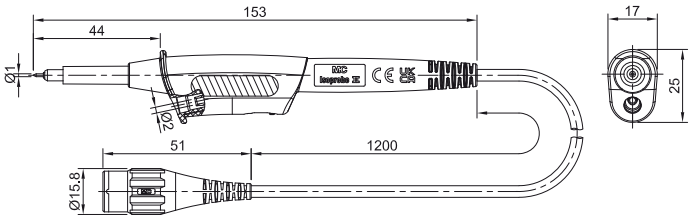
THE PROVEN

Isoprobe II

Isoprobe II – 10:1 ECO

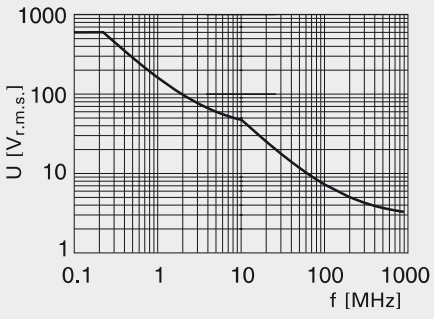
Safety high-frequency 10:1 test probe highly flexible PVC-insulated coaxial connecting lead with BNC plug. Compensation adjustment screw and Ø 2 mm safety socket for reference lead connection in the handling part.





Order No.	Type		Lead length [cm]	Colour
68.1011-120*	Isoprobe II – 10:1 ECO	PVC CE cULus UKCA	120	22 28

Technical Data	
Rated voltage (frequency-dependent)	Max. 600 V, CAT II (300 V, CAT III)
Dividing ratio	10:1
Input capacitance	13 pF
Compensation range (works setting)	10 pF…30 pF (15 pF)
Input resistance	10 MΩ
Frequency range	0…500 MHz
Rise time	1 ns
Lead length	120 cm



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SET Isoprobe II – 10:1 ECO

The basic set Isoprobe II - 10:1 ECO includes a basic set of accessories for effecting safe and accurate high-frequency measurements.



Order No.	Type	Rated voltage		Colour
68.9411-*	SET Isoprobe II – 10:1 ECO	Max. 600 V, CAT II (300 V, CAT III)	CE cULus UKCA	22 28

Supplied components

68.1011-120*	Isoprobe II – 10:1 ECO	Safety high-frequency test probe, see page 10	
68.9480-28	HC200	Attachable hook clip, see page 26	
68.9443-21	GS400	Attachable reference contact, see page 26	
68.9517-02521	GM284	Reference lead, see page 29	

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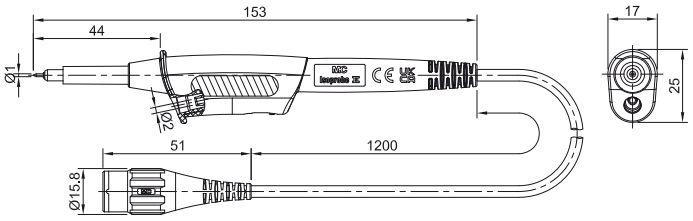
Isoprobe II – 10:1 HS

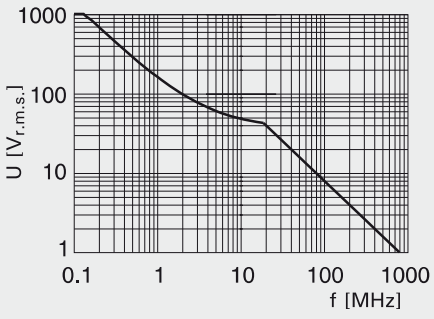
Safety high-frequency 10:1 test probe highly flexible PVC-insulated coaxial connecting lead with BNC plug. Compensation adjustment screw and Ø 2 mm safety socket for reference lead connection in the handling part.





Order No.	Type		Lead length [cm]	Colour
68.1010-120*	Isoprobe II – 10:1 HS	PVC	120	22 28

Technical Data	
Rated voltage (frequency-dependent)	Max. 1000 V, CAT II (600 V, CAT III)
Dividing ratio	10:1
Input capacitance	16 pF
Compensation range (works setting)	10 pF…35 pF (25 pF)
Input resistance	10 MΩ
Frequency range	0…250 MHz
Rise time	1.2 ns
Lead length	120 cm



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SET Isoprobe II – 10:1 HS

Test probe set with an extensive range of accessories, suitable for users like electric power engineers who carry out measurements directly on the mains.



Order No.	Type	Rated voltage		Colour
68.9410-*	SET Isoprobe II – 10:1 HS	Max. 1000 V, CAT II (600 V, CAT III)	CE cULus UKCA	22 28

Supplied components

68.1010-120*	Isoprobe II – 10:1 HS	Safety high-frequency test probe, see page 12	
68.9480-*	HC200	Attachable hook clip, see page 26	
68.9485-*	AC200	Attachable safety claw gripper, see page 26	
66.9474-21	AB200	Test clip, see page 28	
68.9518-05021	GB284	Reference lead, see page 30	
68.9517-02521	GM284	Reference lead, see page 29	

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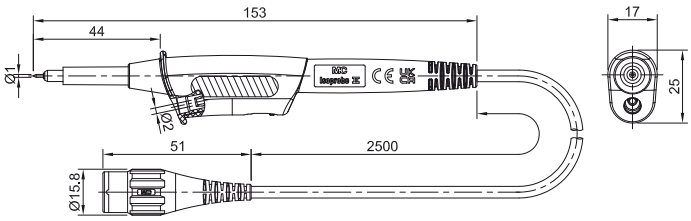
Isoprobe II – 10:1 – 2,5

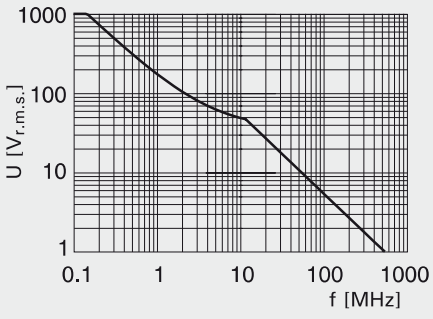
Safety high-frequency 10:1 test probe with a long, highly flexible PVC-insulated coaxial connecting lead with BNC plug, specially suited for bridging long distances between the test instrument and the object under test. Compensation adjustment screw and Ø 2 mm safety socket for reference lead connection in the handling part.





Order No.	Type		Lead length [cm]	Colour
68.1013-25022	Isoprobe II – 10:1 – 2,5	PVC CE cULus UKCA	250	22

Technical Data	
Rated voltage (frequency-dependent)	Max. 1000 V, CAT II (600 V, CAT III)
Dividing ratio	10:1
Input capacitance	18 pF
Compensation range (works setting)	10 pF…30 pF (15 pF)
Input resistance	10 MΩ
Frequency range	0…150 MHz
Rise time	1.3 ns
Lead length	250 cm



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SET Isoprobe II – 10:1 – 2,5

Test probe set, consisting of safety high-frequency test probe Isoprobe II - 10:1 - 2,5 and accessories. The test probe with long connecting lead is specially suited for bridging long distances between the test instrument and the object under test.



Order No.	Type	Rated voltage		Colour
68.9413-22	SET Isoprobe II – 10:1 – 2,5	Max. 1000 V, CAT II (600 V, CAT III)	CE cULus UKCA	22

Supplied components

68.1013-25022	Isoprobe II – 10:1 – 2,5	Safety high-frequency test probe, see page 14	
68.9480-22	HC200	Attachable hook clip, see page 26	
68.9517-02521	GM284	Reference lead, see page 29	

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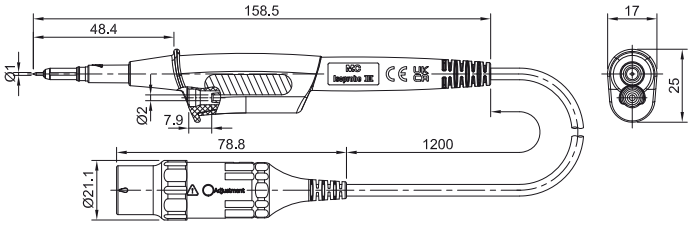
THE STRONGEST

Isoprobe III

Isoprobe III – 10:1 ECO

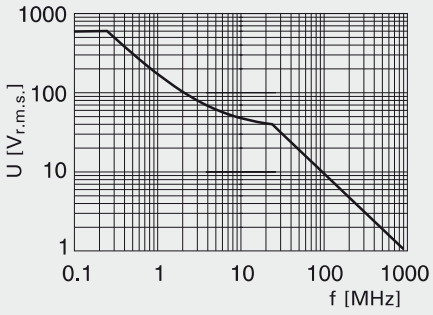
Safety high-frequency test probe 10:1. Highly flexible, PVC-insulated coaxial connecting cable with BNC plug with integrated compensation unit. Ø 2 mm safety socket for reference connection situated in the grip of the probe.





Order No.	Type		Lead length [cm]	Colour
68.9501-12028	Isoprobe III – 10:1 ECO	PVC	120	28

Technical Data	
Rated voltage (frequency-dependent)	Max. 600 V, CAT III (600 V, CAT IV)
Dividing ratio	10:1
Input capacitance	12 pF
Compensation range (works setting)	10 pF…22 pF (15 pF)
Input impedance	10 MΩ
Frequency range	0…500 MHz
Rise time	0.9 ns
Lead length	120 cm



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SET Isoprobe III – 10:1 ECO

The Isoprobe III basic set – 10:1 ECO includes basic accessories to perform high-frequency measurements safely and precisely.



Order No.	Type	Rated voltage		Colour
68.9558-28	SET Isoprobe III – 10:1 ECO	Max. 600 V, CAT III (600 V, CAT IV)	CE cULus UKCA	28

Supplied components

68.9501-12028	Isoprobe III – 10:1 ECO	Safety high-frequency test probe, see page 16	
68.9805-28	ZGA-S	Attachable hook clip, see page 26	
68.9443-21	GS400	Attachable reference contact, see page 27	
68.9517-02521	GM284	Reference lead, see page 29	
68.9513	SCC	Color markings, see page 30	

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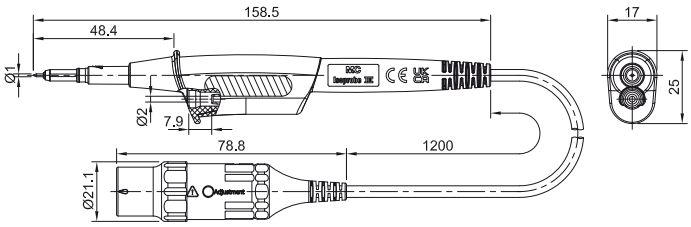
Isoprobe III – 10:1 HS

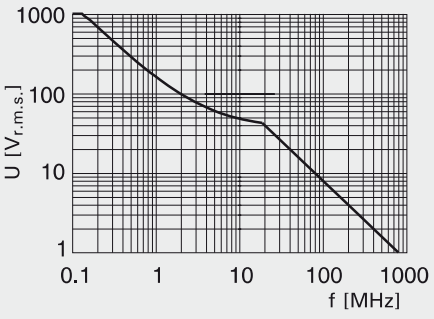
Safety high-frequency 10:1 test probe. Highly flexible PVC-insulated coaxial connecting lead with BNC plug with integrated compensation unit. Ø 2 mm safety socket for reference lead connection in the handling part of the probe.





Order No.	Type		Lead length [cm]	Colour
68.9533-12028	Isoprobe III – 10:1 HS	PVC CE cULus UKCA	120	28

Technical Data	
Rated voltage (frequency-dependent)	Max. 1000 V, CAT III (600 V, CAT IV)
Dividing ratio	10:1
Input capacitance	13.5 pF
Compensation range (works setting)	10 pF…30 pF (25 pF)
Input resistance	10 MΩ
Frequency range	0…300 MHz
Rise time	1.1 ns
Lead length	120 cm



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SET Isoprobe III – 10:1 HS

The particularly comprehensive accessories of the set Isoprobe III - 10:1 HS include, among others, two jaw clips for applications such as test connections to busbars. This set addresses itself to heavy-current engineers who make measurements directly on the mains.



Order No.	Type	Rated voltage		Colour
68.9557-28	SET Isoprobe III – 10:1 HS	Max. 1000 V, CAT III (600 V, CAT IV)	CE cULus UKCA	28

Supplied components

68.9533-12028	Isoprobe III – 10:1 HS	Safety high-frequency test probe, see page 18	
68.9805-28	ZGA-S	Attachable hook clip, see page 26	
68.9485-28	AC200	Attachable safety claw gripper, see page 26	
66.9474-21	AB200	Test clip, see page 28	
68.9518-05021	GB284	Reference lead, see page 30	
68.9517-02521	GM284	Reference lead, see page 29	
68.9513	SCC	Color markings, see page 30	

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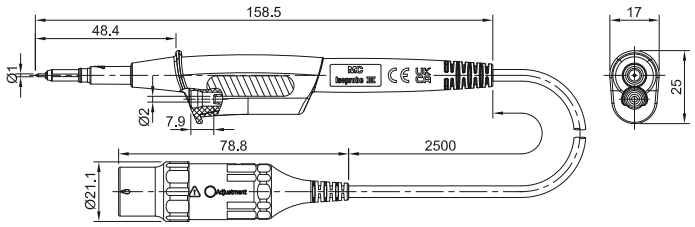
Isoprobe III – 10:1 – 2,5

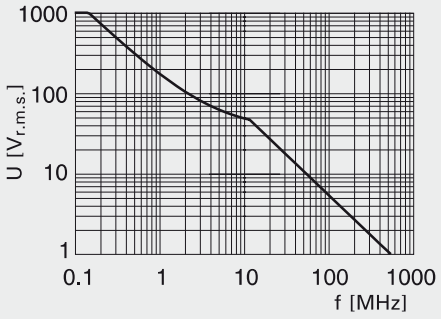
Safety high-frequency 10:1 test probe. Highly flexible PVC-insulated coaxial connecting lead with BNC plug with integrated compensation unit. Ø 2 mm safety socket for reference lead connection in the handling part of the probe. With long connecting lead, specially suited for bridging long distances between the test instrument and the object under test.





Order No.	Type		Lead length [cm]	Colour
68.9549-25028	Isoprobe III – 10:1 – 2,5	PVC CE cULus UKCA	250	28

Technical Data	
Rated voltage (frequency-dependent)	Max. 1000 V, CAT III (600 V, CAT IV)
Dividing ratio	10:1
Input capacitance	18 pF
Compensation range (works setting)	10 pF…30 pF (15 pF)
Input resistance	10 MΩ
Frequency range	0…250 MHz
Rise time	1.3 ns
Lead length	250 cm



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SET Isoprobe III – 10:1 – 2,5

Test probe set, consisting of safety high-frequency test probe Isoprobe III - 10:1 - 2,5 and accessories. The test probe with a long connecting lead is specially suited for bridging long distances between the test instrument and the object under test.



Order No.	Type	Rated voltage		Colour
68.9554-28	SET Isoprobe III – 10:1 – 2,5	Max. 1000 V, CAT III (600 V, CAT IV)		28

Supplied components

68.9549-25028	Isoprobe III – 10:1 – 2,5	Safety high-frequency test probe, see page 20	
68.9805-28	ZGA-S	Attachable hook clip, see page 26	
68.9517-02521	GM284	Reference lead, see page 29	
68.9513	SCC	Color markings, see page 30	

User information i088

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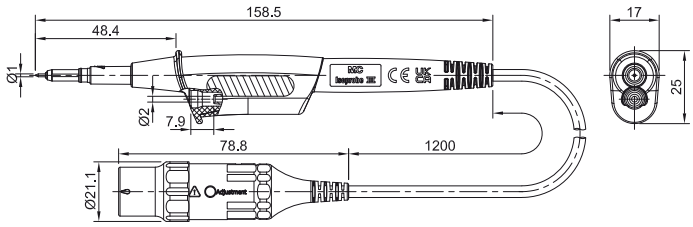
Isoprobe III – HP

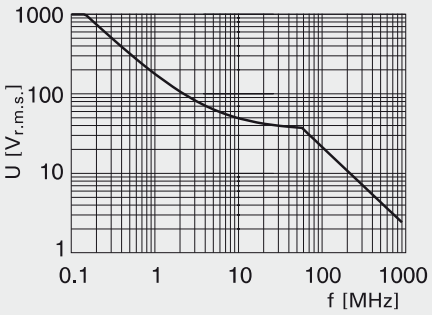
Safety high-frequency oscilloscope probe with an integrated high-pass filter. Highly flexible PVC-insulated coaxial connecting lead with BNC plug. Ø 2 mm safety socket for reference lead connection in the handling part of the probe.





Order No.	Type		Lead length [cm]	Colour
68.9455-12028	Isoprobe III – HP	PVC CE UKCA	120	28

Technical Data	
Rated voltage (frequency-dependent)	Max. 1000 V, CAT III (600 V, CAT IV) (Max. 3540 V)
Dividing ratio (± 3 %, f=10 kHz)	100:1 (f > 1,1 kHz)
Attenuation (f = 50 Hz compared with 10 kHz)	> 40dB
Input capacitance	< 8 pF
Scope capacitance	12 pF…25 pF
Input resistance	∞
Frequency range	1.1 kHz…35 MHz (3 dB)
Rise time	< 10ns
Lead length	120 cm



User information i100

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SET Isoprobe III – HP

The set Isoprobe III - HP contains accessories to meet the needs of a professionally equipped test engineer.



Order No.	Type	Rated voltage		Colour
68.9456-28	SET Isoprobe III – HP	Max. 1000 V, CAT III (600 V, CAT IV) (max. 3540 V)	PVC CE UKCA	28

Supplied components

68.9455-12028	Isoprobe III – HP	Safety high-frequency test probe, see page 22	
68.9805-28	ZGA-S	Attachable hook clip, see page 26	
68.9517-02521	GM284	Reference lead, see page 29	
68.9513	SCC	Color markings, see page 30	

User information i100

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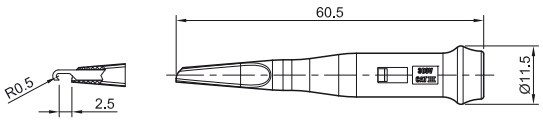
Accessories for Isoprobe IV

Attachable hook clip HC400

Push-on hook clip.



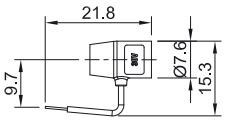


Order No.	Type	Rated voltage		*Colours
68.9369-*	HC400	600 V, CAT II (300 V, CAT III)	CE cULus UKCA	23 28

Attachable reference contact GS400

Push-on reference contact.



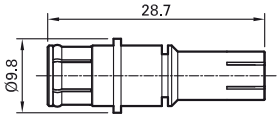


Order No.	Type	Rated voltage		Colour
68.9443-21	GS400	AC 30 V/DC 60 V	CE cULus UKCA	21

Attachable BNC adapter BA400

Uninsulated push-on BNC adapter.





Order No.	Type	
68.9376	BA400	cULus

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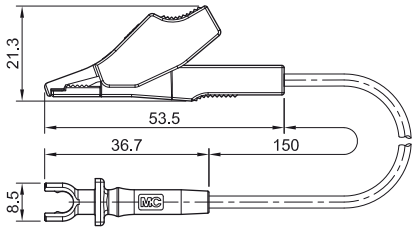
Reference lead GM400

Highly flexible reference lead with insulation in silicone. One end with fork-type plug for connecting to the shielded contact on the side of the probe, other end with crocodile clip with allround insulation and toothed gripping jaws with fine-wire clamping surface.



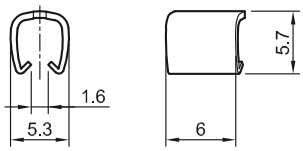


Order No.	Type	Rated voltage	Lead cross section		Lead length [cm]	Colour
68.9444-01521	GM400	600 V, CAT II (300 V, CAT III)	0.50 mm²	SIL CE UKCA	015	21

Color markings SCC

Set of colour clips for Isoprobe connecting lead (5 x 2 pcs.).





Order No.	Type
68.9513	SCC

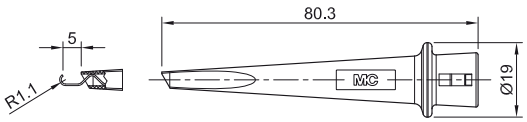
Downloaded from Arrow.com.

Accessories for Isoprobe II and Isoprobe III

Attachable hook clip HC200

Push-on hook clip.



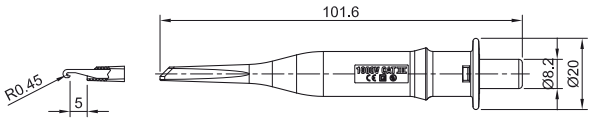


Order No.	Type	Rated voltage		*Colours
68.9480-*	HC200	1000 V, CAT II (600 V, CAT III)	CE cULus UKCA	21 22 23 28

Attachable hook clip ZGA-S

Push-on hook clip.



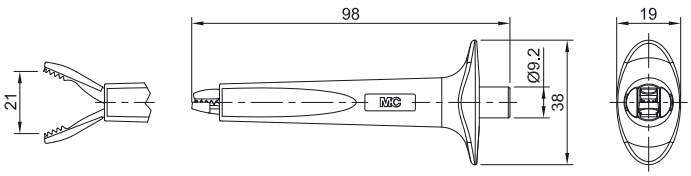


Order No.	Type	Rated voltage		*Colours
68.9805-*	ZGA-S	1000 V, CAT III (600 V, CAT IV) (max. 3540 V, CAT I)	CE cULus UKCA	23 28

Attachable safety claw gripper AC200

Push-on safety jaw clip. For increased safety when making connections, the jaws are insulated on the outside.





Order No.	Type	Rated voltage		*Colours
68.9485-*	AC200	1000 V, CAT III (600 V, CAT IV)	CE cULus UKCA	21 22 23 28

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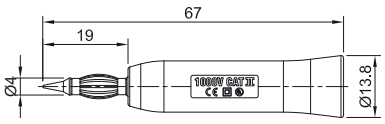
Attachable Ø 4 mm test probe PB200

Push-on Ø 4 mm test probe.



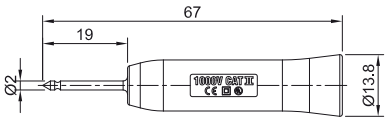


Order No.	Type	Rated voltage		*Colours
68.9481-*	PB200	1000 V, CAT II	CE cULus UKCA	21 22 23 28

Attachable Ø 2 mm test probe PT200

Push-on Ø 2 mm test probe.



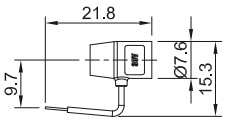


Order No.	Type	Rated voltage		*Colours
68.9483-21	PT200	1000 V, CAT II	CE cULus UKCA	21

Attachable reference contact GS400

Push-on reference contact.





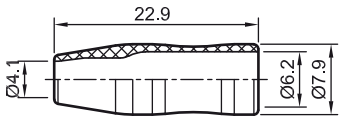
Order No.	Type	Rated voltage		Colour
68.9443-21	GS400	AC 30 V/DC 60 V	CE cULus UKCA	21

Downloaded from Arrow.com.

Attachable insulating sleeve SK-IP

Push-on insulating sleeve.



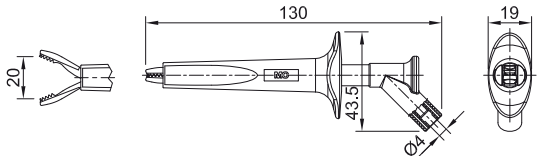


Order No.	Type	*Colours
68.9514-21	SK-IP	21

Test clip AB200

Test clip with steel jaws especially for connections to ground rails and thick cables. For increased safety when making connections, the jaws are insulated on the outside. Ø 4 mm rigid socket in handle accepting spring-loaded Ø 4 mm plugs with rigid insulating sleeve.





Order No.	Type	Rated voltage/current		*Colours
66.9474-*	AB200	1000 V, CAT IV/20 A	Ni CE cULus UKCA	21 22 23

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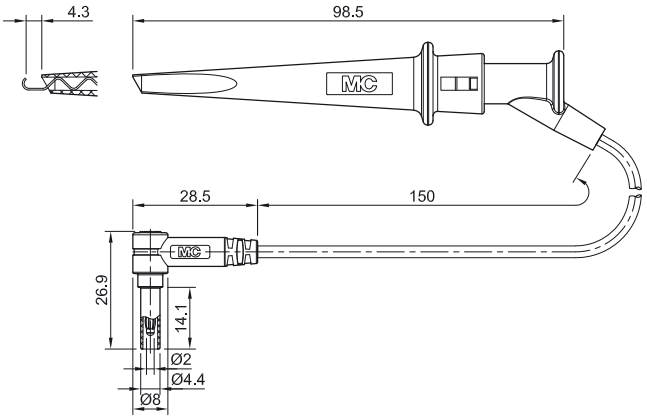
Ø 2 mm reference lead with hook clip GH284

Ø 2 mm reference lead with hook clip.



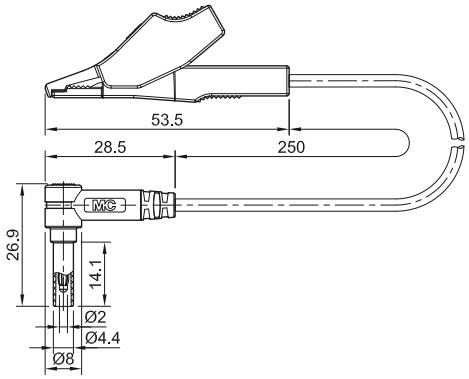


Order No.	Type	Rated voltage	Lead cross section		Lead length [cm]	Colour
68.9519-01521	GH284	1000 V, CAT III (600 V, CAT IV)	0.50 mm²	SIL	015	21

Reference lead GM284

Highly flexible reference leads with insulation in PVC or silicone. One end with right angled Ø 2 mm plug with rigid insulating sleeve, other end with crocodile clip with all-round insulation and toothed gripping jaws with fine-wire clamping surface.





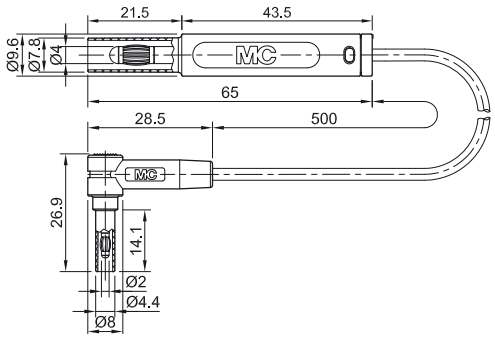
Order No.	Type	Rated voltage/current	Lead cross section		Lead length [cm]	Colour
68.9517-02521	GM284	1000 V, CAT III (600 V, CAT IV)/10 A	0.50 mm²	SIL	025	21

Downloaded from Arrow.com.

Reference lead GB284

Highly flexible Silicone-insulated reference leads. One end with Ø 2 mm safety plug, other end with Ø 4 mm safety plug. Lead length: 50 cm.



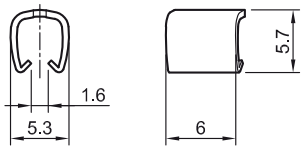


Order No.	Type	Rated voltage/current	Lead cross section		Lead length [cm]	Colour
68.9518-05021	GB284	1000 V, CAT III (600 V, CAT IV)/10 A	0.75 mm²	SIL CE cULus UKCA	050	21

Color markings SCC

Set of colour clips for Isoprobe connecting lead (5 x 2 pcs.).





Order No.	Type
68.9513	SCC

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BNC SAFETY TEST LEADS

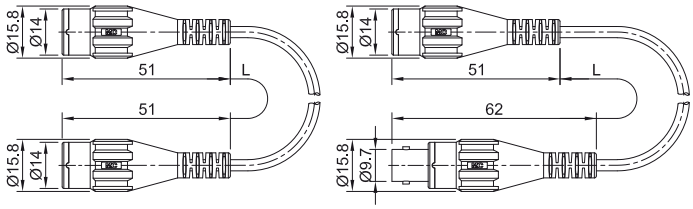
BNC Safety Test Leads

Test leads XLS...-58

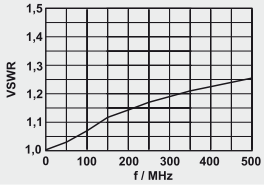
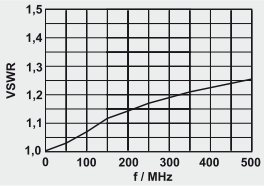
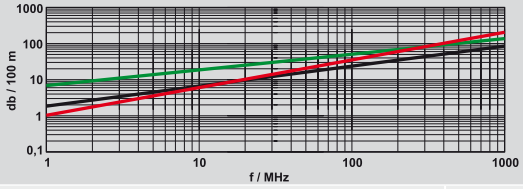
Touch-protected coaxial test leads. Versions with BNC male connectors on both ends or with male and female connector. The shield of the BNC connectors is nickel-plated, the contact pins and sockets of the inner conductor are in gold-plated brass.

User information i013, i014
www.staubli.com/electrical





Order No.	Type		Lead lengths L [cm]	*Colours
67.9770-□*	XLSS-58	Au Ni PVC i014	050 100 150 200	21 22 23
67.9773-□*	XLSK-58	Au Ni PVC i013	050 100 150 200	21

Technical Data		
	XLSS-58	**XLSK-58**
Rated voltage	1000 V, CAT II (600 V, CAT III)	600 V, CAT II (300 V, CAT III)
Impedance	50 Ω	50 Ω
Capacity	60 pF (L = 50 cm) 113 pF (L = 100 cm) 166 pF (L = 150 cm) 219 pF (L = 200 cm)	60 pF (L = 50 cm) 113 pF (L = 100 cm) 166 pF (L = 150 cm) 219 pF (L = 200 cm)
Inductance	170 nH (L = 50 cm) 340 nH (L = 100 cm) 510 nH (L = 150 cm) 680 nH (L = 200 cm)	170 nH (L = 50 cm) 340 nH (L = 100 cm) 510 nH (L = 150 cm) 680 nH (L = 200 cm)
VSWR (frequency-dependent) Typical values!		
Attenuation (frequency-dependent) **RG174** **RG58** **SILI-SC 0,5/1,0**		
Coaxial lead/Insulation	RG58/PVC	RG58/PVC
Coaxial lead/Temperature range	–10°C...+70°C	–10°C ... +70°C

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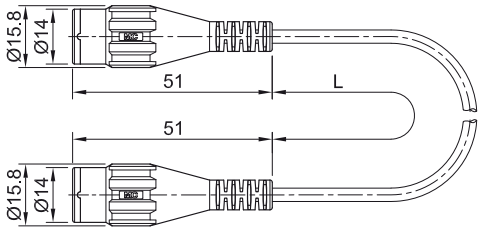
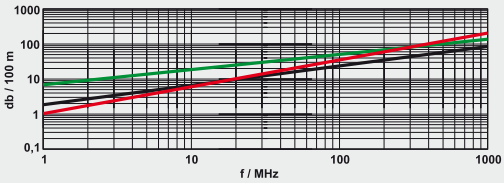
Test lead XLSS/SIL

Touch-protected silicone insulated coaxial test leads with BNC male connectors on both ends, e. g. for connecting measuring instruments. The shield of the BNC connectors is nickel-plated, the contact pins of the inner conductor are in gold-plated brass.





Order No.	Type		Lead lengths L [cm]	*Colours
67.9756-☐*	XLSS/SIL	Au Ni SIL CE cULus UKCA	100 200	21 28

Technical Data	
Rated voltage	1000 V, CAT II (600 V, CAT III)
Impedance	~ 45 Ω
Capacity	85 pF (L = 50 cm) 162 pF (L = 100 cm) 240 pF (L = 150 cm) 317 pF (L = 200 cm)
Inductance	160 nH (L = 50 cm) 320 nH (L = 100 cm) 480 nH (L = 150 cm) 640 nH (L = 200 cm)
Attenuation (frequency-dependent) **RG174** **RG58** **SILI-SC 0,5/1,0**	
Coaxial lead/Insulation	SILI-SC 0,5/1,0 / Silicon
Coaxial lead/Temperature range	–50°C…+150°C

User information i014

www.staubli.com/electrical

Note:

In the assembly of BNC leads for use in the high-frequency range, the plugs and coax cables must be carefully matched in order to ensure unimpaired signal transmission. We will be pleased to advise you. In our main catalogue for cables and multistrand wires you will find highly flexible silicone and PVC insulated coaxial leads in various colours together with a wide range of other multi-strand cables. Order it now!

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BNC CONNECTOR AND BNC PANEL SOCKET

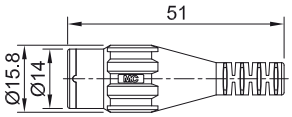
Touch-protected BNC Connectors and BNC Panel-mount Sockets

Plug and socket XB...-58

Touch-protected BNC male and female connectors for production of touch-protected BNC leads (RG58). Shield is nickel-plated, the contact pins and sockets of the inner conductor are in gold-plated brass.

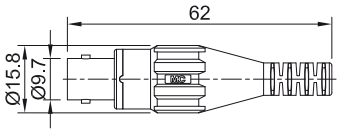
XBS-58



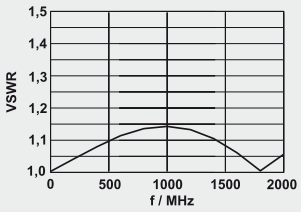
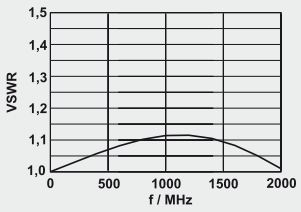
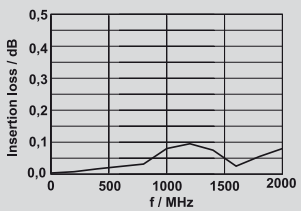
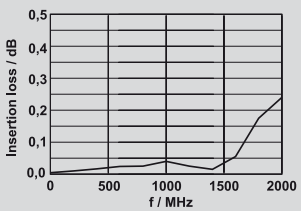


XBK-58





Order No.	Type	Assembly instructions		*Colours
67.9760-*	XBS-58	MAH529	Au Ni	21 22 23
67.9762-*	XBK-58	MAH540	Au Ni	21

Technical Data		
	XBS-58	**XBK-58**
Rated voltage/current	1000 V, CAT II (600 V, CAT III)/1 A	600 V, CAT II (300 V, CAT III)/1 A
Frequency range	0…3000 MHz	0…3000 MHz
VSWR (frequency-dependent) Typical values!	f = 2000 MHz: < 1.2 	f = 2000 MHz: < 1.2 
Insertion loss (frequency-dependent) Typical values!	f = 2000 MHz: < 0.2 dB 	f = 2000 MHz: < 0.4 dB 
Connectable coaxial lead: Type/outer diameter	RG58/~ Ø 5 mm	RG58/~ Ø 5 mm
Temperature range	+5°C…+40°C	+5°C…+40°C

MA

Assembly instructions MAH529, MAH540

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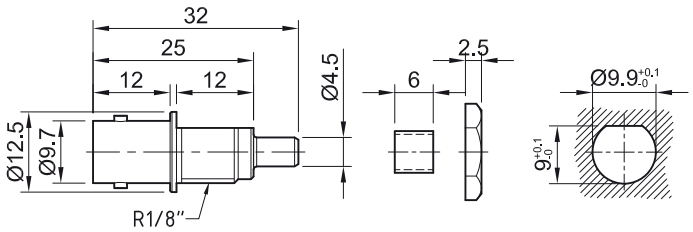
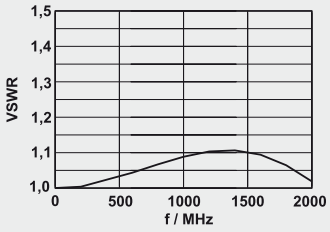
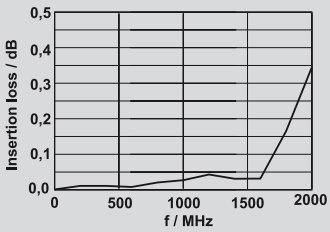
BNC panel socket XBB-C58

Touch-protected BNC panel-mount sockets for accepting BNC male connectors. The sockets can be screw-mounted into pre-drilled panels of plastic, metal, etc. Shield is nickel-plated, the contact socket of the inner conductor is in gold-plated brass. Connection for RG58 cable.





Order No.	Type	Shield connection		*Colours
67.9766-*	XBB-C58	RG58	Au Ni	21

Technical Data	
Rated voltage/current	600 V, CAT II (300 V, CAT III)/1 A
Frequency range	0…3000 MHz
VSWR (frequency-dependent) Typical values!	f = 2000 MHz: < 1.2 
Insertion loss (frequency-dependent) Typical values!	f = 2000 MHz: < 0.4 dB 
Connection inner conductor	Contact socket (brass, gold-plated) for crimp or solder connection
Shield connection	Crimp connection (brass, nickel-plated) for RG58
Temperature range	+5°C…+40°C

MA

Assembly instructions MAH542

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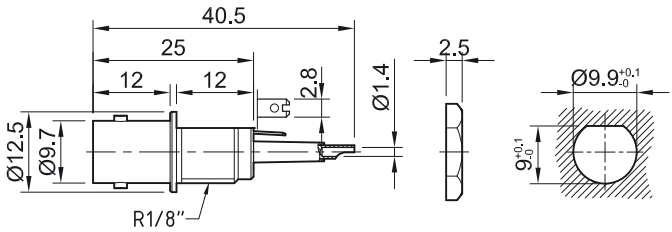
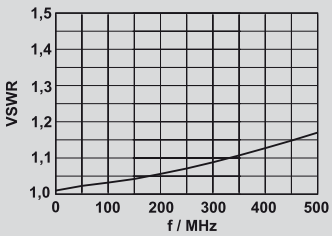
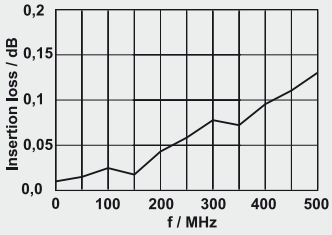
BNC panel socket XBB-L

Touch-protected BNC panel-mount sockets for accepting BNC male connectors. The sockets can be screw-mounted into pre-drilled panels of plastic, metal, etc. Shield is nickel-plated, the contact socket of the inner conductor is in gold-plated brass. Solder connection.





Order No.	Type	Type of shield		*Colours
67.9764-*	XBB-L	short	Au Ni Ag	21 22 23 28

Technical Data	
Rated voltage/current	1000 V, CAT II [1] (600 V, CAT III) [1]/1A 600 V, CAT II [2] (300 V, CAT III) [2]/1A
Frequency range	0…1500 MHz
VSWR (frequency-dependent) Typical values!	f = 500 MHz: < 1.2 
Insertion loss (frequency-dependent) Typical values!	f = 500 MHz: < 0.2 dB 
Connection inner conductor	Round solder pin (brass, gold-plated)
Shield connection	Solder connection (brass, silver-plated)
Temperature range	+5°C…+40°C

MA

Assembly instructions MAH530

www.staubli.com/electrical

[1] For mounting into pre-drilled plastic housings (double insulation) or metal housings[3] (basic insulation, with protective conductor)

[2] For mounting into pre-drilled metal housings[3] (double insulation, without protective conductor)

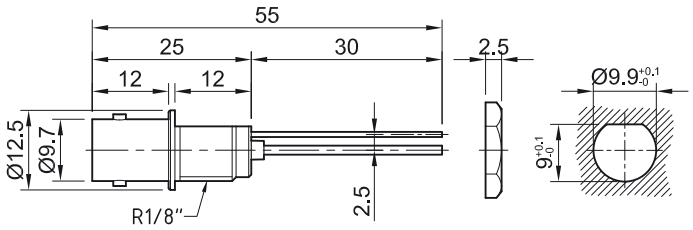
[3] Panel thickness max. 3 mm

Downloaded from Arrow.com.

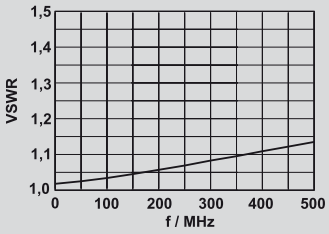
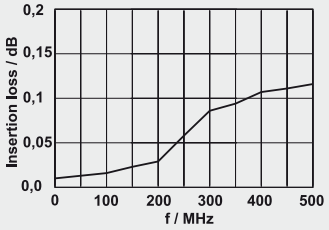
BNC panel socket XBB-P

Touch-protected BNC panel-mount sockets for accepting BNC male connectors. The sockets can be screw-mounted into pre-drilled panels of plastic, metal, etc. Shield is nickel-plated, the contact socket of the inner conductor is in gold-plated brass. Solder connection wires.





Order No.	Type	Type of shield		*Colours
67.9765-*	XBB-P	short	Au Ni Ag	21 22 23 28

Technical Data	
Rated voltage/current	1000 V, CAT II [1] (600 V, CAT III)[1]/1A 600 V, CAT II [2] (300 V, CAT III)[2]/1A
Frequency range	0…2000 MHz
VSWR (frequency-dependent) Typical values (short connecting wires)!	f = 500 MHz: < 1.2 
Insertion loss (frequency-dependent) Typical values (short connecting wires)!	f = 500 MHz: < 0.2 dB 
Connection inner conductor	Silver wire, Teflon insulated
Shield connection	Copper wire, silver-plated
Temperature range	+5°C…+40°C

MA

Assembly instructions MAH532

www.staubli.com/electrical

[1] For mounting into pre-drilled plastic housings (double insulation) or metal housings[3] (basic insulation, with protective conductor)

[2] For mounting into pre-drilled metal housings[3] (double insulation, without protective conductor)

[3] Panel thickness max. 3 mm

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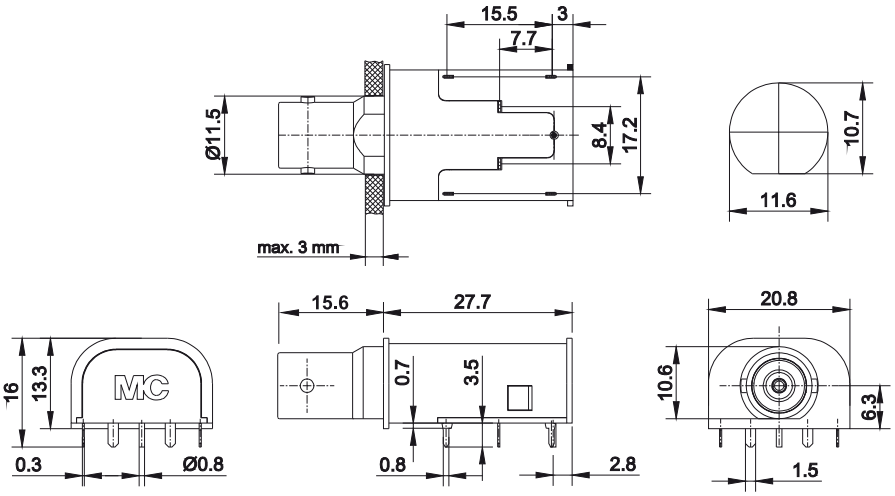
BNC angled socket XBWB-P

Touch-protected BNC angled socket for mounting on printed-circuit boards, touch-protected according to EN IEC 61010-1:2010/A1:2019.
The socket is directly soldered onto printed-circuit boards. The right-angled configuration minimises the force transmitted to the printed-circuit board through the plugged-in test lead.

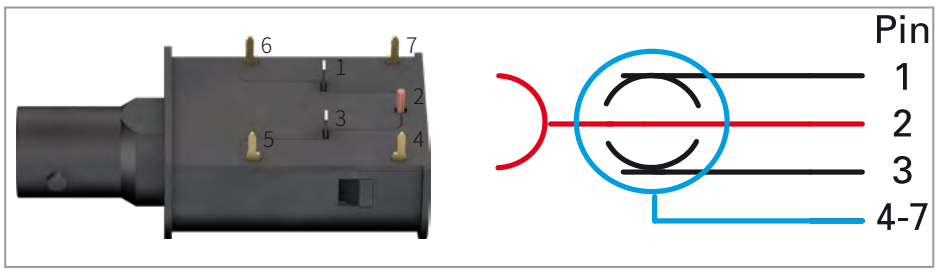
The socket has a flat surface which provides sufficient protection from twisting when connecting a BNC cable.
The socket shield consists of two insulated, semi-circular contacts, which are connected to each other when a plug is inserted (switch function). The four locating pins are connected to additional shielding.

The contact socket of the inner conductor of the BNC socket is in gold-plated brass. For use, for example, with high-impedance insulated oscilloscope inputs. The touch-protected BNC socket is compatible with conventional BNC connectors. With such combinations, however, the 1000 V touch protection no longer applies to the whole system.





Order No.	Type	Rated voltage		*Colours
67.9569-*	XBWB-P	Max. 1000 V, CAT III (600 V, CAT IV)	Au Ni	21 22



1	Outer conductor, semi-circular contact 1
2	Inner conductor
3	Outer conductor, semi-circular contact 2
4, 5, 6, 7	Additional shielding

MA

Assembly instructions MAH563

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BNC-ADAPTERS AND ADAPTER LEADS

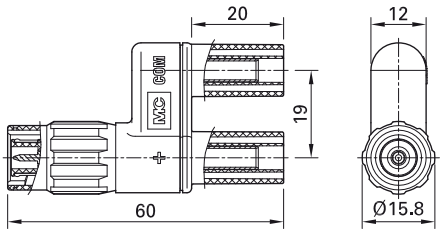
BNC/Ø 4 mm Adapters and Adapter Leads

Adapters X.../4

Two-pole touch-protected adapters with Ø 4 mm connectors linked to the BNC system. Versions with BNC male or female connector and rigid Ø 4 mm sockets or Ø 4 mm MULTILAM plugs with rigid insulating sleeve. The contact pins and sockets of the inner conductor of the BNC plug connector are in gold-plated brass.

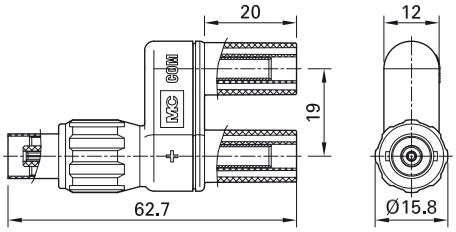
XM-BB/4





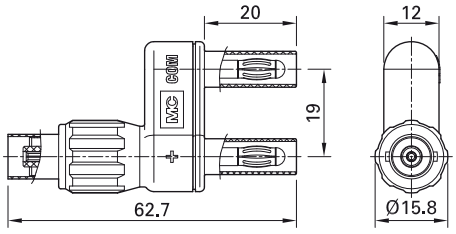
XF-BB/4





XF-SS/4





Order No.	Type	Rated voltage	BNC connectors	Ø 4 mm connectors		Standard colors
67.9536-21	XM-BB/4	1000 V, CAT II 600 V, CAT III	BNC male connector	Ø 4 mm sockets	Au Ni	21
67.9538-21	XF-BB/4	1000 V, CAT II 600 V, CAT III	BNC female connector	Ø 4 mm sockets	Au Ni	21
67.9537-21	XF-SS/4	1000 V, CAT II 600 V, CAT III	BNC female connector	Ø 4 mm plugs	Au Ni	21

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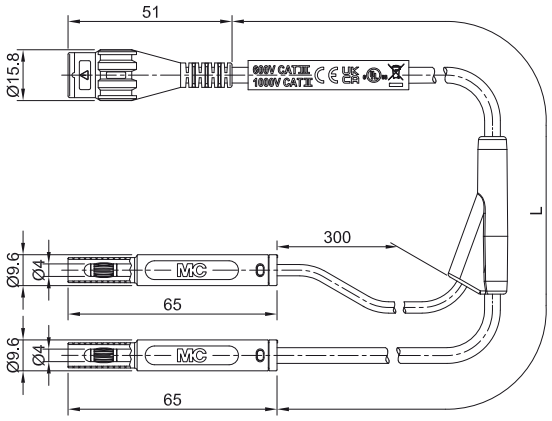
Adapter leads XLAM-SAK-4N...

Highly flexible, fully shielded adapter leads. One end with coaxial cable with touch-protected BNC male connector, other end with in-line Ø 4 mm MULTILAM plugs with rigid insulating sleeve.





Order No.	Type	Rated voltage	Lead		Lead lengths L [cm]
66.1051-▭	XLAM-SAK-4N-RG58	1000 V, CAT II 600 V, CAT III	PVC RG58	Au Ni CE UKCA cULus	100 160
66.1052-▭	XLAM-SAK-4N-SILI-SC05	1000 V, CAT II 600 V, CAT III	SIL SILI-SC 0,5/1,0	Au Ni CE UKCA cULus	100 160

Technical Data		
	XLAM-SAK-4N-RG58	**XLAM-SAK-4N-SILI-SC05**
Rated voltage	1000 V, CAT II (600 V, CAT III)	1000 V, CAT II (600 V, CAT III)
Capacity (f = 100 kHz)	100 pF (L = 100 cm) 160 pF (L = 160 cm)	150 pF (L = 100 cm) 240 pF (L = 160 cm)
Inductance (f = 100 kHz)	750 nH (L = 100 cm) 1000 nH (L = 160 cm)	750 nH (L = 100 cm) 1000 nH (L = 160 cm)
Coaxial lead (Type)/Insulation	RG58/PVC	SILI-SC 0,5/1,0/Silicon
Temperature range	–10°C…+70°C	–50°C…+150°C

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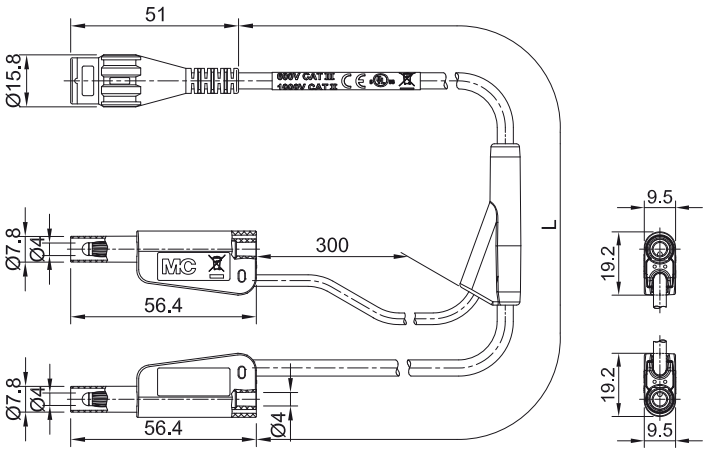
Adapter leads XLAM-SLK-4N...

Highly flexible, fully shielded adapter leads. One end with coaxial cable with touch-protected BNC male connector, other end with in-line Ø 4 mm MULTILAM plugs with rigid insulating sleeve.





Order No.	Type	Rated voltage	Lead		Lead lengths L [cm]
66.1030-▭	XLAM-SLK-4N-RG58	1000 V, CAT II 600 V, CAT III	PVC RG58	Au Ni CE UKCA cULus	100 160
66.1031-▭	XLAM-SLK-4N-SILI-SC05	1000 V, CAT II 600 V, CAT III	SIL SILI-SC 0,5/1,0	Au Ni CE UKCA cULus	100 160

Technical Data		
	XLAM-SLK-4N-RG58	**XLAM-SLK-4N-SILI-SC05**
Rated voltage	1000 V, CAT II (600 V, CAT III)	1000 V, CAT II (600 V, CAT III)
Capacity (f = 100 kHz)	100 pF (L = 100 cm) 160 pF (L = 160 cm)	150 pF (L = 100 cm) 240 pF (L = 160 cm)
Inductance (f = 100 kHz)	750 nH (L = 100 cm) 1000 nH (L = 160 cm)	750 nH (L = 100 cm) 1000 nH (L = 160 cm)
Coaxial lead (Type)/Insulation	RG58/PVC	SILI-SC 0,5/1,0/Silicon
Temperature range	–10°C…+70°C	–50°C…+150°C

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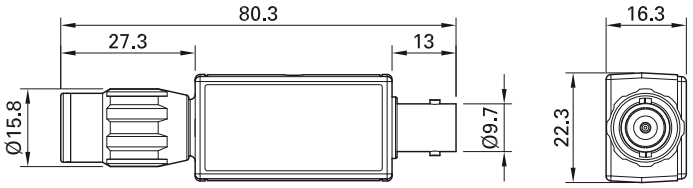
Touch-protected Adapters and Converters

BNC Box XBKS

Touch-protected empty BNC box for individual applications. The components in the box are connected by soldering. The BNC plug connectors allow these housings to be easily inserted, e.g. by direct plugging into an oscilloscope input socket or as intermediate elements in BNC leads. The contact pins and sockets of the inner conductor of the BNC plug connector are in gold-plated brass.





Order No.	Type	Rated voltage	Colour
67.9428	XBKS	Max. 300 V, CAT II[1)]	21

[1)] Dependent on the component inserted.

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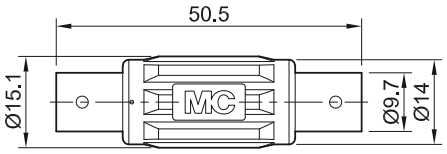
BNC Lead Couplers

BNC lead coupler XF-F

Lead coupler. The inner conductors and the shields are interconnected. The contact sockets of the inner conductor of the BNC plug connector are in gold-plated brass.





Order No.	Type	Rated voltage/current	Frequency range	VSWR		Colour
67.9547-28	XF-F	1000 V, CAT II (600 V, CAT III)/1 A	DC…500 MHz	< 1.3	Au Ni	28

User information i014

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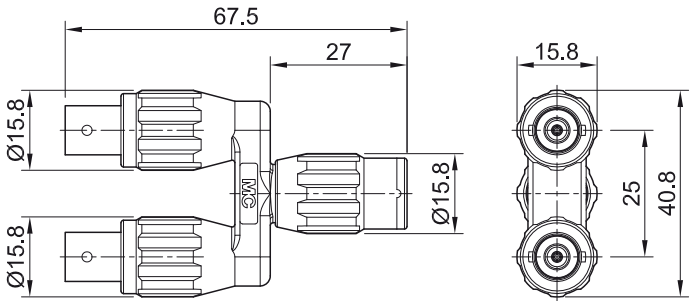
BNC signal distributor XM-FF

Signal distributor with three BNC safety connectors. All inner conductors and all shields are interconnected. The contact pins and sockets of the inner conductor of the BNC plug connector are in gold-plated brass.





Order No.	Type	Rated voltage/current	Frequency range	VSWR		Colour
67.9783-21	XM-FF	600 V, CAT II (300 V, CAT III)/1 A	–	–	Au Ni	21

User information i013

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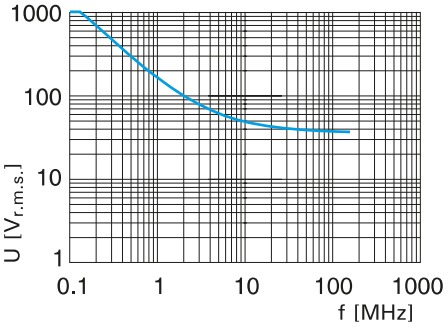
APPENDIX

Technical information

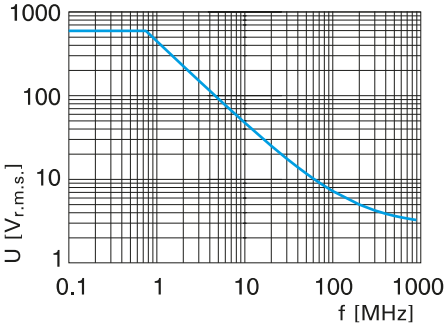
Rated voltage

As a result of the capacitative coupling between the shield and the "world outside" (e.g. a person touching the probe) the rated voltage shield/ground is frequency-dependent. As the frequency rises, the rated voltage falls until it approaches a lower limit (left curve). The rated voltage inner conductor/shield falls exponentially with rising frequencies as a result of the capacitative properties of the probe and the limitation of the current due to the characteristics of the components (middle curve). The overall result is a fall in the rated voltage in accordance with the curve on the right. The curves in this example are for the test probe Isoprobe II - ECO.

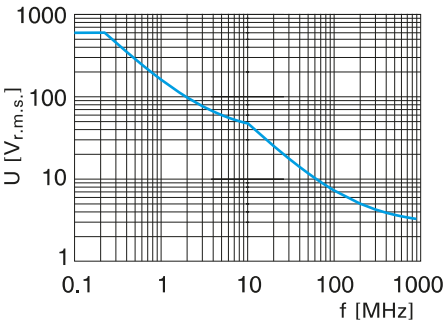
The individual rated voltage diagrams can be found in the front part of the catalog for the respective Isoprobe.



Voltage shield/earth



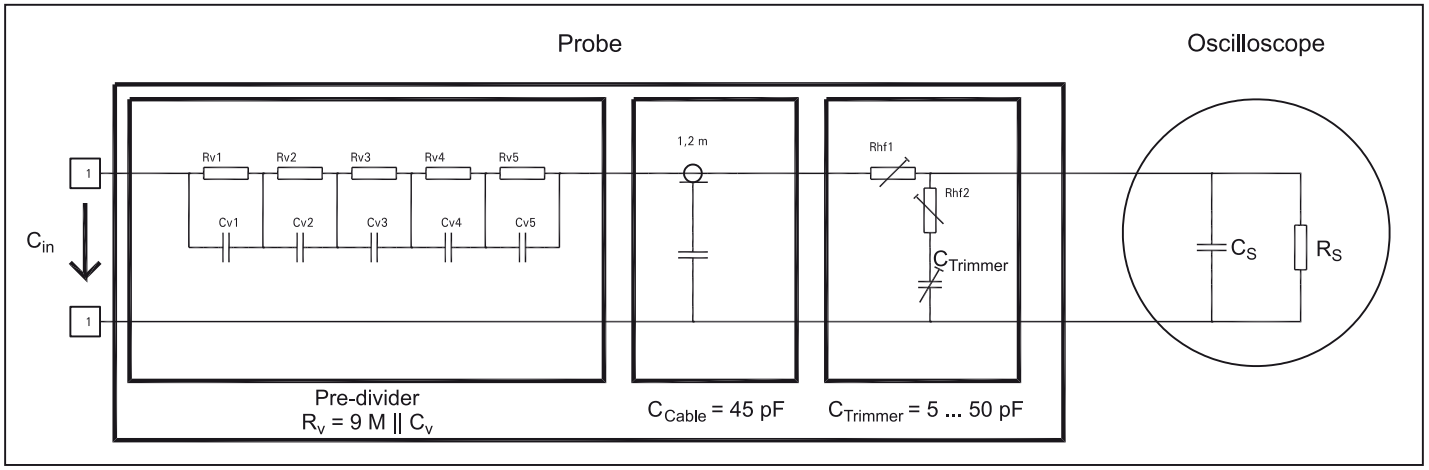
Voltage inner conductor/shield



Rated voltage

Principle of a passive, high-impedance probe

The example shows a probe with a dividing ratio of 10:1. This enables signals up to 800 V_{ss} to be visualised. As a result of the capacitative component of the scope's input impedance and the capacity of the coaxial lead, it has the draw-back of a frequency dependence which must be compensated (C_v and C_{komp}). The input impedance of the probe is thus 10 MΩ || C_{in}. In probes of this type a typical value for C_{in} is around 10 - 15 pF (including stray capacities).



Schematic diagram of a passive 10:1 test probe

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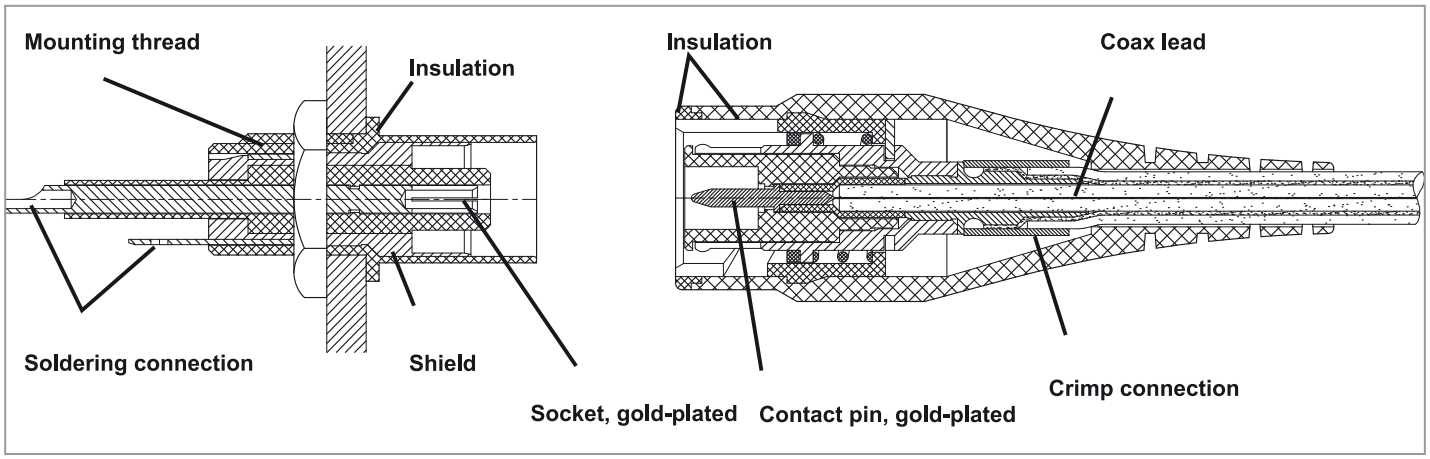
BNC Accessories

In addition to our probes Isoprobe and the push-on accessories, with our BNC safety plug connectors we also supply a high-quality touch-protected BNC plug connection system to complete our safety high-frequency programme that is rated for voltages up to 1000 V, CAT II to earth and meets also the requirements of IEC/EN 61010-031:2015.

This tried and tested BNC plug connector system has a long life of approximately 5000 connecting cycles. The shielded BNC test leads are highly flexible and are available with PVC and silicone insulation in a choice of colours.

All touch-protected BNC plug connectors are compatible with conventional BNC connectors. With such combinations, however, the 1000 V touch protection no longer applies to the whole system.





Test leads with touch-protected BNC plugs can be connected to devices with insulated and conventional BNC sockets.

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Request form/Checklist

For individual questions

This catalog represents only a portion of our competences.
We also offer variants of touch-protected, passive probes with your name, optimally adapted to your oscilloscopes.

For yearly requirements of several hundred pieces, please contact us for an individual offer.

You will facilitate the process if you compile the essential framework data in this inquiry form.
You can find the interactive form here:

Read more

HF Request form/Checklist

Contact

Customer	Processor	Date
	Department	Request no.
Street	Phone	Draw. no.
Postal code/City	Fax	Report no.
Country	E-mail	Miscellaneous

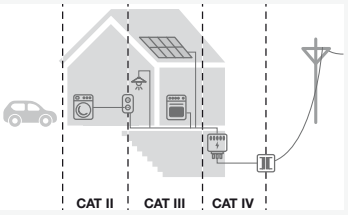
1. General / Usage Description Delete

Quantity	Offer deadline
Customer target price per unit	Delivery date

2. Electrical characteristics Delete

Maximum voltage V	Typical frequency range f/MHz	Measurement category (CAT)

Measurement category



***Ambient conditions in accordance with IEC 61010-031**

Altitude:	Up to 2000 m
Temperature range	5 °C 40 °C
Max. rel. humidity	80 % up to 31 °C linearly decreasing to 50 % at 40 °C
Degree of pollution	Stäubli standard: 2

Normally, only non-conductive pollution occurs Occasionally however, temporary conductivity due to thawing has to be taken into account.

3. Ambient conditions Delete

All products are designed according to the requirements of IEC 61010-031 (*see above).

4. Oscilloscope Delete

Max. voltage V	Input resistance R/MΩ Tolerance +/- %	Input capacity C/pF Tolerance +/- %

5. Probe Delete

Bandwidth f/MHz	Trim range C/pF from to	Microphone mV
Precision V max. +/- %		

6. Additional requirements/remarks Delete

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Index

Sort by type

Type	Page
AB200	13, 19, 28
AC200	13, 19, 26
BA400	9, 24
GB284	13, 19, 30
GM284	11, 13, 15, 17, 19, 21, 23, 29
GM400	9, 25
GS400	9, 11, 17, 24, 27
HC200	11, 13, 15, 26
HC400	9, 24
Isoprobe II – 10:1 – 2,5	14, 15
Isoprobe II – 10:1 ECO	10, 11
Isoprobe II – 10:1 HS	12, 13
Isoprobe III – 10:1 – 2,5	20, 21
Isoprobe III – 10:1 ECO	16, 17
Isoprobe III – 10:1 HS	18, 19
Isoprobe III – HP	22, 23
Isoprobe IV - 10:1	8
Isoprobe IV – 10:1	9
SCC	9, 17, 19, 21, 23, 25, 30
SET Isoprobe II – 10:1 – 2,5	15
SET Isoprobe II – 10:1 ECO	11
SET Isoprobe II – 10:1 HS	13
SET Isoprobe III – 10:1 – 2,5	21
SET Isoprobe III – 10:1 ECO	17
SET Isoprobe III – 10:1 HS	19
SET Isoprobe III – HP	23
SET Isoprobe IV – 10:1	9
SK-IP	28
XBB-C58	34
XBB-L	35
XBB-P	36
XBK-58	33
XBKS	41
XBS-58	33
XBWB-P	37
XF-BB/4	38
XF-F	42
XF-SS/4	38
XLAM-414/SC	39
XLAM-414/SC/SIL	39
XLAM-SLK-4N-RG58	40
XLAM-SLK-4N-SILI-SC05	40
XLSK-58	31
XLSS-58	31
XLSS/SIL	32
XM-BB/4	38
XM-FF	42
ZGA-S	17, 19, 21, 23, 26

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Sort by order no.

Order No.	Page
66.1030-*	40
66.1031-*	40
66.9474-*	13, 19, 28
67.9428	41
67.9536-21	38
67.9537-21	38
67.9538-21	38
67.9547-28	42
67.9569-*	37
67.9756-*	32
67.9760-*	33
67.9762-*	33
67.9764-*	35
67.9765-*	36
67.9766-*	34
67.9770-*	31
67.9773-*	31
67.9783-21	42
67.9842-*	39
67.9867-*	39
68.1010-120*	12, 13
68.1011-120*	10, 11
68.1013-25022	14, 15
68.9366-12028	8

Order No.	Page
68.9366-12028	9
68.9369-*	9, 24
68.9376	9, 24
68.9410-*	13
68.9411-*	11
68.9413-22	15
68.9433-28	9
68.9443-21	9, 11, 17, 24, 27
68.9444-01521	9, 25
68.9455-12028	22, 23
68.9456-28	23
68.9480-*	11, 13, 15, 26
68.9485-*	13, 19, 26
68.9501-12028	16, 17
68.9513	9, 17, 19, 21, 23, 25, 30
68.9514-*	28
68.9517-02521	11, 13, 15, 17, 19, 21, 23, 29
68.9518-05021	13, 19, 30
68.9533-12028	18, 19
68.9549-25028	20, 21
68.9554-28	21
68.9557-28	19
68.9558-28	17
68.9805-*	17, 19, 21, 23, 26

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