

# **Test and Measurement**

Since 1984, Altech Corporation has grown to become a leading supplier of automation and industrial control components. Headquartered in Flemington, NJ, Altech a supplier of electronic components has an experienced staff of engineering, manufacturing and sales personnel to provide the highest quality products with superior service. This is the Altech Commitment!

Our well trained technical experts welcome the opportunity to answer your technical questions and provide solutions to your automation and control needs. Give us a call or visit www.altechcorp.com.

### Quality Commitment

Altech's control components meet diverse national and international standards such as UL, NEC, CSA, IEC, VDE and more. Altech provides superior customer service and delivery through Total Quality Management and Continuous Process Improvement. Altech is ISO 9001 approved. We perform these services with honesty and integrity and are committed to achieve these goals.



Altech Corp.® • 35 Royal Road • Flemington, NJ 08822-6000 • Phone (908)806-9400 • FAX (908)806-9490

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Oscilloscope Test Probes18 High Frequency Measurement	<b>Test Jacks</b>
Alligator Clips	Sets 



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### **Plunger Style Test Clips**

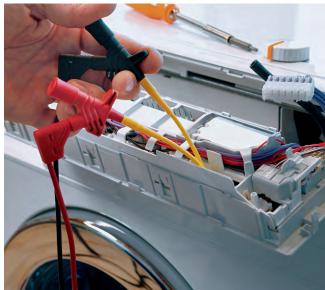


Altech Plunger Style Test clips are easy to work with Test & Measurement Tools. They can handle high voltages, allow accessing difficult to reach areas and keep your hands free for other tasks. The grabber can access every measurement point even on the smallest Device or PCB Board circuit. The KLEPS 2700 is patented and its stainless steel piercing tip allows access to the wire without stripping.

- Measuring "difficult to access" testing points
- Various designs for different applications
- Handle with multiple connection points
- Patented KLEPS 2700 with special design steel tip for accessing connected wire







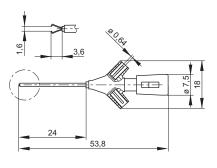
### Plunger Style Test Clips 0.64 mm System

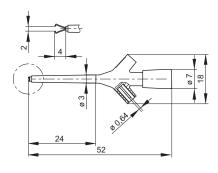


Туре	MICRO-KLEPS	KLEPS 3 ST
	Mini plunger style test probe with rotating pincers, insulated shaft bendable up to 35°, suitable for very thin wires and densely packed contact points, fits MKL and MAL leads.	Mini plunger style test probe with rotating pincers, suitable for very thin wires and densely packed contact points, fits MKL and MAL leads.
Clamping range Clamp type	2 mm (0.079") Rotating Pincers	3.5 mm (0.138") Rotating Pincers
PART NO. / Housing color	973972100 973972101	973592100 973592101
		576552101
Technical Data		
Technical Data		
Connection Type	2x pin Ø 0.64 mm	pin Ø 0.64 mm
Connection Type Voltage Rating	2x pin Ø 0.64 mm 30 VAC / 60 VDC	pin Ø 0.64 mm 30 VAC / 60 VDC
Connection Type Voltage Rating Measurement Category (IEC61010)	2x pin Ø 0.64 mm 30 VAC / 60 VDC CAT I	pin Ø 0.64 mm 30 VAC / 60 VDC CAT I
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	2x pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A	pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	2x pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A	pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	2x pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm	pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket Contact Spring	2x pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm tin plated spring steel nickel plated brass -	pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm tin plated spring steel nickel plated brass
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket Contact Spring Housing	2x pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm tin plated spring steel	pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm tin plated spring steel
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket Contact Spring Housing <b>Environmental Conditions</b>	2x pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm tin plated spring steel nickel plated brass - PBT	pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm tin plated spring steel nickel plated brass – PBT
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket Contact Spring Housing	2x pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm tin plated spring steel nickel plated brass -	pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 2 A 10 mOhm tin plated spring steel nickel plated brass

#### Drawing

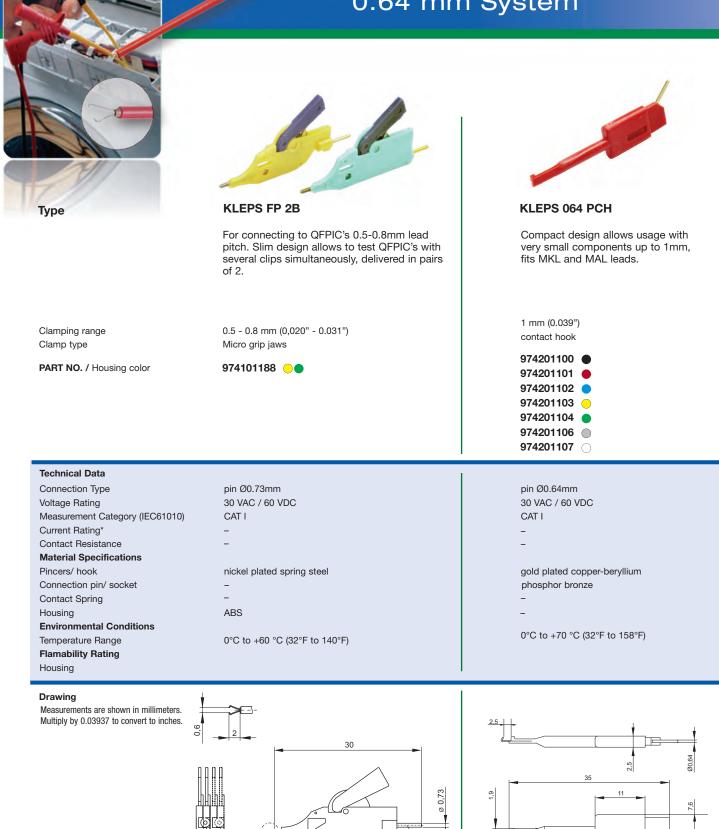
Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.







# **Plunger Style Test Clips** 0.64 mm System



\* Please consider derating graph on page 80.

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For the latest on Altech Test & Measurement specifications please visit www.altechcorp.com/test-equipment

pin for 0.64mm socket

TIII

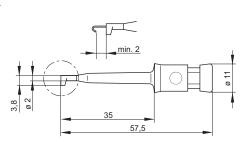
### Plunger Style Test Clips 0.64 mm/4mm System

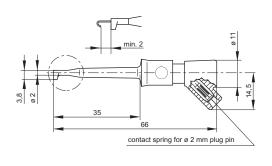


Туре	KLEPS 2	KLEPS 2 BU
	Mini plunger style test probe with solder connection, gold plated phosphorus bronze contact hook for wires up to 2mm.	Mini plunger style test probe with 2mm socket terminals, gold plated phosphorus bronze contact hook for wires up to 2mm, gold plated contact spring.
Clamping range Clamp type	2 mm (0.079") contact hook	2 mm (0.079") contact hook
PART NO. / Housing color	931467100 • 931467101 •	973501100 • 973501101 •
Technical Data		
Connection Type	Solder Terminal	Spring-loaded socket Ø 2 mm
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	6 A	6 A
Contact Resistance Material Specifications	15 mOhm	15 mOhm
Pincers/ hook	gold plated phosphorous bronze	gold plated phosphorous bronze
Connection pin/ socket	-	-
Contact Spring	-	gold plated copper-beryllium
Housing	Polyamide	Polyamide
Environmental Conditions		
Temperature Range	-25 °C to +100 °C (13°F to 212°F)	-25 °C to +100 °C (13°F to 212°F)
Flamability Rating		
Housing	UL 94 V-2	UL 94 V-2

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



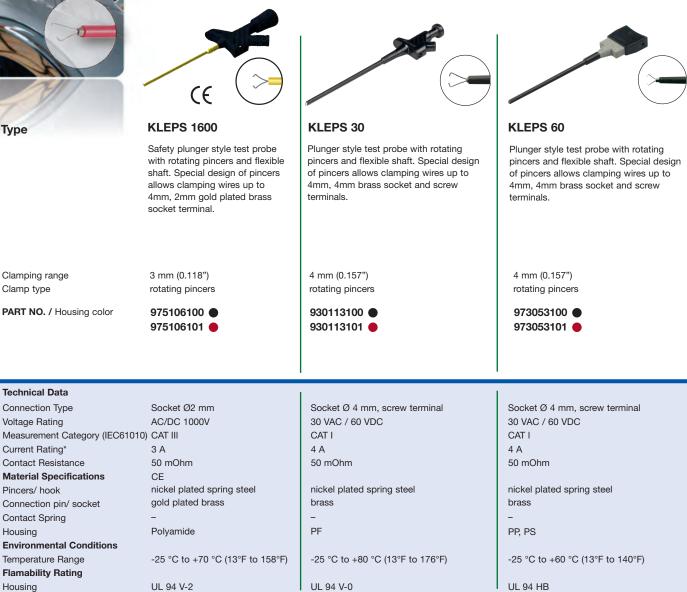




Туре



### **Plunger Style Test Clips** 2 mm/4mm System

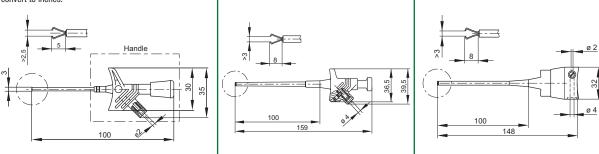


#### Drawing

Housing

Housing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



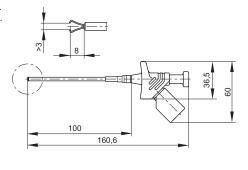
# Plunger Style Test Clips 4mm System

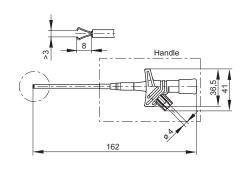


•		CE
Туре	KLEPS 250	KLEPS 2600
	Touch proof plunger style test probe with rotating pincers and flexible shaft, allows to clamp wires up to 4mm, 4mm brass socket, fits MLN and MLB leads.	Safety plunger style test probe with rotating pincers and flexible shaft, allows to clamp wires up to 4mm, 4mm brass socket.
Clamping range Clamp type	4 mm (0.157") rotating pincers	4 mm (0.157") rotating pincers
PART NO. / Housing color	973528100 ● 973528101 ●	972306100 <b>•</b> 972306101 <b>•</b>
Technical Data		
<b>Technical Data</b> Connection Type	socket Ø 4 mm	socket Ø 4 mm
	socket Ø 4 mm 30 VAC / 60 VDC	socket Ø 4 mm AC/DC 1000 V
Connection Type		
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	30 VAC / 60 VDC CAT I 4 A	AC/DC 1000 V CAT III 4 A
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	30 VAC / 60 VDC CAT I	AC/DC 1000 V CAT III
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	30 VAC / 60 VDC CAT I 4 A 100 mOhm	AC/DC 1000 V CAT III 4 A 50 mOhm
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook	30 VAC / 60 VDC CAT I 4 A 100 mOhm nickel plated spring steel	AC/DC 1000 V CAT III 4 A 50 mOhm nickel plated spring steel
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket	30 VAC / 60 VDC CAT I 4 A 100 mOhm	AC/DC 1000 V CAT III 4 A 50 mOhm
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket Contact Spring	30 VAC / 60 VDC CAT I 4 A 100 mOhm nickel plated spring steel nickel plated brass	AC/DC 1000 V CAT III 4 A 50 mOhm nickel plated spring steel nickel plated brass
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket Contact Spring Housing	30 VAC / 60 VDC CAT I 4 A 100 mOhm nickel plated spring steel	AC/DC 1000 V CAT III 4 A 50 mOhm nickel plated spring steel
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket Contact Spring Housing <b>Environmental Conditions</b>	30 VAC / 60 VDC CAT I 4 A 100 mOhm nickel plated spring steel nickel plated brass - PF	AC/DC 1000 V CAT III 4 A 50 mOhm nickel plated spring steel nickel plated brass – PBT
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket Contact Spring Housing <b>Environmental Conditions</b> Temperature Range	30 VAC / 60 VDC CAT I 4 A 100 mOhm nickel plated spring steel nickel plated brass	AC/DC 1000 V CAT III 4 A 50 mOhm nickel plated spring steel nickel plated brass
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Pincers/ hook Connection pin/ socket Contact Spring Housing <b>Environmental Conditions</b>	30 VAC / 60 VDC CAT I 4 A 100 mOhm nickel plated spring steel nickel plated brass - PF	AC/DC 1000 V CAT III 4 A 50 mOhm nickel plated spring steel nickel plated brass – PBT

Drawing

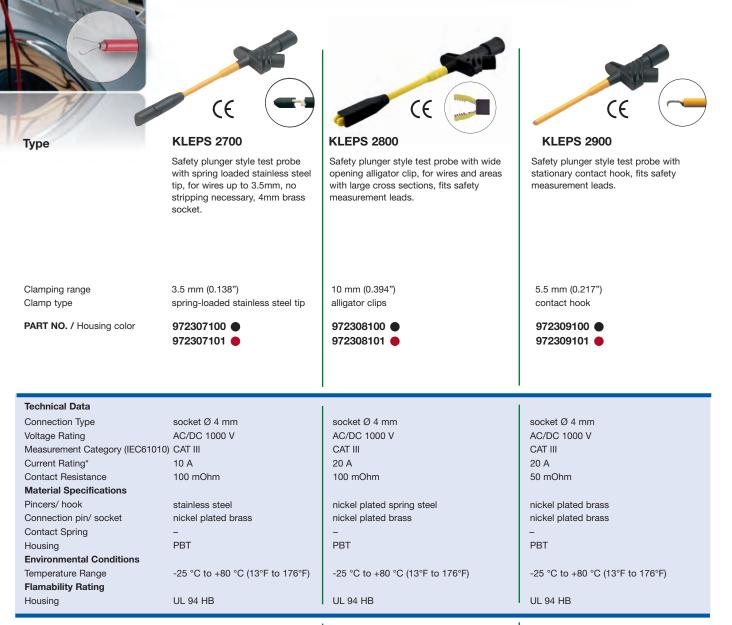
Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.







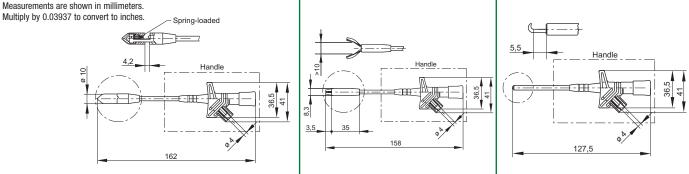
### **Plunger Style Test Clips** 4 mm Safety System



#### Drawing

Measurements are shown in millimeters.

2 pm 2





# **Altech Digital Panel Meters**



#### **Digital Multi Function Meters**

MFM Series (Power, Energy, Voltage, Current, Frequency, Power Factor) VAF Series (Voltage, Current, Frequency) EM Series (Power, Energy)

#### **Digital Ampere Meters**

MA12 Series (LED Display) MA Series (LCD Display)

#### **Digital Voltage Meters**

MV15 Series (LED Series) MV Series (LCD Display)

#### **Digital Frequency Meter**

MF16 Series Digital Power Factor Meter MP14 Series

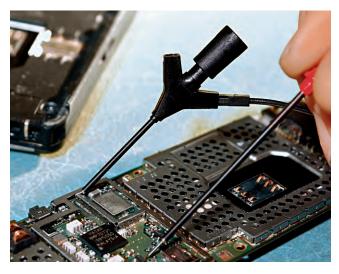
**Disconnect and Test Terminal Block** For Meter Circuits

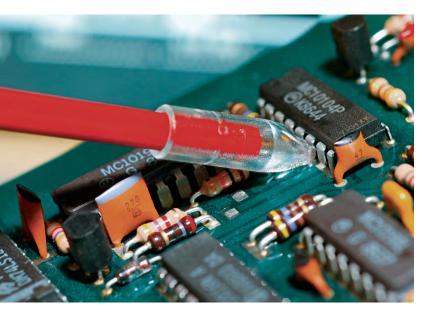
# **Test Probes**

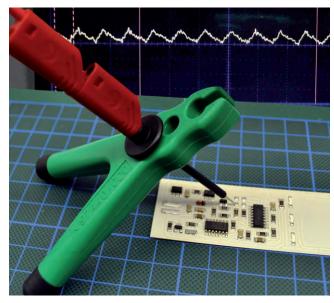


Altech offers the proper test probe for every specific application. Due to small dimensions in electronic devices, test probes need to be very precise. The Test probes on the following pages meet these high standards.

- Slim and compact body for easy access
- Stainless steel tips
- Spring-loaded tips guarantee contact without damaging test object
- Suitable for testing through
   oxidation and insulation layers







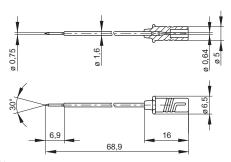
### **Test Probes** 2 mm System

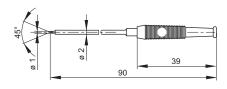


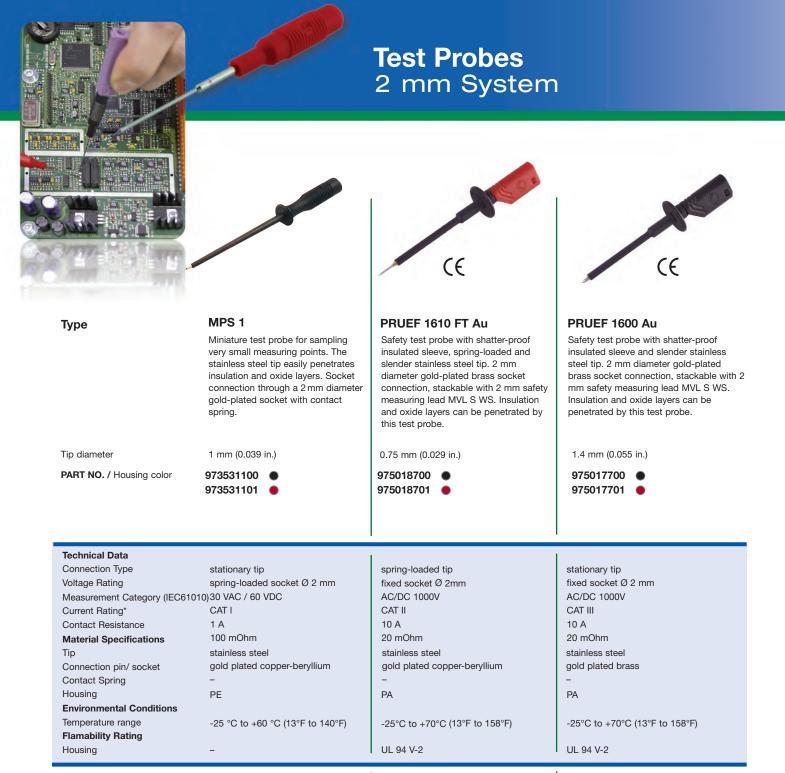
<b>T</b>	MICRO-PRUEF MPS 2 0,64 FT	PRUEF 1
Туре		
	Miniature test probe with spring loaded stainless steel probe tip for sampling extremely	Miniature test probe for sampling extremely small measuring points. Shatter-proof grip,
	small measuring points and SMD components.	may be unscrewed. The stainless steel tip
	Because the probe tip is sprung, it cannot slip	easily penetrates insulation and oxide layers.
	off and provides constant pressure. Connects with MKL 0.64/25-0.25 and MAL N 4-0.64/100-	Solder connection up to 0.5 mm <sup>2</sup> .
	0.25.	
Tip diameter	0.75 mm (0.029 in.)	1 mm (0.039 in.)
Tip diameter PART NO. / Housing color	0.75 mm (0.029 in.) 973995100 973995101	931376100
	973995100	
	973995100	931376100
PART NO. / Housing color	973995100	931376100
PART NO. / Housing color	973995100 • 973995101 •	931376100 • 931376101 •
PART NO. / Housing color Technical Data Connection Type	973995100 ● 973995101 ● spring-loaded tip	931376100 • 931376101 • stationary tip
PART NO. / Housing color Technical Data Connection Type Voltage Rating	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup>
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010)	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC CAT I	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC CAT I
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 1 A	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC CAT I 1 A
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Tip	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 1 A stainless steel	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC CAT I 1 A stainless steel
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 1 A	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC CAT I 1 A
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Tip Connection pin/ socket	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 1 A stainless steel	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC CAT I 1 A stainless steel
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Tip Connection pin/ socket Contact Spring	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 1 A stainless steel nickel plated brass -	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC CAT I 1 A stainless steel nickel plated brass
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Tip Connection pin/ socket Contact Spring Housing	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 1 A stainless steel nickel plated brass -	931376100 931376101 stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC CAT I 1 A stainless steel nickel plated brass
PART NO. / Housing color Technical Data Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Tip Connection pin/ socket Contact Spring Housing Environmental Conditions	973995100 • 973995101 • spring-loaded tip fixed pin Ø 0.64 mm 30 VAC / 60 VDC CAT I 1 A stainless steel nickel plated brass - PBT	931376100 931376101 e stationary tip solder connection up to 0.5 mm <sup>2</sup> 30 VAC / 60 VDC CAT I 1 A stainless steel nickel plated brass – PVC-P

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.

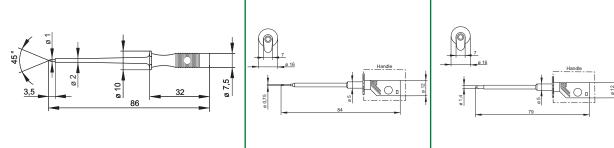








Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



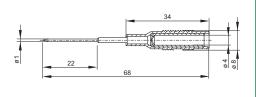
### **Test Probes** 4 mm System

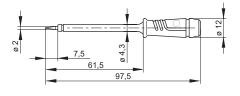


		A CONTRACT OF A
Туре	<b>MZS 1 - PRUEF</b> Needle-shaped, long stainless steel test probe with shatter-proof insulated sleeve and unsprung 4 mm connecting socket. During state of connection or operation of test leads, it is possible to measure with the test probe from the back side of the closed connector.	<b>PRUEF 2</b> Test probe with shatter-proof insulated sleeve. Insulation and oxide layers can be penetrated by the slender stainless steel tip. 4 mm diameter brass socket connection. Accessory (optional): tip protector / IC tap SS 260
Tip diameter <b>PART NO. /</b> Housing color	1 mm (0.039 in.) 973601100 973601101	2 mm (0.079 in.) 973368100 973368101
Technical Data		
Connection Type	stationary tip	stationary tip
Voltage Rating	fixed socket Ø 4 mm	fixed socket Ø 4 mm
Measurement Category (IEC61010)	30 VAC / 60 VDC	30 VAC / 60 VDC
Current Rating*	CAT I	CAT I
Contact Resistance	1 A	1 A
Material Specifications	10 mOhm	50 mOhm
Tip	stainless steel	stainless steel
Connection pin/ socket	nickel plated brass	nickel plated brass
Contact Spring	-	-
	PP	PP
Housing		
Housing Environmental Conditions		
0	-20°C to + 60°C (-4°F to 140°F)	-25 °C to +80 °C (13°F to 176°F)

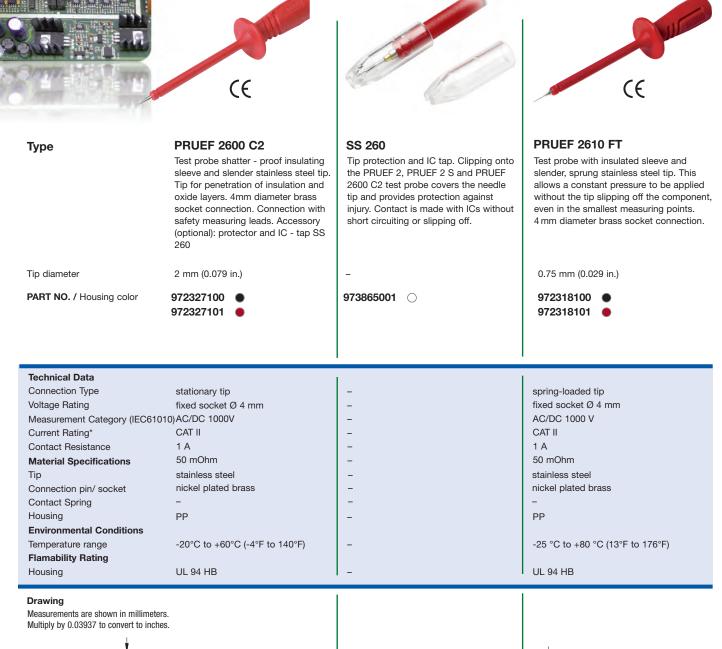
Drawing

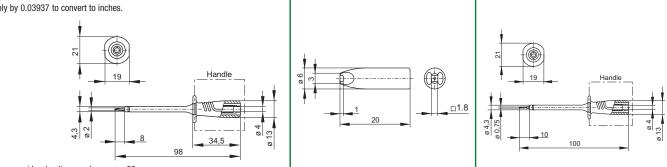
Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





### Test Probes 4 mm Safety System





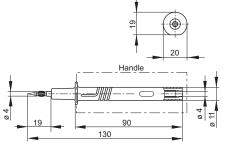
### Test Probes 4 mm Safety System

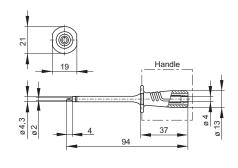


	(E	CE
_	PRUEF 2700	PRUEF 2600
Туре		
	Safety test probe with dual function. Tip for penetrating insulation and oxide layers and 4 mm diameter pin for insertion in sockets.	Test probe with elastic, shatter-proof insulated sleeve and slender stainless steel tip. Tip for penetration of insulation and oxide layers.
	4 mm diameter brass socket connection.	4 mm diameter brass socket connection.
	Connects with safety measuring leads.	Connects with safety measuring leads.
		Accessory tip protector and IC tap SS 260.
Tip diameter	4 mm (0.157 in.)	2 mm (0.78 in.)
PART NO. / Housing color	972319100 ●	972317100 ●
	972319101 🔴	972317101 🔴
Technical Data	stationary tip	stationary tin
Connection Type Voltage Rating		stationary tip fixed socket Ø 4 mm
Measurement Category (IEC61010)	fixed socket Ø 4 mm AC/DC 1000 V	AC/DC 1000 V
Current Rating*	CAT II	CAT III
Contact Resistance	32 A	1 A
Material Specifications	2 mOhm	50 mOhm
Тір	nickel plated brass	stainless steel
Connection pin/ socket	nickel plated brass	nickel plated brass
Contact Spring	-	-
Housing	PP	PP
0		
Environmental Conditions		
Environmental Conditions Temperature range	-25 °C to +80 °C (13°F to 176°F)	-25 °C to +80 °C (13°F to 176°F)

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





#### **Oscilloscope Test Probes** High Frequency Measurement

**Altech High Frequency Test** Probes are for direct connection to oscilloscopes. The line consists of a standard 5mm series with adjustable probe ratio and 2.5mm series with fixed 10:1 ratio.

Туре

PART NO.



#### TKO 5 - PMS 221A

Passive High Impedance Miniature Test Probe with 150 MHz Bandwith and Probe Ratio 10:1 (Switchable, 20 MHz @ Probe Ratio 1:1). The probe is adjustable for low frequencies.

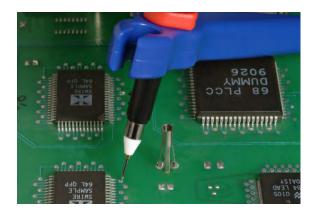
#### Features:

974312000

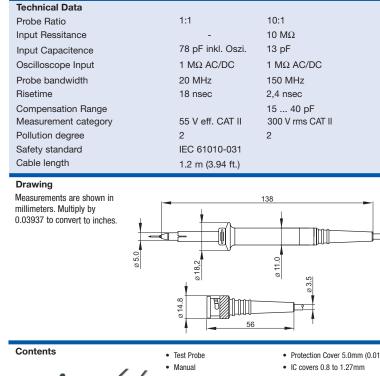
- Modular Probe
- Coaxial Design
- Coaxial Reed Switch
- New IC contact system for 0.003" to 0.004" grids

• Interchable Spring Contact Tip for reliable Contacting

- 10:1 probe ratio
- Exchangable spring tip
- Low Input Capacitence





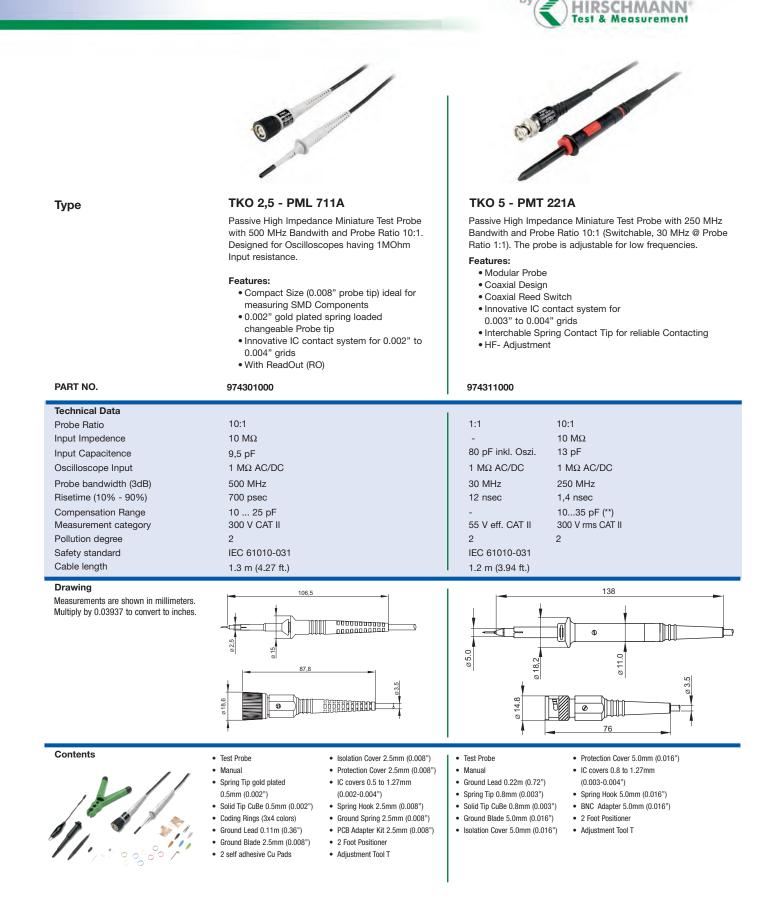


- Ground Lead 0.22m (0.72")
- Spring Tip 0.8mm (0.003")
- Solid Tip CuBe 0.8mm (0.003")
- Ground Blade 5.0mm (0.016")
- Isolation Cover 5.0mm (0.016")
- Protection Cover 5.0mm (0.016")
- (0.003-0.004")
- Spring Hook 5.0mm (0.016")
- Adjustment Tool T

For the latest on Altech Test & Measurement specifications please visit www.altechcorp.com/test-equipment

### **Oscilloscope Test Probes**

High Frequency Measurement



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# **Alligator Clips**

Altech Alligator clips have the proper jaw opening and grabbing strength for every application. From a Micro SMD clip for measuring smallest surface-mount components up to a 30mm (1.18in) "big mouth" a wide range of alligator clips is available.

- Various clamping ranges
- Stainless steel versions for use in galvanic and acid environments
- Soldering connections for "do it yourself" connections

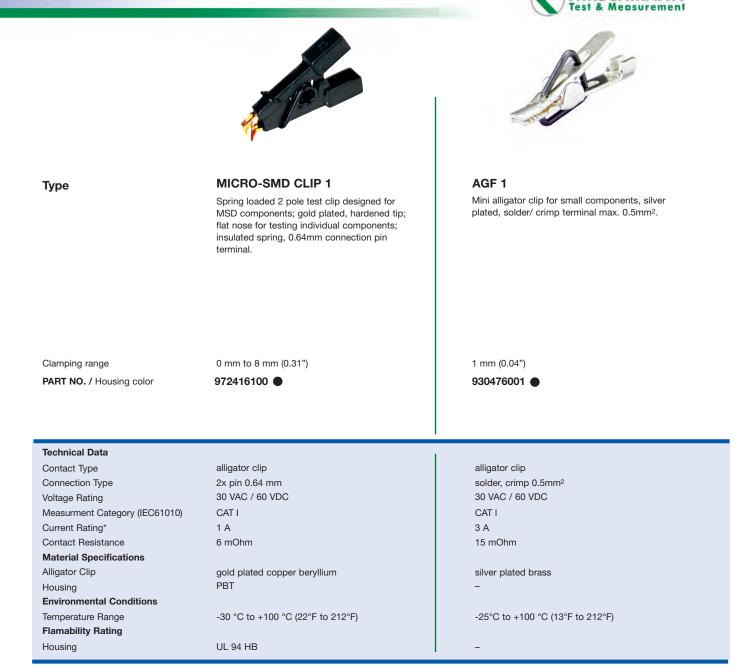


"Big Mouth" AK 2B 2540 1 with wide pin opening is especially suitable for cars.



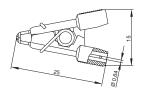


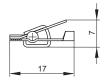
### Alligator Clips 0.64 and 2 mm System



Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





\* Please consider derating graph on page 80.

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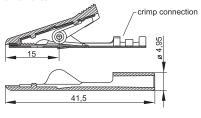
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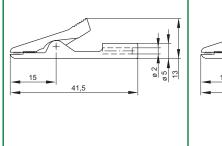
# Alligator Clips 2 mm System

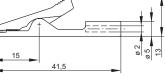
	Contraction of the second		A Contraction of the second se
Туре	MA 1 Crimp	MA 1	MA1S
.,,,,,	Mini Alligator Clip, high-strength insulation, nickel plated brass/ bronze jaws, crimp terminal 0.25mm 2- 0.5mm <sup>2</sup> for suitable crimp tool insert.	Mini Alligator Clip, high-strength insulation, nickel plated brass/ bronze jaws, 2mm system socket terminal.	Mini Alligator Clip, high-strength insulation, stainless steel spring, nickel plated brass/ bronze jaws, 2mm system socket terminal.
Clamping range PART NO. / Housing color	4 mm (0.16") 930318100 • 930318104 • 930318101 • 930318106 • 930318102 • 930318107 · 930318103 •	4 mm (0.16") 930317800 • 930317804 • 930317801 • 930317806 • 930317802 • 930317807 · 930317803 •	4 mm (0.16") 973584100 • 973584104 • 973584101 • 973584106 • 973584102 • 973584107 · 973584103 •
Technical Data			
Contact Type	alligator clip	alligator clip	alligator clip
Connection Type	crimp 0.25 mm <sup>2</sup> up to 0.5 mm <sup>2</sup>	spring-loaded socket Ø 2 mm	spring-loaded socket Ø 2 mm
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurment Category (IEC61010)	CAT I	CAT I	CAT I
Current Rating*	8 A	8 A	8 A
Contact Resistance	5 mOhm	5 mOhm	5 mOhm
Material Specifications			
Alligator Clip	nickel plated brass / bronze	nickel plated brass / bronze	tin plated brass / bronze
Housing	PP	PP	PP
<b>Environmental Conditions</b>			
Temperature Range Flamability Rating	-25°C to +100 °C (13°F to 212°F)	-25°C to +100 °C (13°F to 212°F)	-25°C to +100 °C (13°F to 212°F)

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



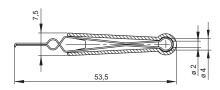


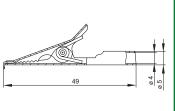


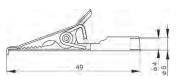
# Alligator Clips 4 mm System



		and other	
			·
Гуре	AGF 2	AGF 20	AGF 30
	Extra small Alligator Clip, for extremely small dense contact points, jaws insulated on the outside, 2mm and 4mm system socket terminal.	Steel Alligator Clip, nickel plated, max, jaw opening 12mm, 4mm system socket and solder terminal.	Stainless Steel Alligator Clip, max, jaw opening 10mm, 4mm system socket and solder terminal.
Clamping range	4 mm (0.16")	12 mm (0.47")	10 mm (0.40")
Clamping range <b>PART NO.</b> / Housing color	4 mm (0.16") 931272100 931272101	12 mm (0.47") <b>930120000</b>	10 mm (0.40") <b>930122000</b>
PART NO. / Housing color	931272100	X Z	
PART NO. / Housing color	931272100 • 931272101 •	930120000	930122000
PART NO. / Housing color Technical Data Contact Type	931272100 • 931272101 •	930120000 alligator clip	930122000 alligator clip
PART NO. / Housing color Technical Data Contact Type Connection Type	931272100 • 931272101 • alligator clip socket Ø 4mm and Ø 2mm	930120000	930122000
PART NO. / Housing color Technical Data Contact Type Connection Type Voltage Rating	931272100 • 931272101 • alligator clip socket Ø 4mm and Ø 2mm 30 VAC / 60 VDC	930120000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC	930122000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC
PART NO. / Housing color Technical Data Contact Type Connection Type Voltage Rating Measurment Category (IEC61010)	931272100 • 931272101 • alligator clip socket Ø 4mm and Ø 2mm 30 VAC / 60 VDC CAT I	930120000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I	930122000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I
PART NO. / Housing color Technical Data Contact Type Connection Type Voltage Rating Measurment Category (IEC61010) Current Rating*	931272100 • 931272101 • alligator clip socket Ø 4mm and Ø 2mm 30 VAC / 60 VDC	930120000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC	930122000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC
PART NO. / Housing color Technical Data Contact Type Connection Type Voltage Rating Measurment Category (IEC61010) Current Rating* Contact Resistance	931272100 • 931272101 • alligator clip socket Ø 4mm and Ø 2mm 30 VAC / 60 VDC CAT I 6 A	930120000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A	930122000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A
PART NO. / Housing color Technical Data Contact Type Connection Type Voltage Rating Measurment Category (IEC61010) Current Rating* Contact Resistance Material Specifications	931272100 • 931272101 • alligator clip socket Ø 4mm and Ø 2mm 30 VAC / 60 VDC CAT I 6 A	930120000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A	930122000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A
PART NO. / Housing color Technical Data Contact Type Connection Type Voltage Rating Measurment Category (IEC61010) Current Rating* Contact Resistance Material Specifications Alligator Clip	931272100 • 931272101 • alligator clip socket Ø 4mm and Ø 2mm 30 VAC / 60 VDC CAT I 6 A 300 mOhm	930120000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A 15 mOhm	930122000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A 15 mOhm
PART NO. / Housing color Technical Data Contact Type Connection Type Voltage Rating Measurment Category (IEC61010) Current Rating* Contact Resistance Material Specifications Alligator Clip Housing	931272100 931272101 alligator clip socket Ø 4mm and Ø 2mm 30 VAC / 60 VDC CAT I 6 A 300 mOhm stainless steel	930120000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A 15 mOhm	930122000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A 15 mOhm
	931272100 931272101 alligator clip socket Ø 4mm and Ø 2mm 30 VAC / 60 VDC CAT I 6 A 300 mOhm stainless steel	930120000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A 15 mOhm	930122000 alligator clip socket Ø 4 mm, solder terminal 30 VAC / 60 VDC CAT I 4 A 15 mOhm





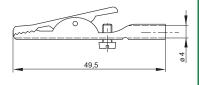


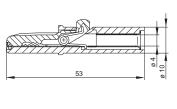
# Alligator Clips 4 mm System

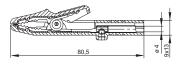
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Type	AGS 20	AK 10	AK 2 S
	Steel Alligator Clip, nickel plated, max, jaw opening mm, 4mm system socket and solder/ screw terminal.	Insulated Alligator Clip, tin plated brass insert, suitable for very thin wires, 4mm system socket terminal.	High Strength Alligator Clip, insuslated, nic plated brass, 4mm system socket and scre terminal max. 1.5mm <sup>2</sup> .
Clamping range	5 mm (0.20")	6 mm (0.24")	9.5 mm (0.37")
PART NO. / Housing color	603006001	930126100 • 930126101 • 930126102 • 930126103 • 930126103 •	932146100 • 932146101 •
Technical Data			
Contact Type	alligator clip	alligator clip	alligator clip
Connection Type	socket Ø 4 mm, solder screw terminal	socket Ø 4 mm	socket Ø 4 mm, screw terminal
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurment Category (IEC61010)	CAT I	CAT I	CAT I
Current Rating*	4 A	6 A	25 A
Contact Resistance	10 mOhm	15 mOhm	10 mOhm
Material Specifications			
Alligator Clip	nickel plated steel	tin plated brass	nickel plated brass
Housing	-	PS	PP
Environmental Conditions			
Temperature Range Flamability Rating	-25°C to +100 °C (13°F to 212°F)	-25°C to +100 °C (13°F to 212°F)	-25°C to +80 °C (13°F to 176°F)

Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.







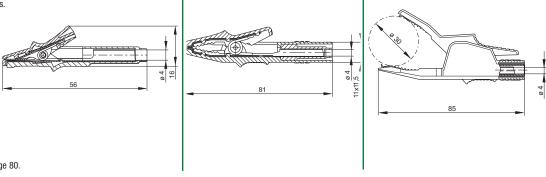
# Alligator Clips 4 mm System



	CE	CE.	CE
Туре	MA 260 SH	AK 2 B	AK 2 B 2540 I
	Touch proof mini Alligator Clip, nickel plated bronze, jaw opening 6mm, 4mm system socket and solder terminal.	High Strength Alligator Clip, touch proof, nickel plated brass, 9.5mm jaw opening, 4mm system socket terminal.	High Strength wide opening Alligator Clip, touch proof, nickel plated brass, 30mm jaw opening, 4mm system sock terminal.
Clamping range	6 mm (0.24")	9.5 mm (0.37")	30 mm (1.18")
PART NO. / Housing color	973889100 • 973889101 •	932435100 • 932435101 •	972405100       •         972405101       •         972405102       •         972405103       •         972405104       •         972405188       •
Technical Data			1
Contact Type	alligator clip	alligator clip	alligator clip
Connection Type	socket Ø 4 mm, solder terminal	socket Ø 4 mm	socket Ø 4 mm
Voltage Rating	AC/DC 300 V	AC/DC 300 V	AC/DC 1000 V
Measurment Category (IEC61010)	CAT II	CAT II	CAT II
Current Rating*	15 A	25 A	32 A
Contact Resistance	5 mOhm	10 mOhm	10 mOhm
Material Specifications			
Alligator Clip	nickel plated bronze	nickel plated brass	nickel plated brass
Housing	PA	PP	PP
Environmental Conditions			
Temperature Range	-25°C to +80 °C (13°F to 176°F)	-25°C to +80 °C (13°F to 176°F)	-30°C to +90 °C (22°F to 194°F)
Flamability Rating			
Housing	UL 94 HB	UL 94 HB	UL 94 HB

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.

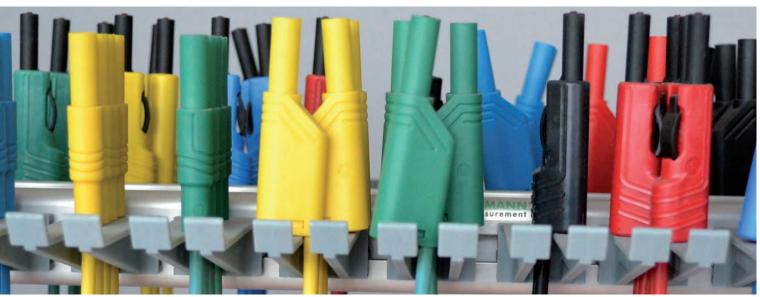


# **Measuring Leads**

Altech Test & Measurement Leads are often exposed to extensive wear and tear and other extreme conditions. They must be robust, flexible, carry heavy loads and long lasting. Therefore they are manufactured in a closely monitored process with high quality materials.

- Wide variety of colors, length and connections
- Double insulation
- Highly flexible also at low temperatures
- Silicone version for solder resistance
- Built-in white color indicator for damage identification
- Up to 1000V CAT III
- Wire size up to 2.5mm2 for 32A
- Safety Systems
- Nickel and Gold plating





# Measuring Leads 0.64 mm System



Туре	<b>BNC AL 0,64</b> BNC adapter lead with insulated sockets for 0.64 mm round and rectangular pin. Red inner lead, black shielding; cable type RG 58 A/U, 50 Ohm. For use with oscilloscopes, PC cards, etc.	<b>MAL N 4-0,64/100-0,25</b> Injection-moulded measuring lead with spring loaded 4 mm diameter plug and 4 mm diameter socket for further connection and insulated socket for 0.64 mm round and rectangular pin. Highly flexible 0.25 mm <sup>2</sup> stranded wire.	MKL 0,64/25-0,25 Measuring lead with two insulate sockets for 0.64 mm round and rectangular pin. Highly flexible 0. mm <sup>2</sup> stranded wire with two 0.64 diameter sockets.
Coble length	1.2m (47.2") BNC + 0.1m (3.9") wires	0.1m (39.4")	25 mm
Cable length Cable size	-	0.25 mm <sup>2</sup> (24 AWG)	0.25 mm² (24 AWG)
Cable material	_	PVC	PVC
Pin dimensions	_	4 mm (0.157")	4 mm (0.157")
Cable type	RG 58 A/U	LIY	LIY
ouble type			
PART NO. / Housing color	933844001	<ul> <li>934160100</li> <li>934160101</li> </ul>	<ul> <li>973604100</li> <li>973604101</li> </ul>
Technical Data		• 934160101	• 973604101
Technical Data Contact Type	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring load square pin socket</li> </ul>
Technical Data Contact Type Voltage Rating	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring load square pin socket</li> <li>30 VAC / 60 VDC</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010)	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC CAT I</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring load square pin socket</li> <li>30 VAC / 60 VDC CAT I</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating*	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring load square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC CAT I</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring load square pin socket</li> <li>30 VAC / 60 VDC CAT I</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>70 mOhm</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring load square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>20 mOhm</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Contact Pin	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>70 mOhm</li> <li>nickel plated brass</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring load square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>70 mOhm</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring loads square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>20 mOhm</li> <li>gold plated copper beryllium</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Contact Pin Contact Pin Contact Spring	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>70 mOhm</li> <li>nickel plated brass</li> <li>nickel plated copper beryllium</li> <li>PVC</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring loads square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>20 mOhm</li> <li>gold plated copper beryllium</li> <li>PPO</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Contact Pin Contact Pin Contact Spring Housing Environmental Conditions Temperature Range	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>70 mOhm</li> <li>nickel plated brass</li> <li>nickel plated copper beryllium</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring loads square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>20 mOhm</li> <li>gold plated copper beryllium</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Contact Pin Contact Spring Housing Environmental Conditions Temperature Range Flamability Rating	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC CAT I - - -	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>70 mOhm</li> <li>nickel plated brass</li> <li>nickel plated copper beryllium</li> <li>PVC</li> <li>-15°C to +70°C (5°F to 158°F)</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring loads square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>20 mOhm</li> <li>gold plated copper beryllium</li> <li>PPO</li> <li>-40 °C to +60 °C (-40°F to 140°F)</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Contact Pin Contact Spring Housing Environmental Conditions Temperature Range Flamability Rating Housing	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC CAT I - - -	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>70 mOhm</li> <li>nickel plated brass</li> <li>nickel plated copper beryllium</li> <li>PVC</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring load square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>20 mOhm</li> <li>gold plated copper beryllium</li> <li>PPO</li> </ul>
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Contact Pin Contact Spring Housing Environmental Conditions Temperature Range Flamability Rating	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket 30 VAC / 60 VDC CAT I - - - - -  15 °C to +70 °C (5°F to 158°F) -	<ul> <li>934160101</li> <li>pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>70 mOhm</li> <li>nickel plated brass</li> <li>nickel plated copper beryllium</li> <li>PVC</li> <li>-15°C to +70°C (5°F to 158°F)</li> </ul>	<ul> <li>973604101</li> <li>2x0.64mm (0.025 in.) spring load square pin socket</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>3 A</li> <li>20 mOhm</li> <li>gold plated copper beryllium</li> <li>PPO</li> <li>-40 °C to +60 °C (-40°F to 140°F</li> </ul>

# Measuring Leads 2 mm System





#### MVL 2/25; MVL 2/50; MVL 2/100

Injection-moulded measuring lead, at either end 2 mm diameter nickelplated brass connector and 2 mm diameter socket with contact spring, for tower constructions. Highly flexible stranded lead, grip and lead shatter-proof.



#### MAL S WS 2-4 100/1

Safety measuring lead according to IEC 61010, one end with 2 mm safety plug and other end with 4 mm safety plug, as well as 2 mm and 4 mm socket for onward connection capability. Gold-plated / nickelplated copper-beryllium contact spring. Highly flexible, double insulated stranded lead and shatter-proof grip sleeves. Built in colour indicator for easy identification of insulation damages.

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975163106

975163107 975163109

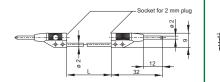
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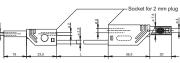
Cable length	0.25m (9.8"), 0.5m (19.7"), 1.0m (39.4")					
Cable size	0.5 mm² (20AWG)					
Cable material	PVC					
Pin dimensions	2 mm (0.078")					
Cable type	LF-Y					
PART NO. / Housing color	0.25 m 973594100 🌘 973594101 🔴					
Ū	0.5 m <b>973595100 🔵 973595101 🛑</b>					
	1.0 m 973596100 🔴 973596101 🛑					

0.2	5m (9.8"), 0.5	5m (19.7"), 1.0m (3	100 m (39.4")		
0.5	mm² (20AW0	G)		1 mm² (18 AWG)	
PV	С			PVC	
2 n	nm (0.078")		2 mm (0.078") / 4 mm (0.157")		
LF-	-Y			LEH-XY	
25 m	973594100	973594101	•	975163100	9751631
).5 m	973595100	973595101	•	975163101	9751631
1.0 m	973596100	973596101	•	975163102	9751631
				975163103	9751631

٦	Technical Data		
C	Contact Type	stationary pin	spring-loaded pin
/	/oltage Rating	30 VAC / 60 VDC	AC/DC 1000V
Ν	Measurement Category (IEC61010)	CAT I	CAT II
(	Current Rating*	6 A	10 A
C	Contact Resistance	26 mOhm	21 mOhm
P	Material Specifications		
	Contact Pin	nickel plated brass	nickel plated brass
	Contact Spring	copper beryllium	gold plated copper beryllium
	Housing	Polypropylene	Polyamide
E	Environmental Conditions		
	Temperature Range	-40 °C to +60 °C (-40°F to 140°F)	-15 °C to +70 °C (5°F to 158°F)
F	lamability Rating		
	Housing	UL 94 HB	UL 94 V-2
	Drawing		

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





### Measuring Leads 2 mm System

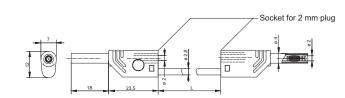




Туре	MVL S WS 25/1 Au	MVL S WS 50/1 Au	MVL S WS 100/1 Au	MVL S WS 200/1 Au			
	Safety measuring lead according to IEC 61010, with 2 mm safety plugs on both sides and 2 mm sockets for onw connection capability. Gold-plated copper-beryllium contact spring. Highly flexible, double insulated stranded lead shatter-proof grip sleeves. Built in colour indicator for easy identification of insulation damages.						
Cable length	0.25m (9.8")	0.5m (19.7")	1.0m (39.4")	2.0m (78.7")			
Cable size	1 mm <sup>2</sup> (18 AWG)	1 mm <sup>2</sup> (18 AWG)	1 mm <sup>2</sup> (18 AWG)	1 mm² (18 AWG)			
Cable material	PVC	PVC	PVC	PVC			
Pin dimensions	2 mm (0.078")	2 mm (0.078")	2 mm (0.078")	2 mm (0.078")			
Cable type	LEH-XY	LEH-XY	LEH-XY	LEH-XY			
PART NO. / Housing color	• 975694700	• 975695700	• 975696700	• 975698700			
	975694701	975695701	975696701	975698701			
	975694702	975695702	975696702	975698702			
	<u> </u>	<u> </u>	975696703	<u> </u>			
	975694704	975695704	975696704	975698704			
	975694705	975695705	975696705	975698705			
	975694706	975695706	975696706	975698706			
	0 975694707	0 975695707	0 975696707	O 975698707			
	975694709	975695709	975696709	975698709			
Technical Data	Ov opring loaded pip	Ov apring loaded pin	Ox opting loaded pin	Ov opring loaded hin			
Contact Type	2x spring-loaded pin	2x spring-loaded pin	2x spring-loaded pin	2x spring-loaded pin			
Voltage Rating	AC/DC 1000V	AC/DC 1000V	AC/DC 1000V	AC/DC 1000V			
Measurement Category (IEC61010)	CAT III	CAT III	CAT III	CAT III			
Current Rating*	10A	10A	10A	10A			
Contact Resistance	10 mOhm	15 mOhm	24 mOhm	44 mOhm			
Material Specifications							
Contact Pin		gold plated	brass				
Contact Spring		gold plated copp	per-berylium				
Housing		Polyam	ide				
Environmental Conditions							
Temperature Range		-15 °C to +70 °C (	5°F to 158°F)				
Flamability Rating Housing		UL 94 \	1-2				
Tiousing		0L 94 (	1-2				

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





### Measuring Leads 4 mm Solder Resistant System



MLN SIL 25/1 MLN SIL 50/1

MLN SIL 100/1

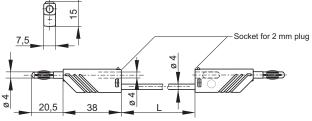
MLN SIL 150/1

MLN SIL 200/1

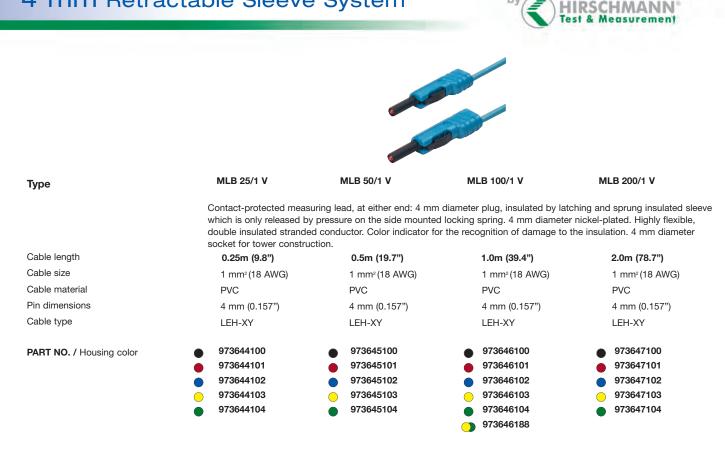
Measuring lead, at either end 4mm diameter plug with caged spring and 4mm diameter socket for tower construction. Nickel-plated copper beryllium contact spring. Highly flexible, double insulated stranded lead, grip and lead shatterproof. Built in colour indicator for easy identification of insulation damages.

	0.25m (9.8")	0.5m (19.7")	1.0m (39.4")	1.5m (59.1")	2.0m (78.7")
Cable length	0.2011 (0.0 )	. ,	1.011 (00.4 )	1.611 (65.17)	2.011 (70.77)
Cable size	1 mm² (18 AWG)	1 mm <sup>2</sup> (18 AWG)			
Cable material	Silicone	Silicone	Silicone	Silicone	Silicone
Pin dimensions	4 mm (0.157")	4 mm (0.157")	4 mm (0.157")	4 mm (0.157")	4 mm (0.157")
Cable type	LEH-XY	LEH-XY	LEH-XY	LEH-XY	LEH-XY
PART NO. / Housing color	934090100	934091100	934092100	934093100	• 934094100
	934090101	934091101	934092101	934093101	934094101
	934090102	934091102	934092102	934093102	934094102
	934090103	<u> </u>	<u> </u>	934093103	<u> </u>
	934090104	934091104	934092104	934093104	934094104

Technical Data Contact Type	2x spring-loaded pin	2x spring-loaded pin	2x spring-loaded pin	2x spring-loaded pin	2x spring-loaded pi
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I	CAT I	CAT I	CAT I
Current Rating*	16A	16A	16A	16A	16A
Contact Resistance	8.5 mOhm	13 mOhm	22 mOhm	34 mOhm	40 mOhm
Material Specifications					
Contact Pin			nickel plated brass		
Contact Spring		nic	ckel plated copper-beryliu	m	
Housing			Polyamide		
Environmental Conditions					
Temperature Range		-15	°C to +70 °C (5°F to 158°	°F)	
Flamability Rating					
Housing			UL 94 V-2		



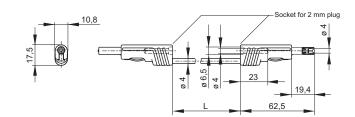
#### Measuring Leads 4 mm Retractable Sleeve System



**Technical Data** Contact Type spring-loaded pin spring-loaded pin spring-loaded pin spring-loaded pin 30 VAC / 60 VDC Voltage Rating CATI CATI CATI CATI Measurement Category (IEC61010) 16 A 16 A 16 A 16 A Current Rating\* 8.5 mOhm 13 mOhm 22 mOhm 40 mOhm Contact Resistance Material Specifications Contact Pin nickel plated brass copper-berylium Contact Spring Housing Polyamide **Environmental Conditions** Temperature Range -15 °C to +70 °C (5°F to 158°F) Flamability Rating Housing UL 94 V-2

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



\* Please consider derating graph on page 80.

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### Measuring Leads 4 mm System



MLN 25/1

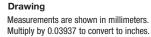
Ś			
MLN 50/1	MLN 100/1	MLN 150/1	

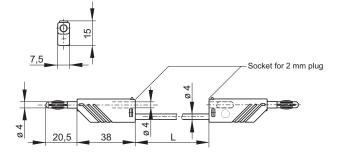
Measuring lead, at either end 4mm diameter plug with caged spring and 4mm diameter socket for tower construction. Nickel-plated copper beryllium contact spring. Highly flexible, double insulated stranded lead, grip and lead shatter-proof. Built in colour indicator for easy identification of insulation damages.

MLN 200/1

Cable length	0.25m (9.8")	0.5m (19.7")	1.0m (39.4")	1.5m (59.1")	2.0m (78.7")
Cable size	1 mm² (17 AWG)	1 mm² (17 AWG)	1 mm² (17 AWG)	1 mm <sup>2</sup> (17 AWG)	1 mm <sup>2</sup> (17 AWG)
Cable material	PVC	PVC	PVC	PVC	PVC
Pin dimensions	4 mm (0.157")	4 mm (0.157")	4 mm (0.157")	4 mm (0.157")	4 mm (0.157")
Cable type	LEH-XY	LEH-XY	LEH-XY	LEH-XY	LEH-XY
PART NO. / Housing color	934058100	• 934060100	934062100	934064100	• 934065100
	934058101	934060101	934062101	934064101	934065101
	934058102	934060102	934062102	934064102	934065102
	934058103	934060103	934062103	934064103	934065103
	934058104	934060104	934062104	934064104	934065104

Technical Data Contact Type	spring-loaded pin	spring-loaded pin	spring-loaded pin	spring-loaded pin	spring-loaded pin	
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC	
Measurement Category (IEC61010)	CAT I	CAT I	CAT I	CAT I	CAT I	
Current Rating*	16A	16A	16A	16A	16A	
Contact Resistance	8.5 mOhm	13 mOhm	22 mOhm	34 mOhm	40 mOhm	
Material Specifications						
Contact Pin			nickel plated brass			
Contact Spring	nickel plated copper-beryllium					
Housing			Polyamide			
Environmental Conditions						
Temperature Range			-15 °C to +70 °C			
Flamability Rating						
Housing			UL 94 V-2			





 $^{\ast}$  Please consider derating graph on page 80.

For the latest on Altech Test & Measurement specifications please visit www.altechcorp.com/test-equipment

### Measuring Leads 4 mm System



#### 2.5 mm<sup>2</sup> (14 AWG) Nickel plated contacts

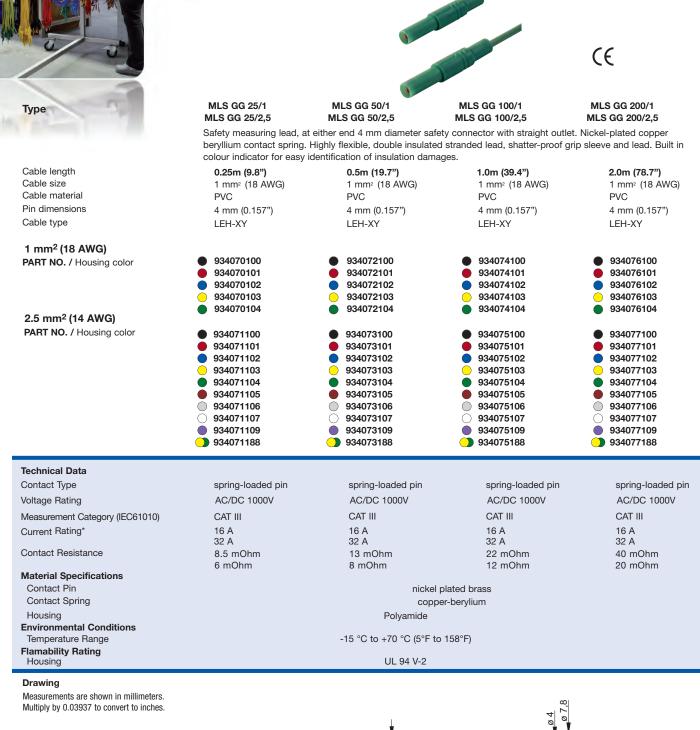
Туре	MLN 25/2.5	MLN 50/2.5	MLN 100/2.5	MLN 150/2.5	MLN 200/2.5
PART NO. / Housing color	934059100	934061100	934063100	934507100	934066100
U U	934059101	934061101	934063101	934507101	934066101
	934059102	934061102	934063102	934507102	934066102
	934059103	934061103	934063103	934507103	934066103
	934059104	934061104	934063104	934507104	934066104
	934059105	934061105	934063105	934507105	934066105
	934059106	934061106	934063106	934507106	934066106
	O 934059107	O 934061107	O 934063107	O 934507107	O 934066107
	934059109	934061109	934063109	934507109	934066109
	934059188	934061188	934063188	934507188	934066188
2.5 mm <sup>2</sup> (14 AWG) Gold plated contacts					
Туре	MLN 25/2.5 Au	MLN 50/2.5 Au	MLN 100/2.5 Au	MLN 150/2.5 Au	MLN 200/2.5 Au
PART NO. / Housing color	934059700	934061700	934063700	934507700	934066700
<u> </u>	934059701	934061701	934063701	934507701	934066701
	934059702	934061702	934063702	934507702	934066702
	934059703	934061703	934063703	934507703	934066703
	934059704	934061704	934063704	934507704	934066704
	934059705	934061705	934063705	934507705	934066705
	934059706	934061706	934063706	934507706	934066706
	0 934059707	<u> </u>	<u> </u>	O 934507707	0 934066707
	934059709	934061709	934063709	934507709	934066709
	934059788	934061788	934063788	934507788	934066788
Technical Data	spring-loaded pin	spring-loaded pin	spring-loaded pin	spring-loaded pin	spring-loaded pin
Contact Type Voltage Rating					
· ·	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CATI	CATI	CAT I	CATI	CATI
Current Rating*	32A	32A	32A	32A	32A
Contact Resistance	6 mOhm	8 mOhm	12 mOhm	16 mOhm	20 mOhm
Material Specifications					
Contact Pin			nickel /gold plated br		
Contact Spring		r	nickel/gold plated copper-	beryllium	
Housing			Polyamide		
Environmental Conditions Temperature Range			-15 °C to +70 °C		
Flamability Rating			-15 0 10 +70 0		

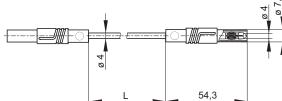
Flamability Rating Housing

\* Please consider derating graph on page 80.

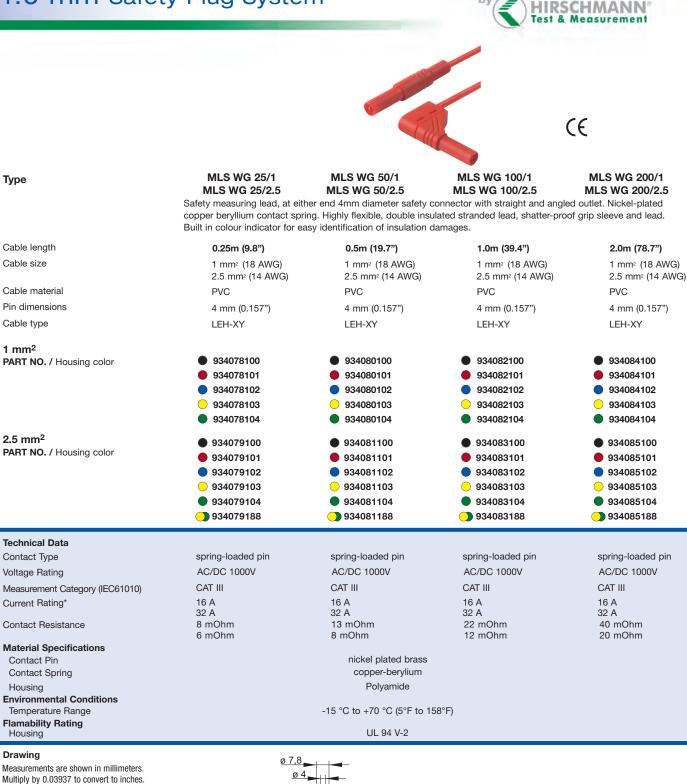
UL 94 V-2

### Measuring Leads 4.0 mm Safety Plug System



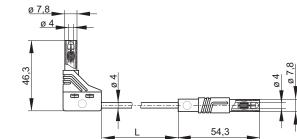


#### **Measuring Leads** 4.0 mm Safety Plug System





Multiply by 0.03937 to convert to inches.

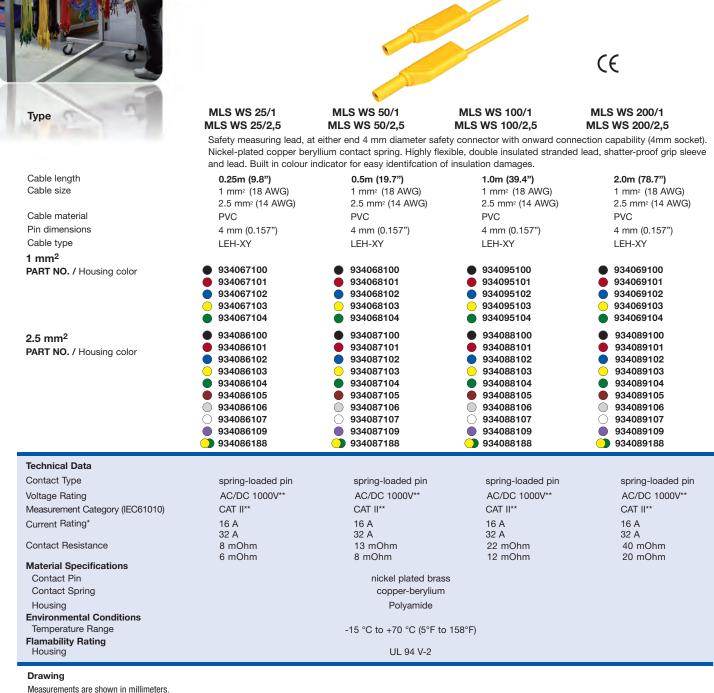


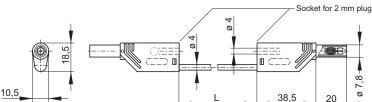
\* Please consider derating graph on page 80.

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#### Measuring Leads 4 mm - Safety Plug System





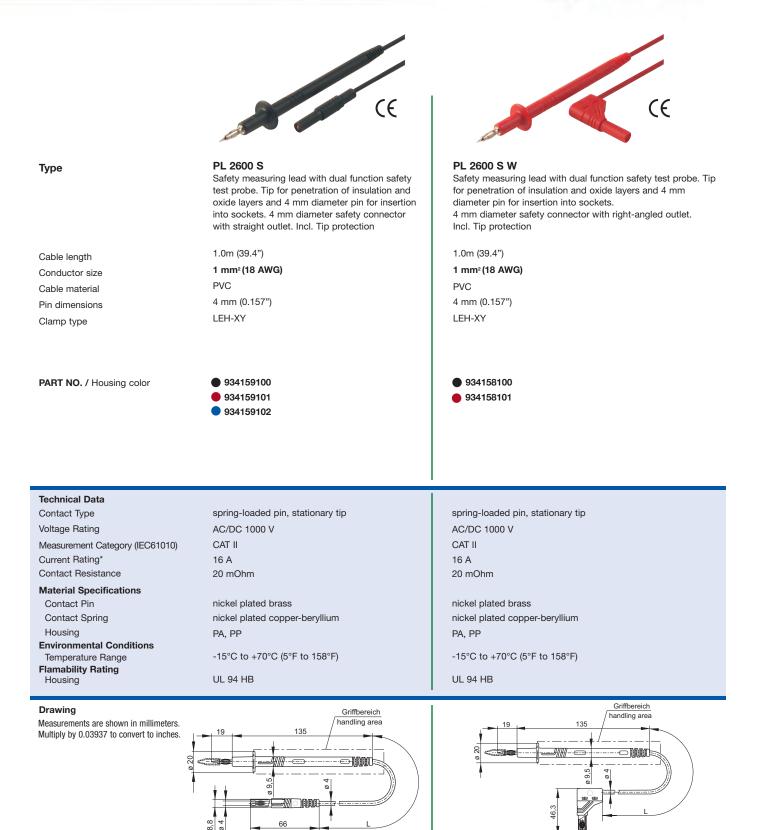
\* Please consider derating graph on page 80.

Multiply by 0.03937 to convert to inches.

\*\* 600VV AC/DC CAT III

#### Measuring Leads 4 mm - Safety Plug System

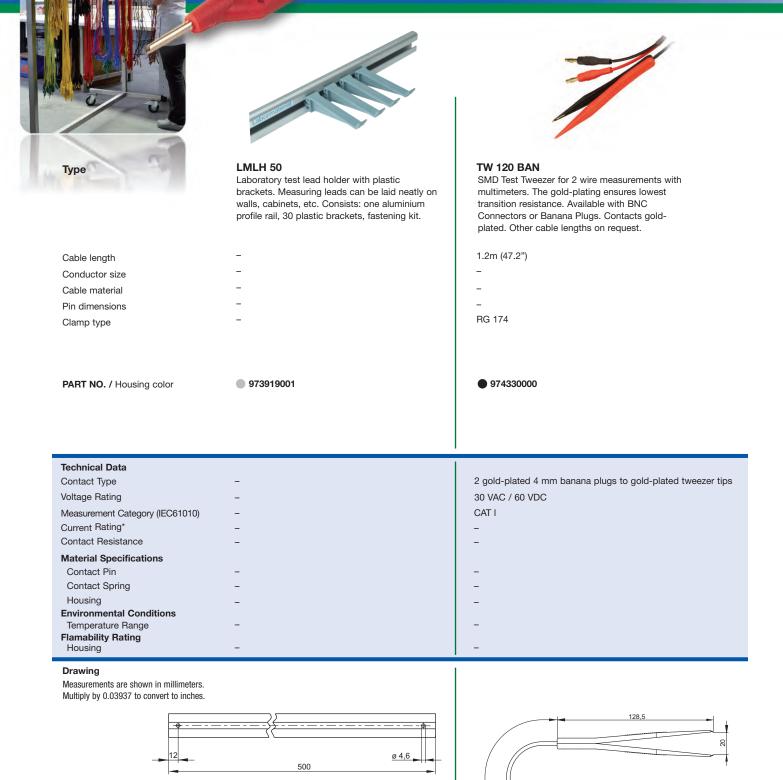




\* Please consider derating graph on page 80.

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### Measuring Leads 4 mm Safety System



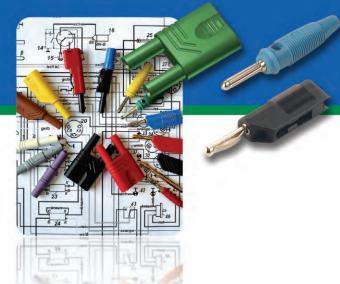
\* Please consider derating graph on page 80.

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### Measuring Leads 4 mm Safety System



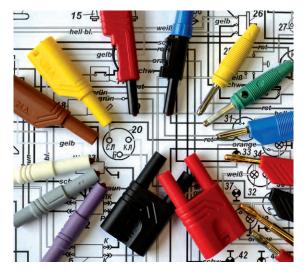
	°	
Туре	<b>TKL 065 BAN</b> High quality Kelvin Measuring Leads for 4 wire measurements with LCR measuring bridges and multimeters. The gold-plating ensures lowest transition resistance. Available with BNC Connectors or Banana Plugs. Contacts gold- plated. Other cable lengths on request.	<b>SML 100/1</b> Silicone measuring lead, 4 mm plug with caged spring on bot sides. Nickel-plated copper beryllium contact spring. Highly flexible, double insulated stranded lead, resistant against soldering iron, grip and lead shatter-proof. Built in colour indicator for easy identification of insulation damages.
Cable length Conductor size Cable material Pin dimensions Clamp type <b>PART NO. /</b> Housing color	0.65m (25.6") - - 4 mm (0.157") RG 174 • 974340000	1m (39.37") 1 mm² (18 AWG) silicone 4 mm (0.157") LEH-XY 973388100 973388101 973388102 973388103 973388104
Technical Data Contact Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Contact Pin Contact Spring Housing Environmental Conditions Temperature Range Flamability Rating Housing	spring-loaded pin, stationary tip 30 VAC / 60 VDC CAT I - - - -	spring-loaded pin 30 VAC / 60 VDC CAT I 16 A 20 mOhm brass nickel plated copper-beryllium PA, PP -15°C to +70°C (5°F to 158°F) -
Drawing Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.		



### **Test Plugs**

Test Plugs from the inventor of the Banana Plug. Altech and SKS Hirschmann offers endless possibilities and solutions for different contact and connection systems. Various Plugs are also available for "Do it yourself" measurement leads.

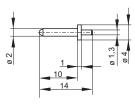
- Large color spectrum
- Various connection types
- Different cross sections
- Safety plugs according to IEC61010

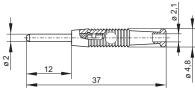






Туре	MST 201	MST 3
	2mm mini connector pin for PCB boards, fits MKU1 and MBU2 (for stacking PCB boards), pin spacing 5mm and up.	2mm mini connector, nickel plated brass pin with solder connection, flexible and shatter proof insulated sleeve, connecting leads up to 1.9mm.
Pin diameter	2 mm (0.078")	2 mm (0.078")
PART NO. / Housing color	931338001	● 973509100
FAIT NO. / Housing color	50100001	973509101
		973509102
		<u> </u>
		973509104
		973509106
Technical Data		975569100
	pin	spring loaded pin
Contact Type	pin solder terminal	
Contact Type Connection Type	'	spring loaded pin
Contact Type Connection Type Voltage Rating	solder terminal	spring loaded pin solder terminal
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010)	solder terminal 30 VAC / 60 VDC	spring loaded pin solder terminal 30 VAC / 60 VDC
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	solder terminal 30 VAC / 60 VDC CAT I	spring loaded pin solder terminal 30 VAC / 60 VDC CAT I
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	solder terminal 30 VAC / 60 VDC CAT I 6A	spring loaded pin solder terminal 30 VAC / 60 VDC CAT I 6A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	solder terminal 30 VAC / 60 VDC CAT I 6A	spring loaded pin solder terminal 30 VAC / 60 VDC CAT I 6A
Contact Spring	solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm	spring loaded pin solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm nickel plated brass -
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing	solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm	spring loaded pin solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Plug Contact Spring Housing <b>Environmental Conditions</b>	solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm nickel plated brass –	spring loaded pin solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm nickel plated brass – PVC-P
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Plug Contact Spring Housing <b>Environmental Conditions</b> Temperature range	solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm	spring loaded pin solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm nickel plated brass -
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing Environmental Conditions Temperature range Flamability Rating	solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm nickel plated brass –	spring loaded pin solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm nickel plated brass – PVC-P
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Plug Contact Spring Housing <b>Environmental Conditions</b>	solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm nickel plated brass –	spring loaded pin solder terminal 30 VAC / 60 VDC CAT I 6A 6 mOhm nickel plated brass – PVC-P

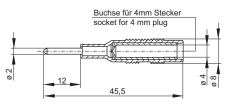


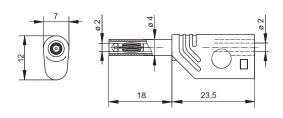




#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



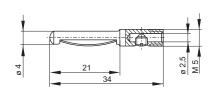


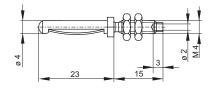


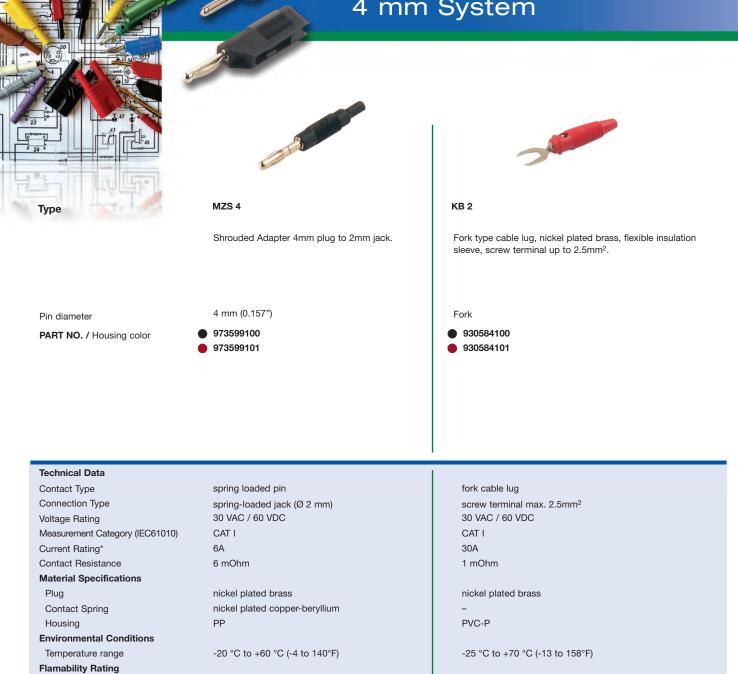
Type       VST 100       VST 20         Amm spring loaded connector pin, nickel plated brass, M4       Amm spring loaded connector pin, nickel plated brass, M4         Pin diameter       Amm (0.157')       4 mm (0.157')         PART NO. / Housing color       3956100       30050000         Pentral Data       ////////////////////////////////////		b reaching the state	Carlos Community
brass, screw terminal up to 1.5mm².       thread/ screw terminal up to 2mm².         Pin diameter       4 mm (0.157")         PART NO. / Housing color       930581000         Part no. / Housing color       930581000         Description       930050000         Description       930050000         Description       spring loaded pin         Contact Type       spring loaded pin         Contact Type       screw terminal max. 1.5mm²         Contact Type       screw terminal max. 1.5mm²         Contact Type       screw terminal max. 1.5mm²         Voltage Rating       30 VAC / 60 VDC         Maesurement Category (EC61010)       CAT I         Current Rating*       IGA         Contact Resistance       3 mOhm         Material Specifications       inckel plated brass         Plug       nickel plated brass         Contact Spring       -         Ausing       -         Plug       nickel plated brass         Contact Spring       -         Housing       -         Puruter range       -         Housing       -         Termerature range       -         Termerature range       -         Puruter range	Туре	VST 100	VST 20
PART NO. / Housing color       930581000         PART NO. / Housing color       930581000         Support			
PART NO. / Housing color       930581000         PART NO. / Housing color       930581000         Support	Din diamator	4 mm (0.157")	4 mm (0.157")
Technical Data			
Contact Typespring loaded pinspring loaded pinConnection Typescrew terminal max. 1.5mm²M4 thread / soldering max. 2mm²Voltage Rating30 VAC / 60 VDC30 VAC / 60 VDCMeasurement Category (IEC61010)CAT ICAT ICurrent Rating*16A16AContact Resistance3 mOhm3 mOhmMaterial SpecificationsrestrestPlugnickel plated brassnickel plated brassContact SpringHousingFirmperature range-25 °C to +100°C (-13 to 212°F)Flamability Rating-25 °C to +100°C (-13 to 212°F)	PARI NO. / Housing color	930361000	3000000
Contact Typespring loaded pinspring loaded pinConnection Typescrew terminal max. 1.5mm²M4 thread / soldering max. 2mm²Voltage Rating30 VAC / 60 VDC30 VAC / 60 VDCMeasurement Category (IEC61010)CAT ICAT ICurrent Rating*16A16AContact Resistance3 mOhm3 mOhmMaterial SpecificationsrestrestPlugnickel plated brassnickel plated brassContact SpringHousingFirmperature range-25 °C to +100°C (-13 to 212°F)Flamability Rating-25 °C to +100°C (-13 to 212°F)			
Connection Typescrew terminal max. 1.5mm²M4 thread / soldering max. 2mm²Voltage Rating30 VAC / 60 VDC30 VAC / 60 VDCMeasurement Category (IEC61010)CAT ICAT ICurrent Rating*16A16AContact Resistance3 mOhm3 mOhmMaterial Specificationsnickel plated brassnickel plated brassPlugnickel plated brassnickel plated brassContact SpringHousingEnvironmental Conditions-25 °C to +100°C (-13 to 212°F)-25 °C to +100°C (-13 to 212°F)Flamability Rating25 °C to +100°C (-13 to 212°F)			
Voltage Rating30 VAC / 60 VDC30 VAC / 60 VDCMeasurement Category (IEC61010)CAT ICAT ICurrent Rating*16A16AContact Resistance3 mOhm3 mOhmMaterial SpecificationsInckel plated brassInckel plated brassPlugnickel plated brassnickel plated brassContact SpringHousingTemperature range-25 °C to +100°C (-13 to 212°F)-25 °C to +100°C (-13 to 212°F)Flamability Rating			
Measurement Category (IEC61010)       CAT I       CAT I         Current Rating*       16A       16A         Contact Resistance       3 mOhm       3 mOhm         Material Specifications       -       -         Plug       nickel plated brass       nickel plated brass         Contact Spring       -       -         Housing       -       -         Temperature range       -25 °C to +100°C (-13 to 212°F)       -25 °C to +100°C (-13 to 212°F)         Flamability Rating       -       -			-
Current Rating*16A16AContact Resistance3 mOhm3 mOhmMaterial Specifications3 mOhmPlugnickel plated brassnickel plated brassContact SpringHousingFurionmental Conditions-Temperature range-25 °C to +100°C (-13 to 212°F)Flamability Rating25 °C to +100°C (-13 to 212°F)			
Contact Resistance     3 mOhm     3 mOhm       Material Specifications     -       Plug     nickel plated brass     nickel plated brass       Contact Spring     -     -       Housing     -     -       Temperature range     -25 °C to +100°C (-13 to 212°F)     -25 °C to +100°C (-13 to 212°F)       Flamability Rating     -     -			
Material Specifications     Nickel plated brass       Plug     nickel plated brass       Contact Spring     -       Housing     -       Housing     -       Environmental Conditions     -       Temperature range     -25 °C to +100°C (-13 to 212°F)       Flamability Rating     -			
Plugnickel plated brassnickel plated brassContact SpringHousingFuryronmental ConditionsTemperature range-25 °C to +100°C (-13 to 212°F)-25 °C to +100°C (-13 to 212°F)Flamability Rating			
Contact Spring-Housing-Fourier-Environmental Conditions-Temperature range-25 °C to +100°C (-13 to 212°F)Flamability Rating-	•	nickel plated brass	nickel plated brass
Housing         -         -           Environmental Conditions         -         -           Temperature range         -25 °C to +100°C (-13 to 212°F)         -25 °C to +100°C (-13 to 212°F)           Flamability Rating         -         -         -		-	-
Temperature range         -25 °C to +100°C (-13 to 212°F)         -25 °C to +100°C (-13 to 212°F)           Flamability Rating         -25 °C to +100°C (-13 to 212°F)         -25 °C to +100°C (-13 to 212°F)		-	-
Flamability Rating	Environmental Conditions		
	Temperature range	-25 °C to +100°C (-13 to 212°F)	-25 °C to +100°C (-13 to 212°F)
Housing – I –	Flamability Rating		
	Housing	-	_

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



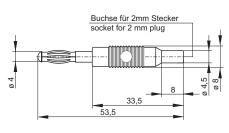


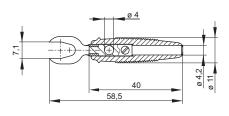


#### Drawing

Housing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.

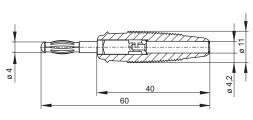


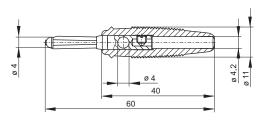




Туре	LAS 30 / LAS 30 Au	BUELA 20 K
	4mm spring loaded plug, nickel/ gold plated contact spring, solder terminal up 1.5mm <sup>2</sup> .	4mm multi spring plug, flexible, insulated sleeve with 4mm cross hole, nickel plated brass, screw terminal max. 1.5mm <sup>2</sup>
Pin diameter	4 mm (0.157") Nickel Plated Gold Plated	4 mm (0.157")
PART NO. / Housing color	• 972518100           • 972518700             • 972518101           • 972518701             • 972518102           • 972518702             • 972518103           • 972518703             • 972518104           • 972518703	<ul> <li>930726100</li> <li>930726101</li> <li>930726102</li> <li>930726103</li> <li>930726104</li> <li>930726107</li> </ul>
Technical Data Contact Type	spring loaded pin	spring loaded pin
Contact Type Connection Type	solder terminal max. 1.5mm <sup>2</sup>	screw terminal max. 1.5mm <sup>2</sup>
Contact Type Connection Type Voltage Rating	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010)	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 32A	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 32A 3 mOhm	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 32A 3 mOhm nickel plated brass; gold plated brass	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 32A 3 mOhm nickel plated brass; gold plated brass nickel pl. copper-beryllium; gold pl. copper-beryllium	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm nickel plated brass
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 32A 3 mOhm nickel plated brass; gold plated brass	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing Environmental Conditions	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 32A 3 mOhm nickel plated brass; gold plated brass nickel pl. copper-beryllium; gold pl. copper-beryllium PVC-P	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm nickel plated brass – PVC-P
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing	solder terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 32A 3 mOhm nickel plated brass; gold plated brass nickel pl. copper-beryllium; gold pl. copper-beryllium	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm nickel plated brass

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.

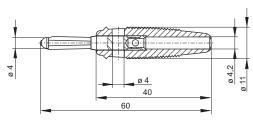


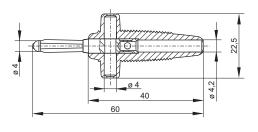




#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



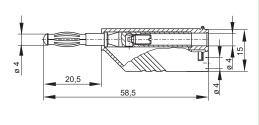


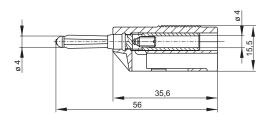


		i de la compañía de la
Туре	LAS N WS / LAS N WS Au	BSB 20 K
	4mm stackable plug, nickel/ gold plated contact spring, screw terminal 0.5-1.5mm <sup>2</sup> .	4mm multi spring plug with cable gland, nickel plated brass screw terminal max. 2.5mm <sup>2</sup> .
Pin diameter	4 mm (0.157") Nickel Plated Gold Plated	4 mm (0.157")
PART NO. / Housing color	<ul> <li>934100100</li> <li>934100700</li> <li>934100101</li> <li>934100701</li> <li>934100702</li> </ul>	<ul> <li>930729100</li> <li>930729101</li> <li>930729102</li> </ul>
	<ul> <li>934100103</li> <li>934100703</li> <li>934100104</li> <li>934100704</li> <li>934100105</li> <li>934100705</li> <li>934100706</li> </ul>	<ul> <li>930729103</li> <li>930729104</li> </ul>
	934100107         934100707           934100109         934100709	
Technical Data		
<b>Technical Data</b> Contact Type		spring loaded pin
	<ul> <li>934100109</li> <li>934100709</li> </ul>	spring loaded pin screw terminal max. 2.5mm²
Contact Type	934100109     934100709  spring loaded pin	
Contact Type Connection Type	934100109     934100709  spring loaded pin screw terminal max. 1.5mm <sup>2</sup>	screw terminal max. 2.5mm <sup>2</sup>
Contact Type Connection Type Voltage Rating	<ul> <li>934100109</li> <li>934100709</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC</li> </ul>	screw terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010)	<ul> <li>934100109</li> <li>934100709</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC CAT I</li> </ul>	screw terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	<ul> <li>934100109</li> <li>934100709</li> <li>spring loaded pin</li> <li>screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>24A</li> </ul>	screw terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	<ul> <li>934100109</li> <li>934100709</li> <li>spring loaded pin</li> <li>screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>24A</li> </ul>	screw terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b>	<ul> <li>934100109</li> <li>934100709</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>24A</li> <li>3 mOhm</li> </ul>	screw terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug	<ul> <li>934100109</li> <li>934100709</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC</li> <li>CAT I</li> <li>24A</li> <li>3 mOhm</li> <li>nickel plated brass; gold plated brass</li> </ul>	screw terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm brass
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring	<ul> <li>934100109</li> <li>934100709</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 24A 3 mOhm</li> <li>nickel plated brass; gold plated brass nickel pl. copper-beryllium; gold pl. copper-beryllium</li> </ul>	screw terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm brass nickel
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Plug Contact Spring Housing	<ul> <li>934100109</li> <li>934100709</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 24A 3 mOhm</li> <li>nickel plated brass; gold plated brass nickel pl. copper-beryllium; gold pl. copper-beryllium</li> </ul>	screw terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm brass nickel
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing Environmental Conditions	<ul> <li>934100109</li> <li>934100709</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 24A 3 mOhm</li> <li>nickel plated brass; gold plated brass nickel pl. copper-beryllium; gold pl. copper-beryllium Polyamide</li> </ul>	screw terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm brass nickel PP

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.









#### BSB 300

4mm multi spring wire plug with parallel adapter for shorting proof connection, nickel plated brass, solder terminal max. 1.5mm<sup>2</sup>.



#### VSB 20

4mm spring loaded plug with cable gland, stackable (4mm jack), screw terminal max. 2.5mm<sup>2</sup>.

#### 4 mm (0.157")

$\bullet$	930435100
lacksquare	930435101
	930435102
$\bigcirc$	930435103
	930435104

P	'n	diameter	

PART NO. / Housing color

#### 931294100 931294101 931294102

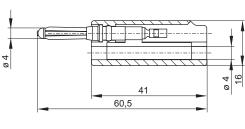
4 mm (0.157")

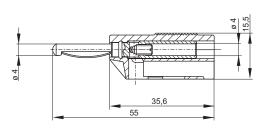
931294103 931294104

Technical Data		
Contact Type	spring loaded pin	spring loaded pin
Connection Type	solder terminal max. 1.5mm <sup>2</sup>	screw terminal max. 2.5mm <sup>2</sup>
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	16A	30A
Contact Resistance	3 mOhm	3 mOhm
Material Specifications		
Plug	nickel plated brass	nickel plated brass
Contact Spring	-	-
Housing	PP	PP
Environmental Conditions		
Temperature range	-25 °C to +100°C (-13 to 212°F)	-25 °C to +70 °C (-13 to 158°F)
Flamability Rating		
Housing	UL 94 HB	UL 94 HB

#### Drawing

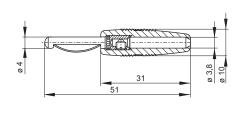
Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.

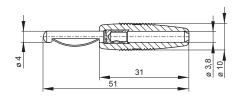






Туре	VON 20	VON 30
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	4mm spring loaded plug, flexible insulation sleeve, nickel plated brass, screw terminal max. 1.5mm <sup>2</sup> .	4mm spring loaded plug, flexible insulation sleeve, nickel plated brass, solder terminal max. 2.5mm <sup>2</sup> .
Pin diameter PART NO. / Housing color	4 mm (0.157") 930046100 930046101 930046102	4 mm (0.157") • 930047100 • 930047101 • 930047102
	<ul> <li>930046103</li> <li>930046104</li> </ul>	<ul> <li>930047103</li> <li>930047104</li> </ul>
Technical Data		
<b>Technical Data</b> Contact Type		
	• 930046104	• 930047104
Contact Type	930046104 spring loaded pin	930047104  spring loaded pin
Contact Type Connection Type	930046104  spring loaded pin screw terminal max. 1.5mm <sup>2</sup>	930047104      spring loaded pin     screw terminal max. 2.5mm <sup>2</sup>
Contact Type Connection Type Voltage Rating	<ul> <li>930046104</li> <li>spring loaded pin</li> <li>screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC</li> </ul>	<ul> <li>930047104</li> <li>spring loaded pin screw terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010)	<ul> <li>930046104</li> <li>spring loaded pin</li> <li>screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> </ul>	<ul> <li>930047104</li> <li>spring loaded pin screw terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	<ul> <li>930046104</li> <li>spring loaded pin</li> <li>screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>16A</li> </ul>	<ul> <li>930047104</li> <li>spring loaded pin screw terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	<ul> <li>930046104</li> <li>spring loaded pin</li> <li>screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>16A</li> </ul>	<ul> <li>930047104</li> <li>spring loaded pin screw terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	<ul> <li>930046104</li> <li>spring loaded pin</li> <li>screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>16A</li> <li>3 mOhm</li> </ul>	<ul> <li>930047104</li> <li>spring loaded pin screw terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug	<ul> <li>930046104</li> <li>spring loaded pin</li> <li>screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>16A</li> <li>3 mOhm</li> </ul>	<ul> <li>930047104</li> <li>spring loaded pin screw terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring	<ul> <li>930046104</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC</li> <li>CAT I</li> <li>16A</li> <li>3 mOhm</li> <li>nickel plated brass</li> <li>–</li> </ul>	<ul> <li>930047104</li> <li>spring loaded pin screw terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm nickel plated brass -</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing	<ul> <li>930046104</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC</li> <li>CAT I</li> <li>16A</li> <li>3 mOhm</li> <li>nickel plated brass</li> <li>–</li> </ul>	<ul> <li>930047104</li> <li>spring loaded pin screw terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm nickel plated brass -</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing Environmental Conditions	<ul> <li>930046104</li> <li>spring loaded pin screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm</li> <li>nickel plated brass</li> <li>- PVC-P</li> </ul>	<ul> <li>930047104</li> <li>spring loaded pin screw terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm</li> <li>nickel plated brass</li> <li>PVC-P</li> </ul>



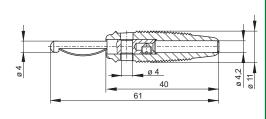


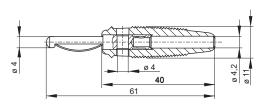


Type	VQ 20	VQ 30
	4mm spring loaded plug with 4mm cross hole, flexible insulation sleeve, nickel plated brass,	4mm spring loaded plug with 4mm cross hole, flexible insulation sleeve, nickel plated brass, solder terminal max.
	screw terminal max. 1.5mm <sup>2</sup> .	2.5mm <sup>2</sup> .
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color	• 930058100	930061100
	<ul> <li>930058101</li> <li>930058102</li> </ul>	<ul> <li>930061101</li> <li>930061102</li> </ul>
	930058102	930061103
	930058104	930061104
	930058107	O 930061107
Technical Data		
Contact Type	spring loaded pin	spring loaded pin
Contact Type Connection Type	screw terminal max. 1.5mm <sup>2</sup>	solder terminal max. 2.5mm <sup>2</sup>
Contact Type Connection Type Voltage Rating		
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010)	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC
Contact Type Connection Type Voltage Rating	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Plug	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Plug Contact Spring	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm nickel plated brass	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm nickel plated brass
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance <b>Material Specifications</b> Plug Contact Spring Housing	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm nickel plated brass	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm nickel plated brass
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing Environmental Conditions	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm nickel plated brass – PVC-P	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm nickel plated brass – PP
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing Environmental Conditions Temperature range	screw terminal max. 1.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 16A 3 mOhm nickel plated brass – PVC-P	solder terminal max. 2.5mm <sup>2</sup> 30 VAC / 60 VDC CAT I 30A 3 mOhm nickel plated brass – PP

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





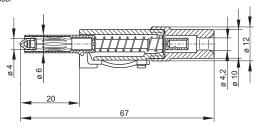
## Test Plugs 4 mm Retractable Plug System

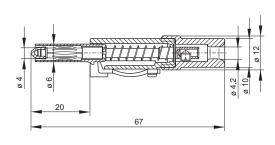


Туре	SLS 10 B	SLS 20 B
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	4mm touch proof banana plug, sliding sleeve system, solder terminal max. 2.5mm <sup>2</sup> leads.	4mm touch proof banana plug, sliding sleeve system, screw terminal max. 1.5mm <sup>2</sup> leads.
Pin diameter <b>PART NO. /</b> Housing color	4 mm (0.157") 931824100 931824101 931824102 931824103 931824103	4 mm (0.157") 931825100 931825101 931825102 931825103
	<ul> <li>931824104</li> <li>931824107</li> </ul>	<ul> <li>931825104</li> <li>931825107</li> </ul>
Technical Data		-
<b>Technical Data</b> Contact Type		-
Contact Type	O 931824107	<ul><li>931825107</li></ul>
Contact Type Connection Type	931824107	931825107      spring loaded plug
Contact Type Connection Type Voltage Rating	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup></li> </ul>	931825107      spring loaded plug     screw terminal max. 1.5mm <sup>2</sup>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010)	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC</li> </ul>	<ul> <li>931825107</li> <li>spring loaded plug screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC<sup>1</sup></li> </ul>
	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I</li> </ul>	<ul> <li>931825107</li> <li>spring loaded plug screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC<sup>1</sup> CAT I</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A</li> </ul>	<ul> <li>931825107</li> <li>spring loaded plug screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC<sup>1</sup> CAT I 16A</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A</li> </ul>	<ul> <li>931825107</li> <li>spring loaded plug screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC<sup>1</sup> CAT I 16A</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC CAT I</li> <li>30A</li> <li>5 mOhm</li> </ul>	<ul> <li>931825107</li> <li>spring loaded plug screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC<sup>1</sup> CAT I</li> <li>16A</li> <li>5 mOhm</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC CAT I</li> <li>30A</li> <li>5 mOhm</li> <li>nickel plated brass</li> </ul>	<ul> <li>931825107</li> <li>spring loaded plug screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC<sup>1</sup> CAT I</li> <li>16A</li> <li>5 mOhm</li> <li>nickel plated brass</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A 5 mOhm</li> <li>nickel plated brass nickel plated copper-beryllium</li> </ul>	<ul> <li>931825107</li> <li>spring loaded plug screw terminal max. 1.5mm<sup>2</sup></li> <li>30 VAC / 60 VDC<sup>1</sup> CAT I</li> <li>16A</li> <li>5 mOhm</li> <li>nickel plated brass</li> <li>nickel plated copper-beryllium</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A 5 mOhm</li> <li>nickel plated brass nickel plated copper-beryllium</li> </ul>	<ul> <li>931825107</li> <li>spring loaded plug screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC<sup>1</sup> CAT I 16A 5 mOhm</li> <li>nickel plated brass nickel plated copper-beryllium</li> </ul>
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Material Specifications Plug Contact Spring Housing Environmental Conditions	<ul> <li>931824107</li> <li>spring loaded plug solder terminal max. 2.5mm<sup>2</sup> 30 VAC / 60 VDC CAT I 30A 5 mOhm</li> <li>nickel plated brass nickel plated copper-beryllium POM</li> </ul>	<ul> <li>931825107</li> <li>spring loaded plug screw terminal max. 1.5mm<sup>2</sup> 30 VAC / 60 VDC<sup>1</sup> CAT I 16A 5 mOhm</li> <li>nickel plated brass nickel plated copper-beryllium POM</li> </ul>

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





\* Please consider derating graph on page 80.

<sup>1</sup>For this two types up to DC 150 V, CAT II according IEC/EN 61010-31 item 6.4., comment 4 allowed for devices with not yet protected sockets.

Altech Corp.® • 35 Royal Road • Flemington, NJ 08822-6000 • Phone (908)806-9400 • FAX (908)806-9490

### **Test Plugs** 4 mm System Retractable Plug





SLS 200

4mm touch proof banana plug, stackable, sliding sleeve system, screw terminal max. 2.5mm<sup>2</sup> leads.



4mm safety banana plug, angled, 1000V system, screw

Pin diameter PART NO. / Housing color





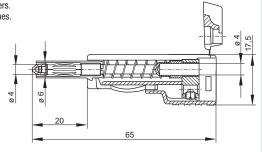
terminal 0.5-1.5mm<sup>2</sup> leads.

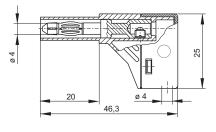
LAS S W

Technical Data	I	
Contact Type	spring loaded plug	spring loaded plug
Connection Type	screw terminal max. 2.5mm <sup>2</sup>	screw terminal 0.5-1.5mm <sup>2</sup>
Voltage Rating	30 VAC / 60 VDC <sup>1</sup>	AC/DC 1000V
Measurement Category (IEC61010)	CAT I	CAT III
Current Rating*	30A	24A
Contact Resistance	5 mOhm	-
Material Specifications		
Plug	nickel plated brass	nickel plated brass
Contact Spring	nickel plated copper-beryllium	nickel plated copper-beryllium
Housing	PP	Polyamide
Environmental Conditions		
Temperature range	-25°C to +70°C (-13 to 158°F)	-25°C to +70°C (-13 to 158°F)
Flamability Rating		
Housing	UL 94 HB	UL 94 V-2

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





\* Please consider derating graph on page 80.

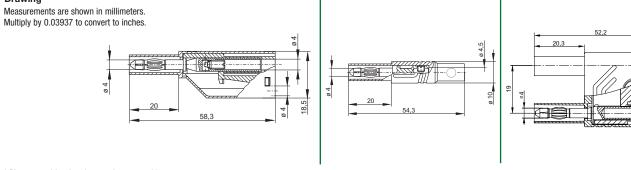
<sup>1</sup>For this two types up to DC 150 V, CAT II according IEC/EN 61010-31 item 6.4., comment 4 allowed for devices with not yet protected sockets.

For the latest on Altech Test & Measurement specifications please visit www.altechcorp.com/test-equipment



	CE E	CC E	CE CE
Туре	LAS S WS 4mm safety banana plug, stackable, 1000V system, screw terminal 0.5-1.5mm <sup>2</sup> leads.	LAS S G 4mm safety banana plug, stackable, 1000V system, screw terminal 0.5-1.5mm <sup>2</sup> leads.	KST S WS 4mm dual safety plug, stackable, 1000V system, nickel plated, 4mm jack.
Pin diameter PART NO. / Housing color	4 mm (0.157") 934099100 934099101 934099102 934099103 934099104 934099105 934099105 934099106 934099107 934099109	4 mm (0.157") 934097100 934097101 934097102 934097103 934097104 934097105 934097106 934097107 934097109	4 mm (0.157") • 932200100 • 932200101 • 932200102 • 932200103 • 932200104
Technical Data			
Contact Type	spring loaded plug	spring loaded plug	2x spring loaded plug
Connection Type	screw terminal 0.5-1.5mm <sup>2</sup>	screw terminal 0.5-1.5mm <sup>2</sup>	jack Ø 4 mm
Voltage Rating	AC/DC 1000 V	AC/DC 1000 V	AC/DC 1000 V
Measurement Category (IEC61010)	CAT II	CAT III	CAT II
Current Rating*	24A	24A	32A
Contact Resistance	-	-	8 mOhm
Material Specifications			
Plug	nickel plated brass	nickel plated brass	nickel plated copper-beryllium
Contact Spring	nickel plated copper-beryllium	nickel plated copper-beryllium	nickel plated brass
Housing	Polyamide	Polyamide	Polyamide
Environmental Conditions			
Temperature range	-15°C to +70°C (5 to 158°F)	-15°C to +70°C (5 to 158°F)	-15°C to +70°C (5 to 158°F)
Flamability Rating			
Housing	UL 94 V-2	UL 94 V-2	UL 94 V-2

#### Drawing



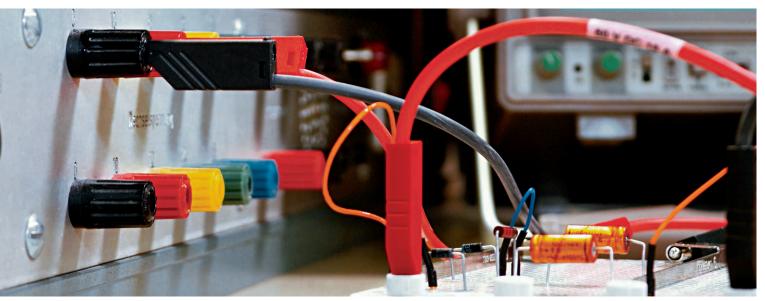


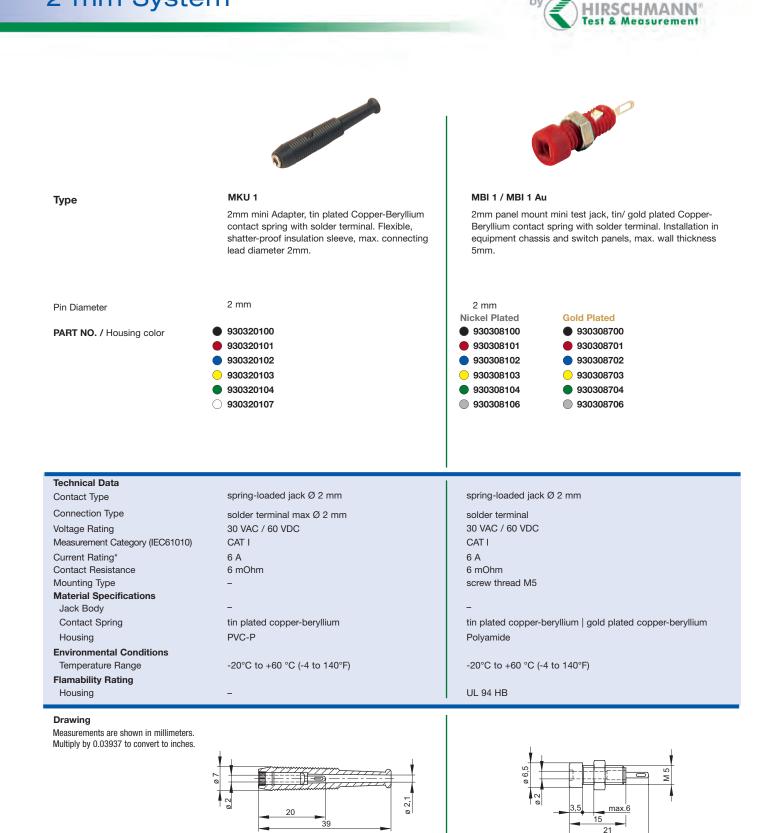
### **Test Jacks**

Quick mounting and durability are 2 attributes that characterize Altech test jacks and sockets. They can be used as connecting sockets in power supplies, connecting points in service devices or test jacks in test & measurement applications and devices.

- Large variety in colors
- Tin/ nickel/ gold plating
- Screw-in and press-in versions
- Regular and spring loaded jacks/ sockets
- Up to 1000V CAT III voltage rating

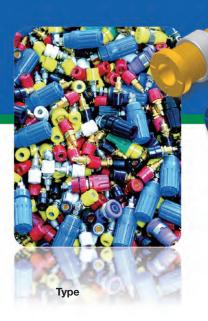






\* Please consider derating graph on page 80.

Altech Cor





MBU 1 2mm panel mount mini test jack, nickel plated brass, spring loaded with solder terminal. max. installation wall thickness 8mm.



MBU 2 2mm mini metal test jack, tin pl

2mm mini metal test jack, tin plated brass, spring loaded with PCB soldering terminal. Fits MST3, MVL 2 and MST201.

2 mm

931337000

### Technical Data

Pin Diameter

PART NO. / Housing color

Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating\* Contact Resistance Mounting Type **Material Specifications** Jack Body Contact Spring Housing **Environmental Conditions** Temperature Range **Flamability Rating** Housing

Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches. spring-loaded jack Ø 2 mm solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm screw thread M5

2 mm

930312000

nickel plated brass tin plated copper-beryllium

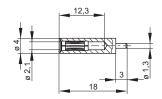
-20°C to +60 °C (-4 to 140°F)

spring-loaded jack Ø 2 mm

solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm screw

tin plated brass gold plated copper-beryllium

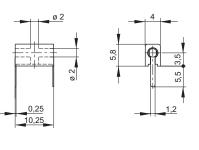
-20°C to +60 °C (-4 to 140°F)

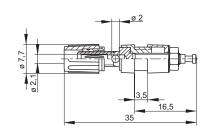




Туре	MPB 1 2mm mini test jack, dimensions according to DIN41649. Suitable for testing PCB boards during operation.	<b>MPK 1</b> 2mm insulated panel mount binding post with cross hole, gold plated Copper-Beryllium contact spring, tin plated brass thread bold with solder terminal. max. panel thickness 8mm
Pin Diameter <b>PART NO.</b> / Housing color	2 mm 930224100 930224101	2 mm 930268100 930268101
Technical Data	spring-loaded jack Ø 2 mm	spring-loaded jack Ø 2 mm, cross hole Ø 2 mm
Contact Type	spring-loaded jack Ø 2 mm	spring-loaded jack Ø 2 mm, cross hole Ø 2 mm
Contact Type Connection Type	spring-loaded jack Ø 2 mm solder terminal 30 VAC / 60 VDC	spring-loaded jack Ø 2 mm, cross hole Ø 2 mm solder terminal 30 VAC / 60 VDC
Contact Type	solder terminal	solder terminal
Contact Type Connection Type Voltage Rating	solder terminal 30 VAC / 60 VDC CAT I 6 A	solder terminal 30 VAC / 60 VDC CAT I 6 A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type	solder terminal 30 VAC / 60 VDC CAT I 6 A	solder terminal 30 VAC / 60 VDC CAT I 6 A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type Material Specifications	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm screw thread M3
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm PCB	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm screw thread M3
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body Contact Spring	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm PCB - tin plated bronze PC	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm screw thread M3 gold plated copper-beryllium - Polyamide
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body Contact Spring Housing	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm PCB – tin plated bronze	solder terminal 30 VAC / 60 VDC CAT I 6 A 6 mOhm screw thread M3 gold plated copper-beryllium -

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.







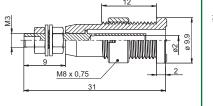


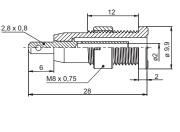
#### Drawing

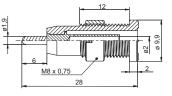
Housing

Housing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





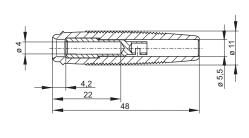


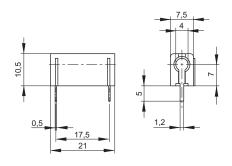


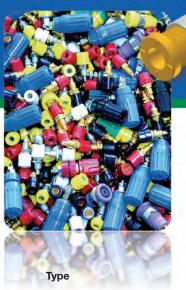
Туре	KUN 30 / KUN 30 Au 4mm Adapter, nickel/ gold plated brass with solder terminal max 2.5mm2. Flexible, shatter- proof insulation sleeve	<b>PB 4</b> 4mm test jack, dimensions according to DIN41649. Suitable for testing PCB boards during operation.
Pin Diameter <b>PART NO. /</b> Housing color	4 mm Nickel Plated Gold Plated 9 931804100 9 931804700 9 931804101 9 931804701 9 931804102 9 931804702 9 931804103 9 931804703 9 931804104 9 931804704 9 931804107 9 931804707 nickel gold	4 mm ● 973582100 ● 973582101
Technical Data Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type Material Specifications Jack Body Contact Spring Housing Environmental Conditions Temperature Range Flamability Rating Housing	jack Ø 4 mm solder terminal (max. 2.5mm²) 30 VAC / 60 VDC CAT I 16 A 3 mOhm - nickel plated brass   gold plated brass - PVC-P -25°C to +70 °C (-13 to 158°F)	jack Ø 4 mm solder 30 VAC / 60 VDC CAT I 16 A 5 mOhm PCB tin plated brass - PC -25°C to +70 °C (-13 to 158°F) UL 94 HB

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.







Pin Diameter

**Technical Data** 

Contact Type

Voltage Rating

Current Rating\*

Mounting Type

Jack Body Contact Spring

Housing

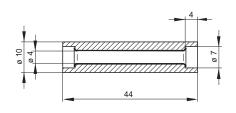
Housing

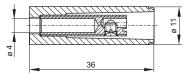
#### **Test Jacks** 4 mm System



#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



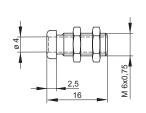


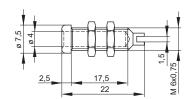


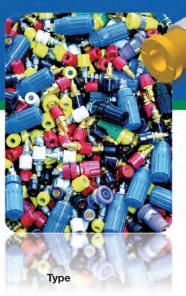
	State Time	CT THE DESIGNATION
Туре	<b>BO 10</b> 4mm panel mount test jack, nickel plated brass, M6 thread screw terminal. panel thickness 1.5- 8mm	<b>BU 10 / BU 10 Au</b> 4mm panel mount test jack, nickel/gold plated brass, M6 thread screw/ solder terminal. max. panel thickness 11mm
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	930160000	<b>930147000</b> (Nickel plated) <b>930147700</b> (Gold plated)
Technical Data Contact Type	jack Ø 4 mm	jack Ø 4 mm
Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body Contact Spring Housing <b>Environmental Conditions</b> Temperature Range <b>Flamability Rating</b> Housing	M6 thread 30 VAC / 60 VDC CAT I 16 A 5 mOhm screw thread M6 nickel plated brass - - -25°C to +70 °C (-13 to 158°F) -	M6 thread, solder terminal 30 VAC / 60 VDC CAT I 16 A 5 mOhm screw thread M6 nickel / gold plated brass - - - -25°C to +70 °C (-13 to 158°F) -

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



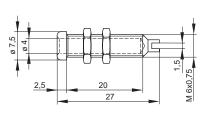




	Stimut Comments	
Туре	BU 20	BIL 20 / BIL 20 Au
	4mm panel mount test jack, nickel plated brass, M6 thread screw/ solder terminal. max. panel thickness 13.5mm	4mm panel mount test jack, tin/ gold plated brass, M6 thread screw/ solder terminal, max. panel thickness 2mm
Pin Diameter	4 mm	4 mm Nickel Plated Gold Plated
PART NO. / Housing color	930177000	<ul> <li>930176100</li> <li>930176700</li> <li>930176101</li> <li>930176701</li> <li>930176102</li> <li>930176702</li> <li>930176103</li> <li>930176703</li> </ul>
		<ul> <li>930176104</li> <li>930176704</li> </ul>
		930176105     930176705     930176705
		● 930176106         ● 930176706           ○ 930176107         ○ 930176707
		<ul> <li>930176109</li> <li>930176709</li> </ul>
Technical Data		
Contact Type	jack Ø 4 mm	jack Ø 4 mm
Connection Type	M6 thread, solder terminal	M6 thread, solder terminal
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	16 A	32 A
Contact Resistance	5 mOhm screw thread M6	5 mOhm screw thread M6
Mounting Type		Sciew unread IVIO
Material Specifications Jack Body	nickel plated brass	tin / gold plated brass
Contact Spring	nickel	-
Housing	_	Polyamide
Environmental Conditions		
Temperature Range	-25°C to +70 °C (-13 to 158°F)	-25°C to +70 °C (-13 to 158°F)
Flamability Rating		

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



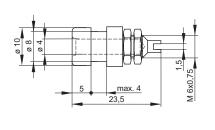
5 max. 2 23,5

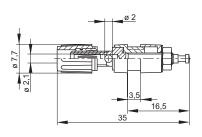


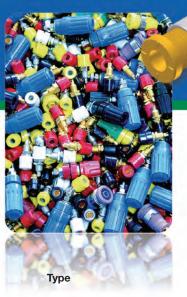
	O DE TIME	CTT Dimme
Туре	<b>BIL 30 / BIL 30 Au</b> 4mm panel mount test jack, tin/ gold plated brass, M6 thread screw/ solder terminal, max. panel thickness 4mm	<b>BUG 10 / BUG 10 Au</b> 4mm panel mount test jack, tin/ gold plated brass, M6 thread screw/ solder terminal, max. panel thickness 8mm
Pin Diameter <b>PART NO. /</b> Housing color	4 mm Nickel Plated Gold Plated 930166100 930166700 930166101 930166701 930166102 930166702 930166103 930166703 930166104 930166704 930166105 930166705 930166106 930166706 930166107 930166707 930166109 930166709	4 mm Nickel Plated Gold Plated 9 930175100 9 930175700 9 930175101 9 930175701 9 930175102 9 930175702 9 930175103 9 930175703 9 930175104 9 930175704 9 930175107 9 930175707
Technical Data Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type Material Specifications Jack Body Contact Spring Housing Environmental Conditions Temperature Range Flamability Rating	jack Ø 4 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 32 A 5 mOhm screw thread M6 tin / gold plated brass – Polyamide -25°C to +85 °C (-13 to 185°F)	jack Ø 4 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 16 A 5 mOhm screw thread M6 tin / gold plated brass – Polyamide -25°C to +85 °C (-13 to 185°F)

#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





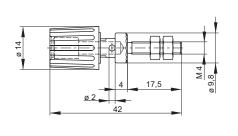




#### Drawing

Housing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



UL 94 V-2

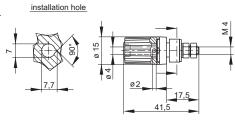
installation hole

UL 94 V-2

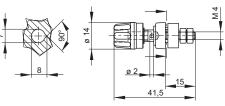


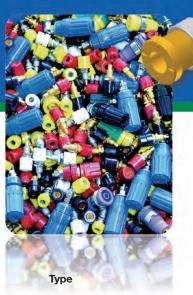
Туре	<b>PKI 100</b> 4mm insulated panel mount binding post with 2mm cross hole, nickel plated brass, M4 thread terminal, max. panel thickness 3.5mm.	<b>PKI 10 A / PKI 10 A Au</b> 4mm insulated panel mount binding post with 2mm cross hole, nickel/ gold plated brass, M4 thread terminal, max. panel thickness 2mm
<sup>p</sup> in Diameter <b>PART NO. /</b> Housing color	4 mm 930757100 930757101 930757102	4 mm Nickel Plated Gold Plated
	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul>
Technical Data	<ul><li>930757103</li><li>930757104</li></ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> </ul>
<b>Technical Data</b> Contact Type	<ul><li>930757103</li><li>930757104</li></ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> </ul>
	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul> jack Ø 4 mm, cross hole Ø 2 mm M 4 thread terminal
Contact Type	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> <li>jack Ø 4 mm, cross hole Ø 2 mm M4 thread terminal 30 VAC / 60 VDC</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul>
Contact Type Connection Type	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> <li>jack Ø 4 mm, cross hole Ø 2 mm M4 thread terminal 30 VAC / 60 VDC CAT I</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul> jack Ø 4 mm, cross hole Ø 2 mm M 4 thread terminal 30 VAC / 60 VDC CAT I
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> <li>jack Ø 4 mm, cross hole Ø 2 mm</li> <li>M4 thread terminal</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>32 A</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul> jack Ø 4 mm, cross hole Ø 2 mm M 4 thread terminal 30 VAC / 60 VDC CAT I 35 A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> <li>jack Ø 4 mm, cross hole Ø 2 mm</li> <li>M4 thread terminal</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>32 A</li> <li>2 mOhm</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul> jack Ø 4 mm, cross hole Ø 2 mm M 4 thread terminal 30 VAC / 60 VDC CAT I 35 A 2 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> <li>jack Ø 4 mm, cross hole Ø 2 mm</li> <li>M4 thread terminal</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>32 A</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul> jack Ø 4 mm, cross hole Ø 2 mm M 4 thread terminal 30 VAC / 60 VDC CAT I 35 A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b>	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> <li>jack Ø 4 mm, cross hole Ø 2 mm</li> <li>M4 thread terminal</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>32 A</li> <li>2 mOhm</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul> jack Ø 4 mm, cross hole Ø 2 mm M 4 thread terminal 30 VAC / 60 VDC CAT I 35 A 2 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> <li>jack Ø 4 mm, cross hole Ø 2 mm</li> <li>M4 thread terminal</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>32 A</li> <li>2 mOhm</li> <li>screw thread M4</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul> jack Ø 4 mm, cross hole Ø 2 mm M 4 thread terminal 30 VAC / 60 VDC CAT I 35 A 2 mOhm screw thread M4
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body Contact Spring	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> <li>jack Ø 4 mm, cross hole Ø 2 mm</li> <li>M4 thread terminal</li> <li>30 VAC / 60 VDC</li> <li>CAT I</li> <li>32 A</li> <li>2 mOhm</li> <li>screw thread M4</li> </ul>	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul> jack Ø 4 mm, cross hole Ø 2 mm M 4 thread terminal 30 VAC / 60 VDC CAT I 35 A 2 mOhm screw thread M4
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body	<ul> <li>930757103</li> <li>930757104</li> <li>930757188</li> </ul> jack Ø 4 mm, cross hole Ø 2 mm M4 thread terminal 30 VAC / 60 VDC CAT I 32 A 2 mOhm screw thread M4 nickel plated brass -	<ul> <li>930103103</li> <li>930103703</li> <li>930103104</li> <li>930103704</li> <li>930103188</li> <li>930103788</li> </ul>

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



installation hole

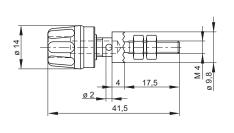


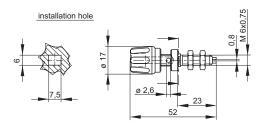




#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



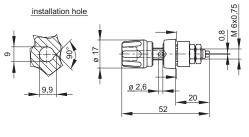


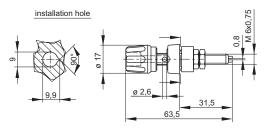


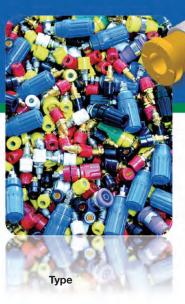
		Constant Constant
Туре	PKNI 10 B	PKNI 20 B
	4mm insulated panel mount binding post with 2.6mm cross hole, nickel plated brass, M6 thread/ solder terminal, max. panel thickness 3.5mm	4mm insulated panel mount binding post with 2.6mm cross hole, nickel plated brass, M6 thread/ solder terminal, max. panel thickness 3.5mm
Dia Diamatan	4 mm	4 mm
Pin Diameter	<ul> <li>930136100</li> </ul>	930144100
PART NO. / Housing color	- 300100100	930144101
	930136101	930144101
Technical Data	• 930136101	930144101
<b>Technical Data</b> Contact Type	930136101 jack Ø 4 mm, cross hole Ø 2.6 mm	jack Ø 4 mm, cross hole Ø 2.6 mm
Contact Type	jack Ø 4 mm, cross hole Ø 2.6 mm	jack Ø 4 mm, cross hole Ø 2.6 mm
Contact Type Connection Type		
Contact Type Connection Type Voltage Rating	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010)	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating*	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type Material Specifications	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body Contact Spring	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass -	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass -
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body Contact Spring Housing	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body Contact Spring Housing <b>Environmental Conditions</b>	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass – PF	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass - PF
Contact Type Connection Type Voltage Rating Measurement Category (IEC61010) Current Rating* Contact Resistance Mounting Type <b>Material Specifications</b> Jack Body Contact Spring Housing	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass -	jack Ø 4 mm, cross hole Ø 2.6 mm M6 thread, solder terminal 30 VAC / 60 VDC CAT I 63 A 2 mOhm screw thread M6 nickel plated brass -

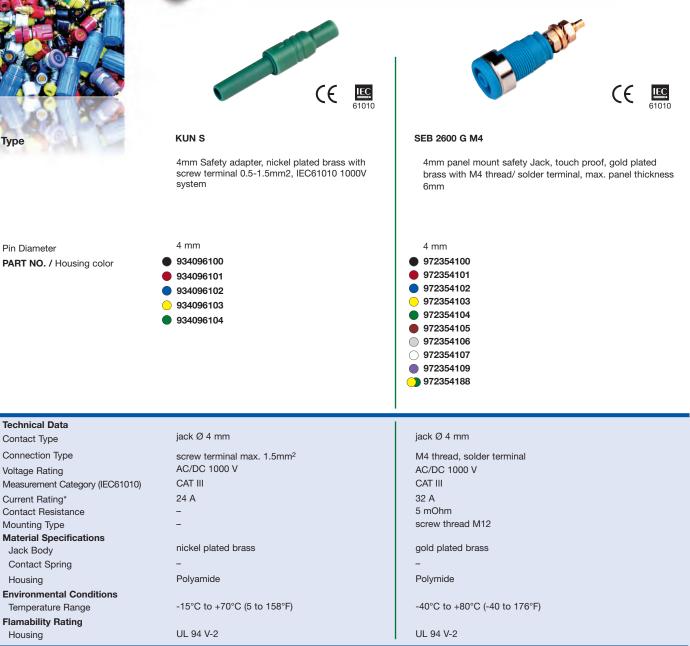
#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



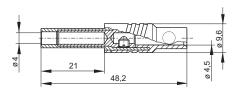


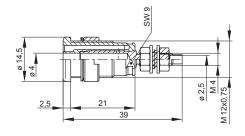


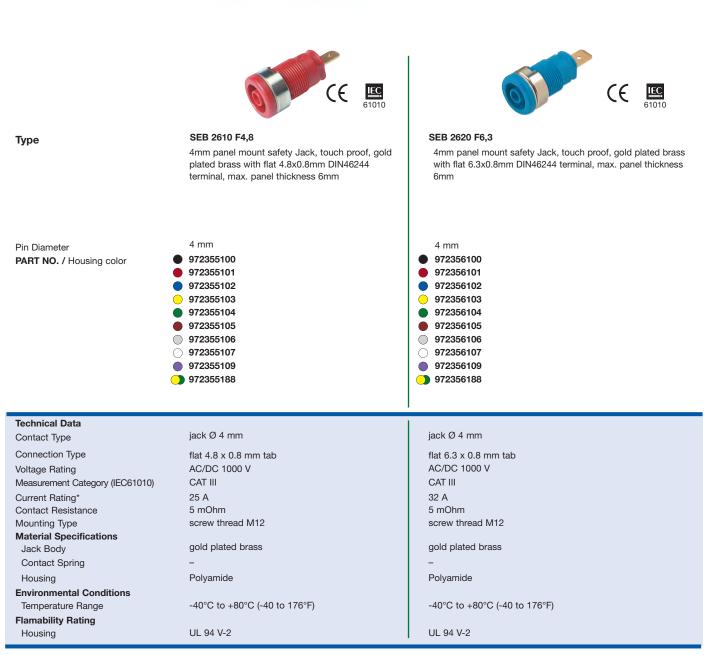


#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.

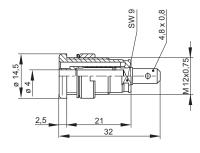






#### Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.



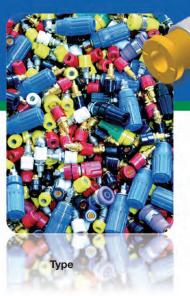
2.5 21 33

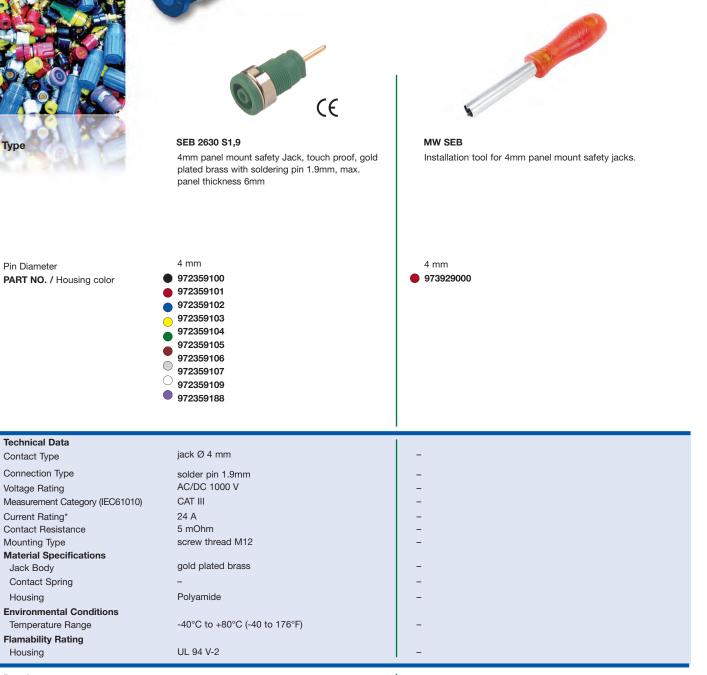
\* Please consider derating graph on page 80.

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Altech Cor

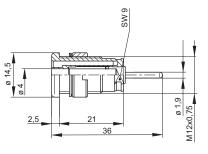
HIRSCHMANN Test & Measurement

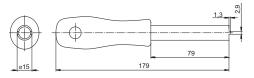




Drawing

Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.





	CE	CE	CE
Туре	SEP 2610 F4,8	SEP 2620 F6,3	SEP 2630 S1,9
	Safety press-in socket, 4 mm dia- meter, contact-protected, with 4.8 x 0.8 tab connector complying with DIN 46 244, gold-plated brass. For rapid installation into switch panels with wall thicknesses between 1-10 mm. Installation hole: $12.2 + - 0.1$ mm diameter. Entry chamfer: $0.5 \times 45$ degree.	Safety press-in socket, 4 mm diameter, contact-protected, with 6.3 x 0.8 tab connector complying with DIN 46244, gold-plated brass. For rapid installation into switch panels with wall thicknesses between 1-10 mm. Installation hole: 12.2 <sup>+</sup> /- 0.1 mm diameter. Entry chamfer: 0.5 x 45 degree.	Gold-plated brass safety press in socket, 4 mm diameter, contact-protected, with 1.9 mm soldering spike. For installation into switch panels with wall thicknesses between 1 mm and 10 mm. Installation hole: 12.2 +/- 0.1 mm diameter. Entry chamfer: 0.5 x 45 degree.
Pin Diameter	2 mm	2 mm	2 mm
PART NO. / Housing color	972361100	972362100	972363100
	972361101	972362101	972363101
	972361102	972362102	972363102
	972361103	972362103	972363103
	972361104	972362104	972363104
	<b>972361188</b>	972362188	972363188
Technical Data Contact Type	jack Ø 4 mm	jack Ø 4 mm	jack Ø 4 mm
Connection Type	flat 4.8 x 0.8 mm tab	flat 6.3 x 0.8 mm tab	solder pin 1.9mm AC/DC 1000V
Voltage Rating	AC/DC 1000 V CAT III	AC/DC 1000 V CAT III	CAT III
Measurement Category (IEC61010) Current Rating*	24 A	32 A	24 A
Contact Resistance	5 mOhm	5 mOhm	5 mOhm
Mounting Type	press in	press in	press in
Material Specifications			
Jack Body	gold plated brass	gold plated brass	gold plated brass
Contact Spring	– PA	- PA	– PA
Housing Environmental Conditions			
			-40°C to +80°C (-40 to 176°F)
Temperature Range	-40°C to +80°C (-40 to 176°F)	-40°C to +80°C (-40 to 176°F)	-40 0 10 +00 0 (-40 10 170 1)
Temperature Range Flamability Rating	-40°C to +80°C (-40 to 176°F)	-40°C to +80°C (-40 to 176°F)	-40 C 10 +80 C (-40 10 170 1)
· •	-40°C to +80°C (-40 to 176°F) UL 94 V-2	-40°C to +80°C (-40 to 176°F) UL 94 V-2	UL 94 V-2
Flamability Rating Housing		· · · ·	
Flamability Rating		· · · ·	UL 94 V-2
Flamability Rating Housing Drawing Measurements are shown in millimeters. Multiply by 0.03937 to convert to inches.	UL 94 V-2	UL 94 V-2	UL 94 V-2
Flamability Rating Housing Drawing Measurements are shown in millimeters.	UL 94 V-2	UL 94 V-2	

\* Please consider derating graph on page 80.

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### **Test & Measurement Sets**

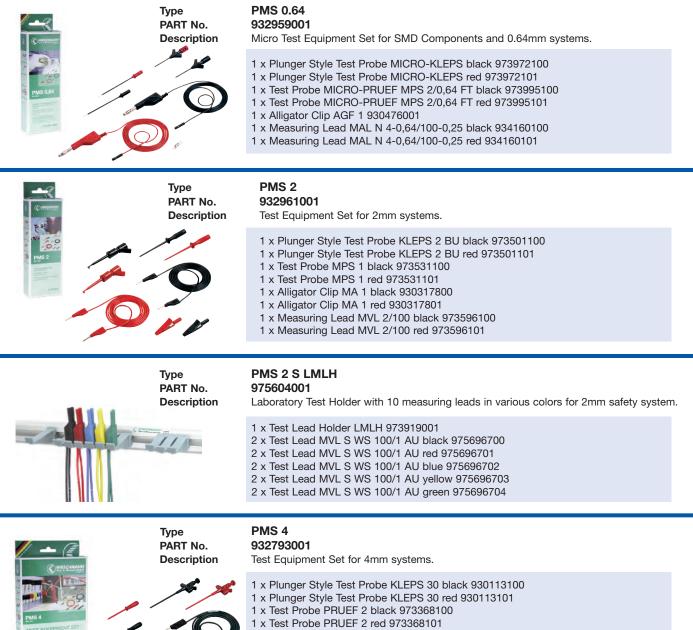
Altech offers a variety of Test & Measurement Sets consisting of suitable components for certain System Types and specific applications. Comprehensive Service cases include extensive line of products for in-field installation, testing and service.

- 0.64 System
- 2mm System
- 4mm System
- 4mm Retracable Sleeve System
- 4mm Safety System
- Automobile Test Kit
- Service cases for Electronic or Electrical applications









- 1 x Alligator Clip AK 2 S black 932146100
- 1 x Alligator Clip AK 2 S red 932146101
- 1 x Measuring Lead MLN 100/1 black 934062100
- 1 x Measuring Lead MLN 100/1 red 934062101





PMS 4 KFZ 933003001 Test Equipment Set for Automobiles, Service and repair shops.

- 1 x Safety Plunger Style Test Probe KLEPS 2700 black 972307100
- 1 x Safety Plunger Style Test Probe KLEPS 2700 red 972307101
- 1 x Test Probe PRUEF 2610 FT black 972318100
- 1 x Test Probe PRUEF 2610 FT red 972318101
- 1 x Safety Alligator Clip AK 2 B 2540 I black 972405100
- 1 x Safety Alligator Clip AK 2 B 2540 I red 972405101
- 1 x Silicone Test Lead MLN SIL 150/1 black 934093100
- 1 x Silicone Test Lead MLN SIL 150/1 red 934093101

Туре PART No. Description



PMS 4 SKS 932794001

Test Equipment Set for 4mm systems.

- 1 x Measuring Lead MLN 50/1 black 934060100
- 1 x Measuring Lead MLN 50/1 red 934060101
- 2 x Measuring Lead MLN 100/1 black 934062100
- 2 x Measuring Lead MLN 100/1 red 934062101
- 1 x Measuring Lead MLN 200/1 black 934065100
- 1 x Measuring Lead MLN 200/1 red 934065101
- 1 x Plunger Style Test Probe KLEPS 30 black 930113100
- 1 x Plunger Style Test Probe KLEPS 30 red 930113101
- 1 x Alligator Clip AK 2 S black 932146100
- 1 x Alligator Clip AK 2 S red 932146101
- 1 x Test Probe PRUEF 2 black 973368100
- 1 x Test Probe PRUEF 2 red 973368101



Туре

PART No.

Description

#### PMS 4 LMLH 972604001

Laboratory Test Holder with 10 measuring leads in various colors for 4mm safety system.

- 1 x Test Lead Holder LMLH 973919001
- 2 x Test Lead MLN 100/1 red 934062101
- 2 x Test Lead MLN 100/1 blue 934062102
- 2 x Test Lead MLN 100/1 yellow 934062103
- 2 x Test Lead MLN 100/1 green 934062104



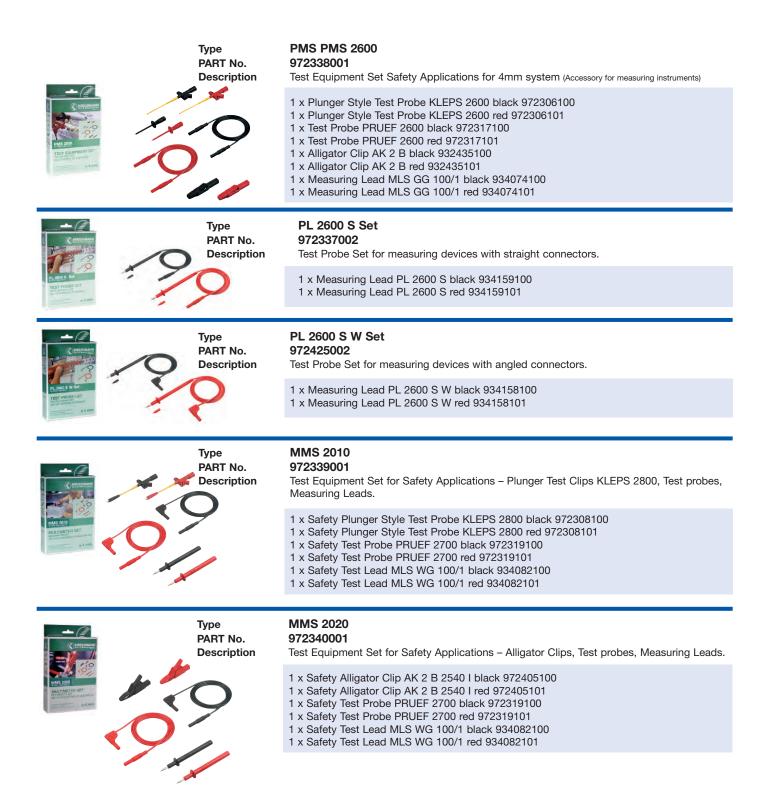
#### **PMS 250** 932827001

Sliding Sleeve Test Equipment Set for 4mm systems.

- 1 x Plunger Style Test Probe KLEPS 250 black 973528100
- 1 x Plunger Style Test Probe KLEPS 250 red 973528101
- 1 x Test Probe PRUEF 2 S black 973659100
- 1 x Test Probe PRUEF 2 S red 973659101
- 1 x Alligator Clip AK 2 B black 932435100
- 1 x Alligator Clip AK 2 B red 932435101
- 1 x Measuring Lead MLB 100/1 V black 973646100
- 1 x Measuring Lead MLB 100/1 V red 973646101

2 x Test Lead MLN 100/1 black 934062100







MMS 2030 972341001

Test Equipment Set for Safety Applications – Plunger Test Clips KLEPS 2600, Test probes, Measuring Leads.

- 1 x Safety Test Probe PRUEF 2700 black 972319100
- 1 x Safety Test Probe PRUEF 2700 red 972319101
- 1 x Plunger Style Test Probe KLEPS 2600 black 972306100
- 1 x Plunger Style Test Probe KLEPS 2600 red 972306101
- 1 x Safety Test Lead MLS WG 100/1 black 934082100
- 1 x Safety Test Lead MLS WG 100/1 red 934082101



#### MMS 2040 972342100

972342100

Test Equipment Set for Safety Applications – Plunger Test Clips KLEPS 2600, Alligator Clips, Measuring Leads.

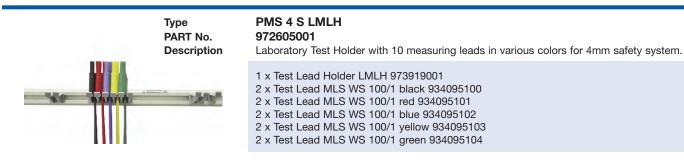
- 1 x Plunger Style Test Probe KLEPS 2600 black 972306100
- 1 x Plunger Style Test Probe KLEPS 2600 red 972306101
- 1 x Alligator Clip AK 2 B black 932435100
- 1 x Alligator Clip AK 2 B red 932435101
- 1 x Measuring Lead PL 2600 S black 934159100
- 1 x Measuring Lead PL 2600 S red 934159101
- 1 x Safety Test Lead MLS WG 100/1 black 934082100
- 1 x Safety Test Lead MLS WG 100/1 red 934082101



#### PMS SKS Safety 932795001

Safety Test Equipment Set - Plunger Test Clips KLEPS 2600, Alligator Clips, Test Leads.

- 1 x Plunger Style Test Probe KLEPS 2600 black 972306100
- 1 x Plunger Style Test Probe KLEPS 2600 red 972306101
- 1 x Test Probe PRUEF 2600 black 972317100
- 1 x Test Probe PRUEF 2600 red 972317101
- 1 x Alligator Clip AK 2 B black 932435100
- 1 x Alligator Clip AK 2 B red 932435101
- 1 x Test Lead MLS WS 50/1 black 934068100
- 1 x Test Lead MLS WS 50/1 red 934068101
- 2 x Test Lead MLS WS 100/1 black 934095100
- 2 x Test Lead MLS WS 100/1 red 934095101
- 1 x Test Lead MLS WS 200/1 black 934069100
- 1 x Test Lead MLS WS 200/1 red 934069101







Type PART No. Description

#### PMS SKS Elektronik 932791001

Service Case Electronic



Type PART No. Description

#### **PMS SKS Electrical** 932791001

Service Case Electric (Industrial, Utility Management, Training, etc...)

- 1 x Plunger Style Test Probe KLEPS 2 BU black 973501100
- 1 x Plunger Style Test Probe KLEPS 2 BU red 973501101
- 1 x Test Probe PRUEF 2600 black 972317100
- 1 x Test Probe PRUEF 2600 red 972317101
- 1 x Safety Test Probe PRUEF 2700 black 972319100 1 x Safety Test Probe PRUEF 2700 red 972319101
- 1 x Safety Plunger Style Test Probe KLEPS 2800 black 972308100
- 1 x Safety Plunger Style Test Probe KLEPS 2800 red 972308101
- 1 x Adapter MZS 4 black 973599100
- 1 x Adapter MZS 4 red 973599101
- 1 x Test Lead MLS WS 25/2,5 black 934086100
- 1 x Test Lead MLS WS 25/2,5 red 934086101
- 1 x Test Lead MLS WS 200/2,5 black 934089100
- 1 x Test Lead MLS WS 200/2,5 red 934089101
- 1 x Test Lead MLS WS 520/2,5 black 934089188
- 1 x Alligator Clip AK 2 B 2540 I yellow-green 972405188
- 1 x Test Lead MVL 2/50 black 973595100
- 1 x Test Lead MVL 2/50 red 973595101
- 1 x Adapter MZS 2 black 973600100
- 1 x Adapter MZS 2 red 973600101



### **Test & Measurement Glossary**

#### **Clearance Distance**

Clearance Distance is the directly measured distance between two conducting parts, acts as an insulator and should be dimensioned according to IEC 61010.

#### **Contact Material**

Contact Material is the base Material of the part.

#### **Contact Resistance**

Contact Resistance is the resistance measured between the connections of connected contact parts. It consists of resistivity and contact-circuit resistance. Given values are according to DIN EN 60512.

#### **Contact Surface Material**

Contact Surface Material is the material on the surface of the electrical contact. For Test & Measurement purposes special nickel or gold plating is used for ideal electrical and mechanical conditions.

#### **Creepage Distance**

Creepage Distance is the shortest path between two conductive parts (or between a conductive part and the bounding surface of the equipment) measured along the surface of the insulation. It is defined in IEC 61010.

#### **Pollution Degree Rating**

The pollution degree is the numerical index of the degree of pollution that can exist in the environment. IEC/EN 61010-031 defines 3 Pollution Degrees:

Pollution Degree 1: No pollution or only dry, non-conductive pollution occurs. The pollution has no influence.

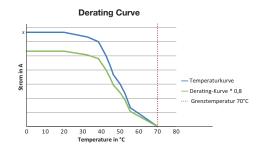
Example: Inside closed pieces of equipment.

Pollution Degree 2: Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation is to be expected. Examples: Laboratory, light industry.

Pollution Degree 3: Conductive pollution occurs, or dry non-conductive pollution, which becomes conductive due to condensation, is to be expected. Examples: Heavy industry, short service outdoors.

#### **Derating Curve**

According to the derating Curve (load reduction curve acc. to DIN EN 60512-5-2), the operating current at higher ambient temperatures is reduced. The current loading capacity of measurement accessories is limited by the thermal load-bearing capacity of the contact material or insulating parts and by the upper temperature limit of measurement accessories acc. to IEC 61010. Therefore, the derating graph applies as a function of environmental temperature to currents that may continuously pass through each contact element without exceed the upper temperature limit.



The derating graph describes the relation between currents, thereby caused increase of temperature (power loss on contact resistance) and environmental temperature of the measurement accessory. The Graph ends with the upper temperature limit of the measurement accessory. Upper temperature limits for measurement accessories are according to IEC 61010: Non-metallic Material 70C (158F), Metallic Material 55C (131F)

GRAPH from Hirschmann Catalog

#### Handle Area

The Handle Area is the area in which the user can touch a measuring device during operation without being exposed to electrical currents.

#### IEC 61010-31

#### Title of the IEC/EN 61010:

"Safety requirements for electrical equipment for measurement, control and laboratory use"

#### Part 031:

"Safety requirements for hand-held probe assemblies for electrical measurement and test" All products of the Hirschmann Test & Measurement Range are designed and approved according to this standard.

### **Test & Measurement Glossary**



#### Insulation

*Basic insulation* - is the insulation applied to live parts to provide basic protection against electric shock, eg. the failure of the basic insulation could cause the risk of electric shock.

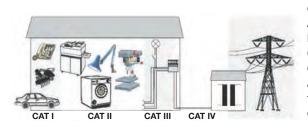
Double insulation - Insulation comprising both basic insulation and supplementary insulation.

Reinforced insulation - Insulation which provides protection against electric shock not less than that provided by double insulation.

#### Measurement Categories acc. to IEC 61010-031

To facilitate the assignment of test accessories to the appropriate applications, standard IEC 61010-031 has established a number of categories which define where they can be used in the power supply network and to lay down appropriate requirements for each category.

In standard EN 61010-031 there are four different test categories, abbreviated "CAT". The category CAT followed by a number from I to IV is stated in our catalog with the rated voltage. As a general rule, the higher the CAT rating, the higher the safety requirement that applies to the product.



#### CAT I

Applies to test objects that are not connected to the mains. E.g. electronic devices, batteries, etc. in which only minor over voltages occur.

CAT I will also include all test objects that cannot be assigned to CAT II toCAT IV. CAT II

Applies to measurements on equipment that is connected to the mains or supplied from the mains without constituting a part of the mains installation. Electrical equipment between appliance and power socket, or inside electrical equipment such as domestic appliances.

#### CAT III

Applies to measurements inside the house or building installation. Installations in buildings, contactors, protective devices, switches, power sockets (Electricians).

#### CAT IV

Applies to measurements at the supply source of the installation (input side). Secondary side of medium-voltage transformers, electricity meters, cable networks, connection to overhead lines (employees of power distribution companies).

#### **Current Rating**

The rated current is the current which the test & measurement devices can carry continuously without the temperature exceeding the upper limit.

#### **Voltage Rating**

Voltage Rating is the voltage at which the product can be used safely, if used properly. The specified rated voltage always relates to Pollution Degree 2. Each Voltage also refers to the appropriate Measuring Category.

#### Safety Color Indicator

All the measuring leads of the 2 mm & 4 mm safety system have a safety colour indicator. The cable insulation consists of two separated insulation layers. The first layer is directly installed on the conductor and it is white in all measuring leads (except of white ones >red colour indicator). In a subsequent manufacturing stage, a second insulation layer is applied in the respective cable colour. If the insulation is damaged while using the measuring lead, the first insulating layer becomes visible. For safety reasons, the lead should be immediately replaced with a new SKS measuring lead.

#### Sliding Sleeve System

The Sliding Sleeve System has a retraceable protective insulation to avoid short circuits and electric shocks while not connected. It is not allowed to use this system for dangerous voltages during use. Adapter test leads for the connection to equipment that (still) cannot take fully insulated plugs are an exception. For this reason the Sliding Sleeve System is classified according to IEC 61010, CAT I up to 60V.

#### Temperature range (environmental conditions)

The temperature range is the allowed range in which the products may be used without damaging the materials.

#### Voltage details

The voltage details for the products mentioned in the catalog indicate the voltage range for which they can be used. SKS has designed the entire 2 mm & 4 mm safety system, unless otherwise specified, for 1,000V, Measurement Category III (CAT III) with Pollution Degree 2. The largest range of measuring tasks in the higher voltage range is safely covered.

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00 = • black	05 = \bullet brown			
01 = 🔶 red	06 = 🔘 grey			
02 = 🔵 blue	07 = 🔿 white			
03 = 🔶 yellow	09 = 🔹 violet			
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### Instructions for Index and Part No.

	E>	ample	Part No. 9	340621 <u>xx</u>
00 =		black	05 = 🔴	brown
01 =	lacksquare	red	06 = 🔘	grey
02 =		blue	07 = 🔿	white
03 =	$\bigcirc$	yellow	09 = 🌑	violet
04 =	•	green	88 = –	yellow/green

### **Terms & Conditions**

**TITLE** - Title to the products of ALTECH shall remain with ALTECH until payment is made in full by Customer. Such reservation of title is for the purpose of securing the purchase price and shall not relieve Customer of the duty to inspect the products upon receipt, to notify ALTECH of any deficiencies or defects, and to exercise due care in the use, installation, operation, and maintenance of the products when on the premise of the Customer or under the control of the Customer. Notwithstanding any reservation of title by ALTECH, risk of loss shall pass to customer at any time of shipment.

SHIPMENT AND DELIVERY - All orders for destination in the mainland United States (less Hawaii, Alaska and non-continental United States possessions) will be shipped F.O.B. Flemington, N.J. All destination, shipping and other charges shall be paid by the Customer in accordance with ALTECH's then current shipping and billing practices.

Delivery dates given in the acceptance of any order are approximate. ALTECH shall not be liable for delays in delivery or in performance due to causes beyond its reasonable control including acts of God, acts of Customer, acts of civil or military authority, fires, strikes or other labor disturbances, war, riot or delays in transportation. In the event of such delay, the date of delivery or performance shall be extended for a period equal to the time lost by reason of the delay.

**PRICE** - PRICES in any ALTECH publication are subject to change without prior notification. Catalog prices are based on prices published in the current price list. All written quotations are valid for thirty (30) days from the date of quotation. Customer shall pay all sales, use, excise or similar taxes whenever ALTECH must itself pay and/or collect such tax from Customer arising out of the sale.

**PAYMENT** - Customer agrees to make payment within thirty (30) days of date of the invoice from ALTECH. Customer agrees to pay a late payment charge of one and one-half percent (1.5% per month, or the maximum late payment charge permitted by applicable law, whichever is less, on any unpaid amount for each calendar month (or fraction thereof) that such payment is in default. Orders amounting to less than \$100.00 will be billed at \$100.00 plus freight. Full carton purchases are required. In the event of referral to an attorney for collection, reasonable attorney's fees for collection of the overdue amount shall be paid by Customer. In the event payment is not received within 30 days from the date of invoice, any discount shall be cancelled and the full list price will be due.

**LIMITED WARRANTY** - ALTECH warrants to Customer that the equipment purchases shall be free from defects in material and workmanship under normal use and service for a period of one year from shipment.

Written notice as an explanation of the circumstances of any claim that the equipment has proved defective in material or workmanship shall be given promptly by the Customer to ALTECH.

ALTECH will not be liable for any misuse, improper operations, improper installation, improper maintenance, alteration, modification, accident or unusual degradation of the equipment or parts due to an unsuitable installation environment.

No representation of other affirmation of facts, including but not limited to statements regarding capacity, suitability for use or performance of the equipment, shall be or be deemed to be a warranty or representation by ALTECH for any purpose, nor give rise to any liability or obligation of ALTECH whatsoever.

Customer's sole and exclusive remedy in the event of breach of warranty, as set forth herein, is expressly limited to (1) the correction of the defect by adjustment, repair, modification, or replacement, or (2) issuance of a credit or refund of the purchase price for the defective equipment at ALTECH's election and sole expense.

EXCEPT AS SPECIFICALLY PROVIDED IN THIS AGREEMENT, THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

THIS WARRANTY EXTENDS ONLY TO THE CUSTOMER FROM ALTECH OR ITS AUTHORIZED DISTRIBUTOR.

LIMITATION OF LIABILITY - IN NO EVENT, SHALL ALTECH BE LIABLE FOR LOSS OF PROFITS, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER SIMILAR DAMAGES ARISING OUT OF ANY BREACH OF THIS AGREEMENT OR OBLIGATIONS UNDER THE AGREEMENT.

ALTECH SHALL NOT BE LIABLE FOR ANY DAMAGES CAUSED BY DELAY IN SHIPMENT, INSTALLATION OR FURNISHING OF EQUIPMENT OR SERVICES UNDER THIS AGREEMENT.

No action arising out of any claimed breach of this Agreement may be brought by either party more than two (2) years after the cause of action has accrued.

**PATENT INDEMNITY** - ALTECH shall defend or settle any suit or proceeding brought against Customer based on a claim that any equipment made to ALTECH design and furnished hereunder constitutes an infringement of any existing United States patent, provided (ALTECH) is notified promptly in writing and is given complete authorization and information required for the defense, and ALTECH shall pay all damages and costs awarded against Customer, but shall not be responsible for any costs, expense or compromise incurred or made by Customer without ALTECH's prior written consent. If any equipment is in ALTECH's opinion likely to or does become the subject of a claim for patent infrigment, ALTECH may at its option and expense procure for Customer the right to continue using the device, modify it to become non-infringing, but in the event ALTECH is not reasonably able to modify, substitute, or otherwise procure for Customer the right to customer the amount paid in excess of a reasonable rental for past use.

ALTECH shall not be liable for any infringement or claim based upon use of the equipment in combination with other equipment not supplied by ALTECH or with modifications made by Customer.

The foregoing states the entire liability of ALTECH to Customer arising from patent infringement.

**SELLER'S REMEDIES** - Should Customer fail to make any payment within ten (10) days of its due date, or fail to perform any other of the Customer's obligation hereunder upon thirty (30) days written notice, or should Customer be or become insolvent or be a party to any bankruptcy receivership proceeding prior to full payment of all amounts payable hereunder, ALTECH may: (a) with or without demand or notice to customer declare the entire amount unpaid immediately due and payable; (b) enter upon the premises where the equipment may be found and remove it (Customer shall assemble the equipment and make it available to ALTECH at a place reasonably convenient to both parties and shall permit and assist ALTECH in effecting the retaking and removal of the equipment); and (c) sell any or all the equipment as permitted under applicable law, applying the proceeds of the sale to payment of the expenses of retaking, repairing and selling the equipment, reasonable attorney fees and to the satisfaction of all indebtedness then due and unpaid under this Agreement. Any surplus shall be paid to Customer and any deficiency shall be paid to ALTECH by Customer.

The remedies provided herein shall be cumulative and in addition to all other remedies provided by law or equity or under the Uniform Commercial Code.

 $\ensuremath{\textbf{GOVERNING LAW}}$  - This agreement will be governed by the Laws of the State of New Jersey.

**GENERAL** - This Agreement shall only become effective and binding when either (a) it has been accepted and executed by an authorized representative of ALTECH, or (b) the equipment has been shipped to Customer, with or without acceptance in writing hereon. Notice of acceptance is hereby waived by Customer. Customer hereby acknowledges receipt of a true and complete copy hereof.

No addition to or modification of any of the Terms and Conditions of Sale as they appear herein shall be binding upon ALTECH unless signed in writing by duly authorized representative of ALTECH in Flemington, N.J.

Typographical and clerical errors in quotations, orders and acknowledgments are subject to correction.

This Agreement is not assignable without the prior written consent of ALTECH. Any attempt to assign any of the rights, duties or obligations of this Agreement without such consent is void.

If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability, of the remaining provisions shall not in any way be affected or impaired thereby.

ALTECH is not responsible for failure to fulfill its obligation under this Agreement due to causes beyond its control, or except as agreed herein.

THE CUSTOMER ACKNOWLEDGES THAT HE HAS READ THE AGREEMENT, UNDERSTANDS IT, AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS. FURTHERMORE, THE CUSTOMER AGREES THAT IT IS THE COMPLETE AND EXCLUSIVE STATEMENT OF THE AGREEMENT BETWEEN THE PARTIES, WHICH SUPERSEDES ALL PROPOSALS OR PRIOR AGREEMENTS, ORAL OR WRITTEN, EXPRESSED OR IMPLIED, AND ALL OTHER COMMUNICATIONS BETWEEN THE PARTIES RELATING TO THE SUBJECT MATTER OF THIS AGREEMENT.

### **Some Other Altech Prodcuts**



#### **Circuit Protection Devices**



Altech the market leader in UL508 Manual Motor Controllers/ Miniature Circuit Breakers now introduces UL489 Miniature Circuit Breakers and UL1077 Supplementary Protectors. The UL489 versions are DIN rail mounted, 17.5mm wide, thermal magnetic, 240V, 480Y/277V AC, 50/60Hz, 125 and 250 VDC models, with short circuit interrupt capacity of 10kA, a positive trip indicator, and are line/load reversible. The UL1077 versions are DIN rail mounted, 17.5mm wide, thermal magnetic, 480Y/277V AC, 50/60Hz, a short circuit withstand capacity 10kA, have a positive trip indicator.

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#### Interface Modules and Industrial Relays

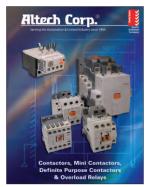


Altech offers a wide range of DIN Rail or panel mount cable interface modules, relay interface modules, power supplies, carrier modules, and custom designed modules. Cable to connector models include: D-Sub connectors, ribbon cable connectors, and Dip socket connectors to terminals. Standard relay modules from 1 to 16 channels, and safety relay modules from 1 to 16 channels and up to 10 poles are included. The catalog also contains a large selection of industrial relays, and custom designed interface modules.

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#### **Contactors and More!**



Altech's now carries contactors, mini contactors, definite purpose contactors & overload relays. The contactors come in 3 and 4 pole configurations at 9A to 800A. Available in Single Phase (115 -230V) and Three Phase (200 - 575V) AC and DC models. A large variety of coil voltages are supported and the accessories are auxiliary contacts and overload relays. The mini contactors come in screw clamp, fast-on, cage clamp and solder pin types.

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#### Terminal Blocks



Altech offers a NEW Terminal Block catalog with the most competitively priced blocks in the industry. We feature screw and spring clamp models for DIN rail and panel mount applications. This advanced line of wire termination products will increase your design options and help to get the job done more efficiently. Our line of blocks include feed-through (single, double or triple level), distribution, ground, fuse, disconnect, thermocouple, surge suppressor and indicator. A wide variety of accessories, tools and ferrules are available.

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#### Motor Disconnect Switches



Altech's line of Motor Disconnect Switches are UL 508 listed as Manual Motor Controllers for AC Motor Starting Across-the-line and AC General use. This new 16 page catalog includes the 3 different handle designs, which are all available in gray/black or yellow/red housings. Electrical ratings are 25-150A / 600V. The switches are non-fused DIN Rail mountable. Neat features include: snap-on auxiliary switches, door mounting kit and a retrofit 30A fuse holder. Also featured are Enclosed Motor Disconnect Switche (30A) in plastic or stainless housings.

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#### Liquid Tight Strain Reliefs



This 64-page catalog introduces Altech's full line Liquid Tight Strain Reliefs (Cord Grips) which are used to seal cable entries, keep contaminant's from entering enclosures, provide strain relief and thus reduce stress on components and termination points inside enclosures. Available in standard highperformance, and economy versions, functions include Straight-Through, Increased Strain Relief, Bend Protection, Pull/Bend Protection, Multi-conductor, Flat Cable and EMI/RFI. They can be used with almost any type of cable, cord or conductor solid, stranded, flat, shielded, high temperature, etc. Altech Corp.®

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