Altech Corp.®

Serving the Automation & Control Industry since 1984

Quality System™

Quality Endorsed Company



Alligator Clips



Plunger Style Test Clips







Oscilloscope Probes



Test Probes



Test Jacks



Test Plugs



Measuring Leads



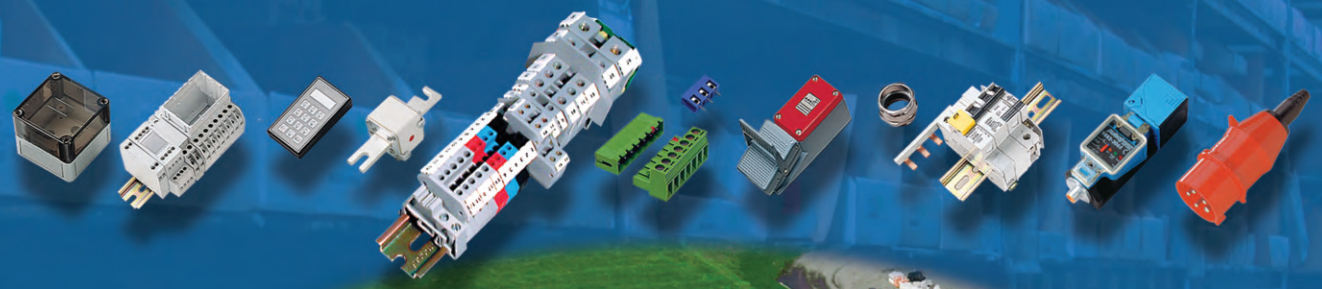
Sets

Test & Measurement

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

Table of Contents

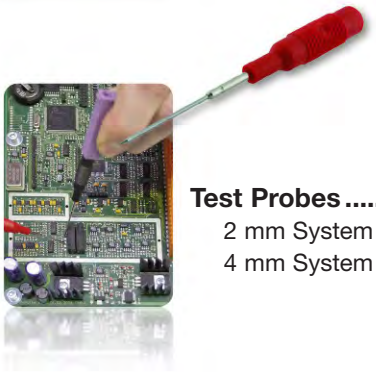
Altech Corp.® by HIRSCHMANN® Test & Measurement



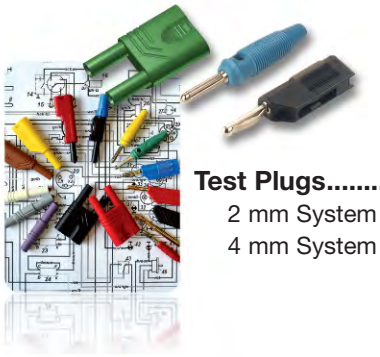
Plunger Style Test Clips.....4
0.64 mm System 5-7
2 mm System 7-8
4 mm System 8-10



Measuring Leads.....26
0.64 mm System 27
2 mm System 28
4 mm System 29-39



Test Probes.....12
2 mm System 13
4 mm System 14-17



Test Plugs.....40
2 mm System 41-42
4 mm System 43-53



Oscilloscope Test Probes..18
High Frequency
Measurement 18-19



Test Jacks.....54
2 mm System 55-58
4 mm System 59-71



Alligator Clips.....20
0.64 mm System 21
2 mm System 22
4 mm System 23-25



Sets
.....72-78

Glossary.....80-81
Index by Type No. 82-83
Index by Part No. 84-85
Terms & Conditions.....86

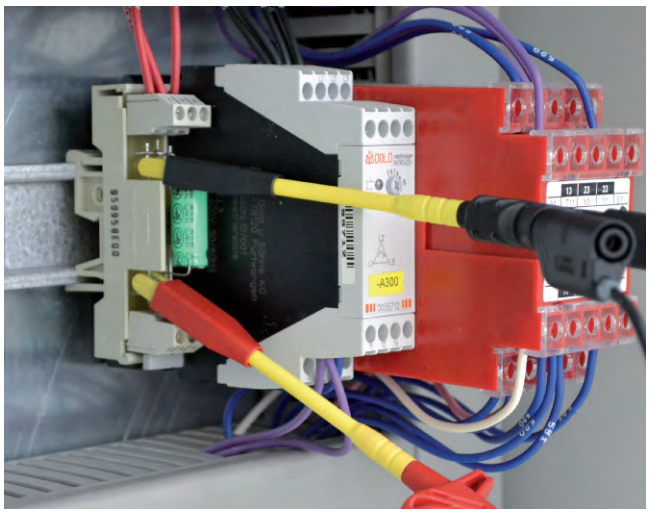




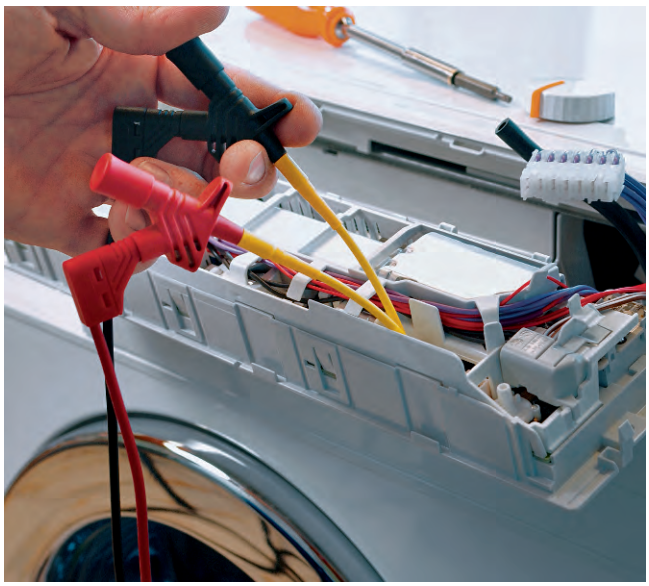
Plunger Style Test Clips

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

Altech Corp.® by HIRSCHMANN Test & Measurement





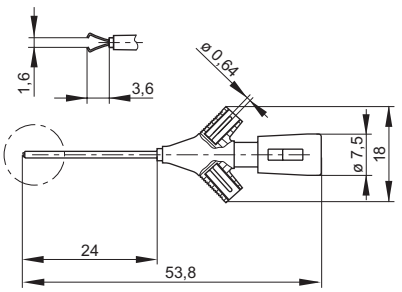


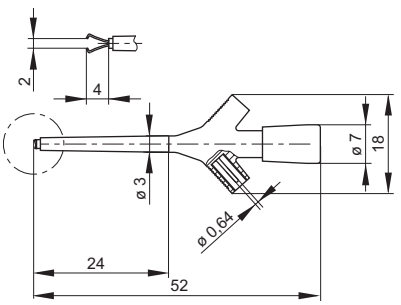
Type	**MICRO-KLEPS**	**KLEPS 3 ST**
	Mini plunger style test probe with rotating pincers, insulated shaft bendable up to 35°, suitable for very thin wires and densely packed contact points, fits MKL and MAL leads.	Mini plunger style test probe with rotating pincers, suitable for very thin wires and densely packed contact points, fits MKL and MAL leads.
Clamping range	2 mm (0.079")	3.5 mm (0.138")
Clamp type	Rotating Pincers	Rotating Pincers
PART NO. / Housing color	**973972100** ●	**973592100** ●
	973972101 ●	**973592101** ●

Technical Data		
Connection Type	2x pin Ø 0.64 mm	pin Ø 0.64 mm
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	2 A	2 A
Contact Resistance	10 mOhm	10 mOhm
Material Specifications		
Pincers/ hook	tin plated spring steel	tin plated spring steel
Connection pin/ socket	nickel plated brass	nickel plated brass
Contact Spring	–	–
Housing	PBT	PBT
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 HB	UL 94 HB

Drawing

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





* Please consider derating graph on page 80.

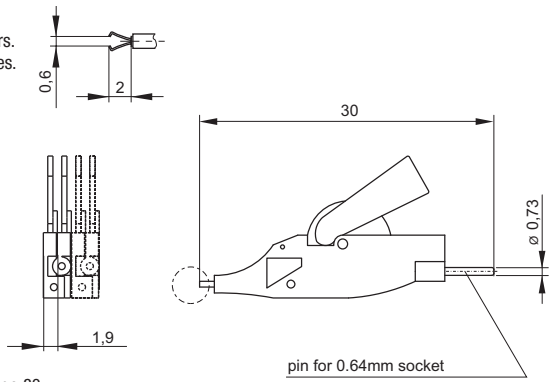


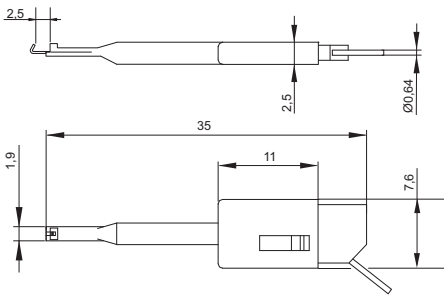
Plunger Style Test Clips
0.64 mm System

Type	KLEPS FP 2B	KLEPS 064 PCH
		
	For connecting to QFPIC's 0.5-0.8mm lead pitch. Slim design allows to test QFPIC's with several clips simultaneously, delivered in pairs of 2.	Compact design allows usage with very small components up to 1mm, fits MKL and MAL leads.
Clamping range	0.5 - 0.8 mm (0,020" - 0.031")	1 mm (0.039")
Clamp type	Micro grip jaws	contact hook
PART NO. / Housing color	**974101188** ●●	**974201100** ●
		974201101 ●
		974201102 ●
		974201103 ●
		974201104 ●
		974201106 ●
		974201107 ○
Technical Data		
Connection Type	pin Ø0.73mm	pin Ø0.64mm
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	–	–
Contact Resistance	–	–
Material Specifications		
Pincers/ hook	nickel plated spring steel	gold plated copper-beryllium
Connection pin/ socket	–	phosphor bronze
Contact Spring	–	–
Housing	ABS	–
Environmental Conditions		
Temperature Range	0°C to +60 °C (32°F to 140°F)	0°C to +70 °C (32°F to 158°F)
Flamability Rating		
Housing		

Drawing

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





* Please consider derating graph on page 80.

Plunger Style Test Clips
0.64 mm/4mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



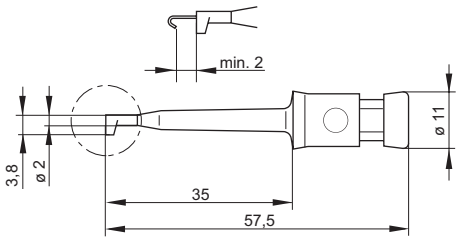


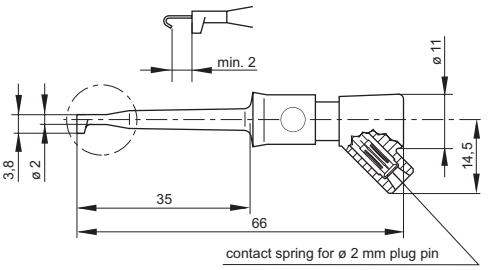
Type	KLEPS 2	KLEPS 2 BU
	Mini plunger style test probe with solder connection, gold plated phosphorus bronze contact hook for wires up to 2mm.	Mini plunger style test probe with 2mm socket terminals, gold plated phosphorus bronze contact hook for wires up to 2mm, gold plated contact spring.
Clamping range	2 mm (0.079")	2 mm (0.079")
Clamp type	contact hook	contact hook
PART NO. / Housing color	**931467100** ●	**973501100** ●
	931467101 ●	**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	15 mOhm	15 mOhm
Material Specifications		
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

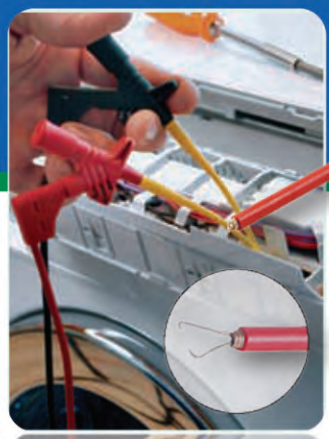
Drawing

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

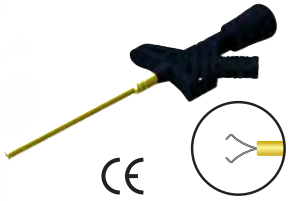




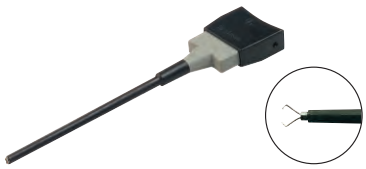
* Please consider derating graph on page 80.



Plunger Style Test Clips
2 mm/4mm System





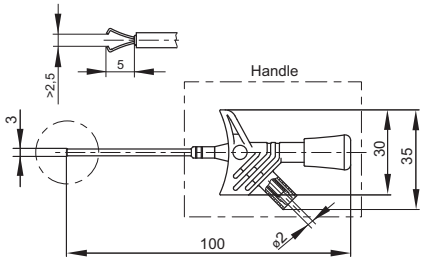


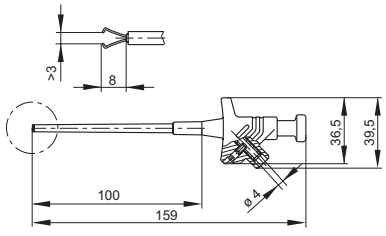
Type	KLEPS 1600	KLEPS 30	KLEPS 60
	Safety plunger style test probe with rotating pincers and flexible shaft. Special design of pincers allows clamping wires up to 4mm, 2mm gold plated brass socket terminal.	Plunger style test probe with rotating pincers and flexible shaft. Special design of pincers allows clamping wires up to 4mm, 4mm brass socket and screw terminals.	Plunger style test probe with rotating pincers and flexible shaft. Special design of pincers allows clamping wires up to 4mm, 4mm brass socket and screw terminals.
Clamping range	3 mm (0.118")	4 mm (0.157")	4 mm (0.157")
Clamp type	rotating pincers	rotating pincers	rotating pincers
PART NO. / Housing color	**975106100** ● **975106101** ●	**930113100** ● **930113101** ●	**973053100** ● **973053101** ●

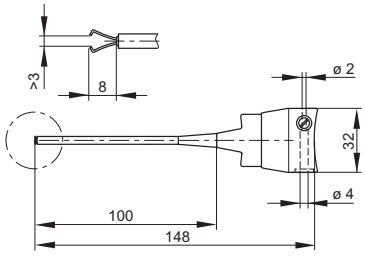
Technical Data			
Connection Type	Socket Ø2 mm	Socket Ø 4 mm, screw terminal	Socket Ø 4 mm, screw terminal
Voltage Rating	AC/DC 1000V	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT III	CAT I	CAT I
Current Rating*	3 A	4 A	4 A
Contact Resistance	50 mOhm	50 mOhm	50 mOhm
Material Specifications	CE		
Pincers/ hook	nickel plated spring steel	nickel plated spring steel	nickel plated spring steel
Connection pin/ socket	gold plated brass	brass	brass
Contact Spring	–	–	–
Housing	Polyamide	PF	PP, PS
Environmental Conditions			
Temperature Range	-25 °C to +70 °C (13°F to 158°F)	-25 °C to +80 °C (13°F to 176°F)	-25 °C to +60 °C (13°F to 140°F)
Flamability Rating			
Housing	UL 94 V-2	UL 94 V-0	UL 94 HB

Drawing

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







* Please consider derating graph on page 80.

Plunger Style Test Clips
4mm System

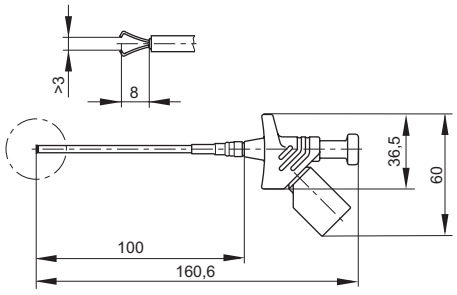
Altech Corp.® by HIRSCHMANN® Test & Measurement

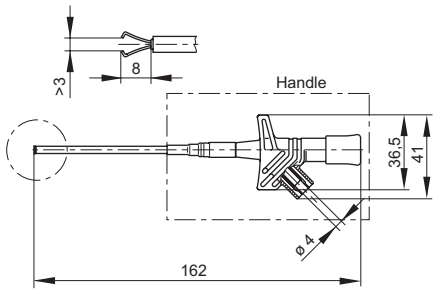
Type	KLEPS 250	KLEPS 2600
		
	Touch proof plunger style test probe with rotating pincers and flexible shaft, allows to clamp wires up to 4mm, 4mm brass socket, fits MLN and MLB leads.	Safety plunger style test probe with rotating pincers and flexible shaft, allows to clamp wires up to 4mm, 4mm brass socket.
Clamping range	4 mm (0.157")	4 mm (0.157")
Clamp type	rotating pincers	rotating pincers
PART NO. / Housing color	**973528100** ● **973528101** ●	**972306100** ● **972306101** ●

Technical Data		
Connection Type	socket Ø 4 mm	socket Ø 4 mm
Voltage Rating	30 VAC / 60 VDC	AC/DC 1000 V
Measurement Category (IEC61010)	CAT I	CAT III
Current Rating*	4 A	4 A
Contact Resistance	100 mOhm	50 mOhm
Material Specifications		
Pincers/ hook	nickel plated spring steel	nickel plated spring steel
Connection pin/ socket	nickel plated brass	nickel plated brass
Contact Spring	–	–
Housing	PF	PBT
Environmental Conditions		
Temperature Range	-25 °C to +80 °C (13°F to 176°F)	-25 °C to +80 °C (13°F to 176°F)
Flamability Rating		
Housing	UL 94 V-0	UL 94 HB

Drawing

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



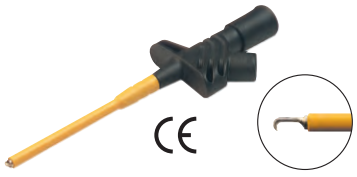


* Please consider derating graph on page 80.



Plunger Style Test Clips
4 mm Safety System



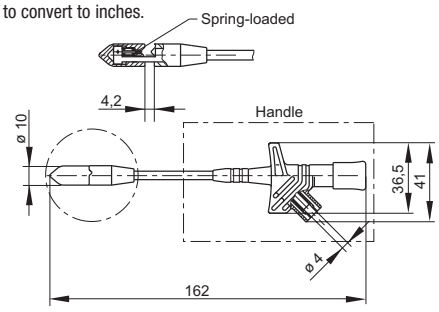


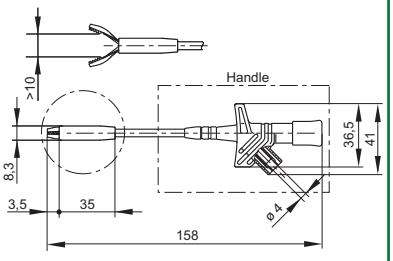
Type	KLEPS 2700	KLEPS 2800	KLEPS 2900
	Safety plunger style test probe with spring loaded stainless steel tip, for wires up to 3.5mm, no stripping necessary, 4mm brass socket.	Safety plunger style test probe with wide opening alligator clip, for wires and areas with large cross sections, fits safety measurement leads.	Safety plunger style test probe with stationary contact hook, fits safety measurement leads.
Clamping range	3.5 mm (0.138")	10 mm (0.394")	5.5 mm (0.217")
Clamp type	spring-loaded stainless steel tip	alligator clips	contact hook
PART NO. / Housing color	**972307100** ●	**972308100** ●	**972309100** ●
	972307101 ●	**972308101** ●	**972309101** ●

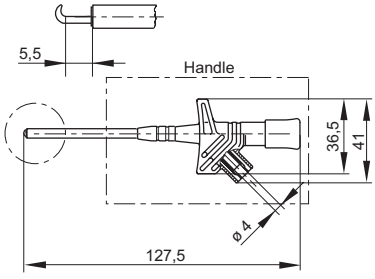
Technical Data			
Connection Type	socket Ø 4 mm	socket Ø 4 mm	socket Ø 4 mm
Voltage Rating	AC/DC 1000 V	AC/DC 1000 V	AC/DC 1000 V
Measurement Category (IEC61010)	CAT III	CAT III	CAT III
Current Rating*	10 A	20 A	20 A
Contact Resistance	100 mOhm	100 mOhm	50 mOhm
Material Specifications			
Pincers/ hook	stainless steel	nickel plated spring steel	nickel plated brass
Connection pin/ socket	nickel plated brass	nickel plated brass	nickel plated brass
Contact Spring	–	–	–
Housing	PBT	PBT	PBT
Environmental Conditions			
Temperature Range	-25 °C to +80 °C (13°F to 176°F)	-25 °C to +80 °C (13°F to 176°F)	-25 °C to +80 °C (13°F to 176°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.







* Please consider derating graph on page 80.

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

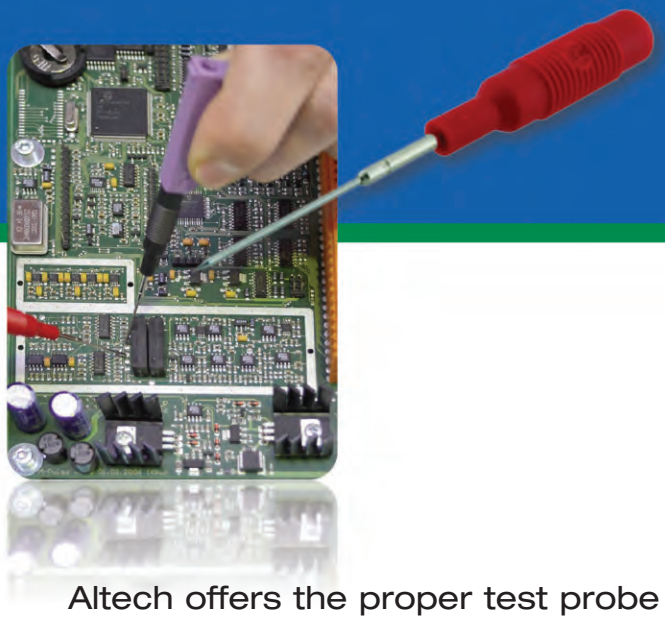
MF16 Series

Digital Power Factor Meter

MP14 Series

Disconnect and Test Terminal Block

For Meter Circuits

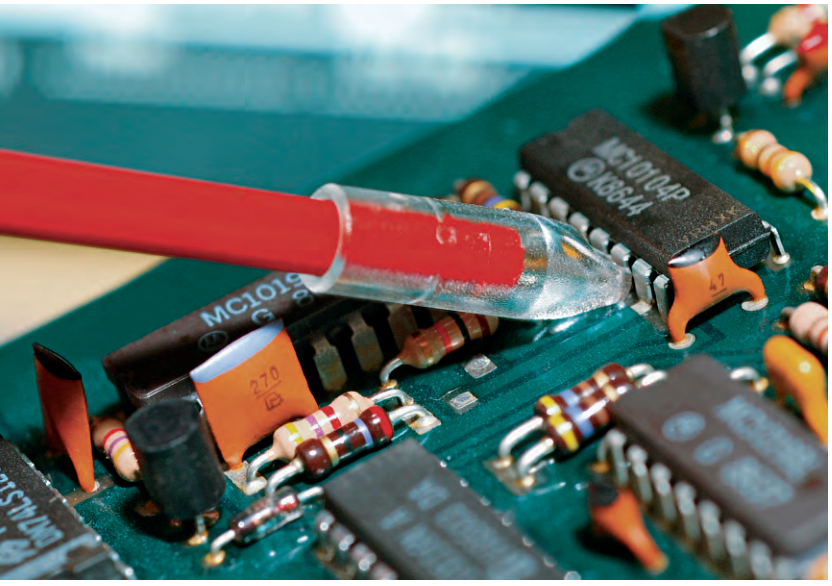


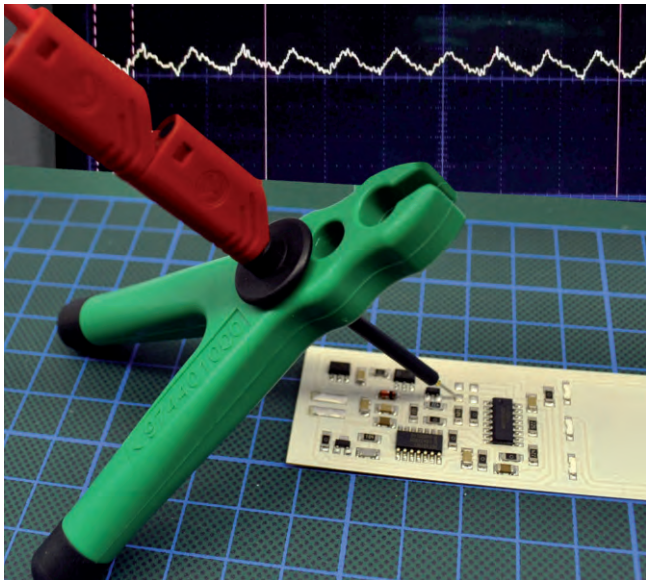
Test Probes

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



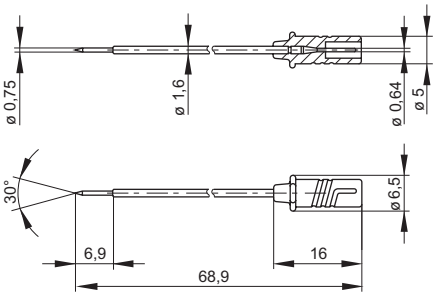


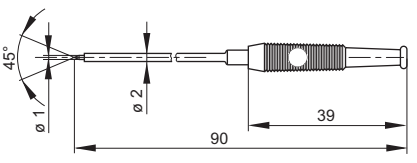
Type	MICRO-PRUEF MPS 2 0,64 FT	PRUEF 1
	Miniature test probe with spring loaded stainless steel probe tip for sampling extremely small measuring points and SMD components. Because the probe tip is sprung, it cannot slip off and provides constant pressure. Connects with MKL 0.64/25-0.25 and MAL N 4-0.64/100-0.25.	Miniature test probe for sampling extremely small measuring points. Shatter-proof grip, may be unscrewed. The stainless steel tip easily penetrates insulation and oxide layers. Solder connection up to 0.5 mm².
Tip diameter	0.75 mm (0.029 in.)	1 mm (0.039 in.)
PART NO. / Housing color	**973995100** ● **973995101** ●	**931376100** ● **931376101** ●

Technical Data		
Connection Type	spring-loaded tip	stationary tip
Voltage Rating	fixed pin Ø 0.64 mm	solder connection up to 0.5 mm²
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		
Tip	stainless steel	stainless steel
Connection pin/ socket	nickel plated brass	nickel plated brass
Contact Spring	–	–
Housing	PBT	PVC-P
Environmental Conditions		
Temperature range	-25 °C to +80 °C (13°F to 176°F)	-25 °C to +60 °C (13°F to 140°F)
Flamability Rating		
Housing	UL 94 HB	–

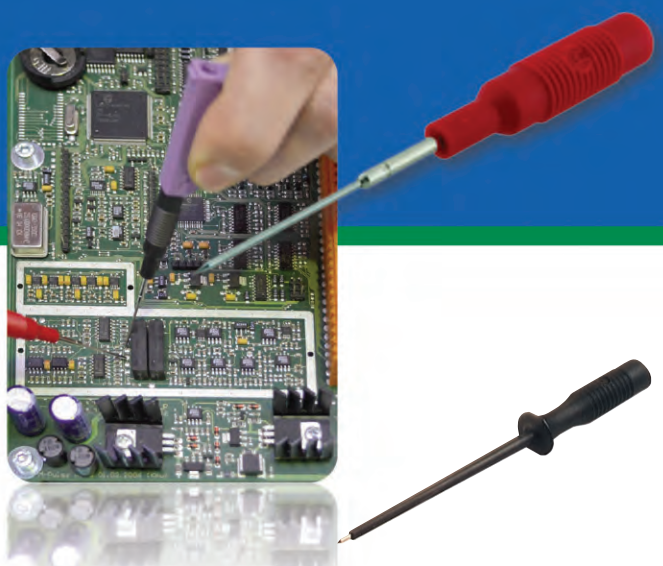
Drawing

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





* Please consider derating graph on page 80.



Test Probes
2 mm System

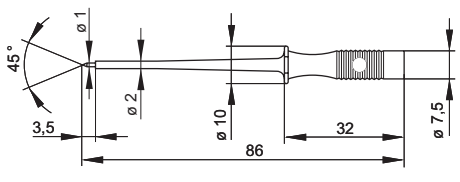


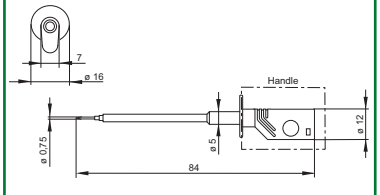


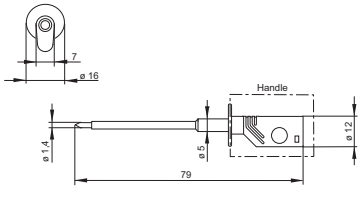
Type	MPS 1	PRUEF 1610 FT Au	PRUEF 1600 Au
	Miniature test probe for sampling very small measuring points. The stainless steel tip easily penetrates insulation and oxide layers. Socket connection through a 2 mm diameter gold-plated socket with contact spring.	Safety test probe with shatter-proof insulated sleeve, spring-loaded and slender stainless steel tip. 2 mm diameter gold-plated brass socket connection, stackable with 2 mm safety measuring lead MVL S WS. Insulation and oxide layers can be penetrated by this test probe.	Safety test probe with shatter-proof insulated sleeve and slender stainless steel tip. 2 mm diameter gold-plated brass socket connection, stackable with 2 mm safety measuring lead MVL S WS. Insulation and oxide layers can be penetrated by this test probe.
Tip diameter	1 mm (0.039 in.)	0.75 mm (0.029 in.)	1.4 mm (0.055 in.)
PART NO. / Housing color	**973531100** ● **973531101** ●	**975018700** ● **975018701** ●	**975017700** ● **975017701** ●
Technical Data			
Connection Type	stationary tip	spring-loaded tip	stationary tip
Voltage Rating	spring-loaded socket Ø 2 mm	fixed socket Ø 2mm	fixed socket Ø 2 mm
Measurement Category (IEC61010)	30 VAC / 60 VDC	AC/DC 1000V	AC/DC 1000V
Current Rating*	CAT I	CAT II	CAT III
Contact Resistance	1 A	10 A	10 A
Material Specifications	100 mOhm	20 mOhm	20 mOhm
Tip	stainless steel	stainless steel	stainless steel
Connection pin/ socket	gold plated copper-beryllium	gold plated copper-beryllium	gold plated brass
Contact Spring	–	–	–
Housing	PE	PA	PA
Environmental Conditions			
Temperature range	-25 °C to +60 °C (13°F to 140°F)	-25°C to +70°C (13°F to 158°F)	-25°C to +70°C (13°F to 158°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.







* Please consider derating graph on page 80.

Test Probes
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



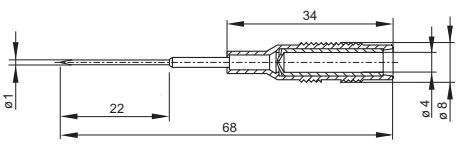


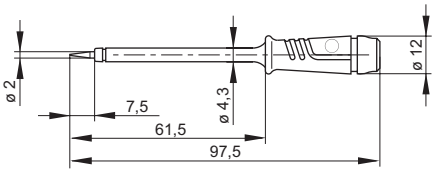
Type	MZS 1 - PRUEF	PRUEF 2
	Needle-shaped, long stainless steel test probe with shatter-proof insulated sleeve and unsprung 4 mm connecting socket. During state of connection or operation of test leads, it is possible to measure with the test probe from the back side of the closed connector.	Test probe 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	1 mm (0.039 in.)	2 mm (0.079 in.)
PART NO. / Housing color	**973601100** ● **973601101** ●	**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	–	–
Housing	PP	PP
Environmental Conditions		
Temperature range	-20°C to + 60°C (-4°F to 140°F)	-25 °C to +80 °C (13°F to 176°F)
Flamability Rating		
Housing	UL 94 HB	UL 94 HB

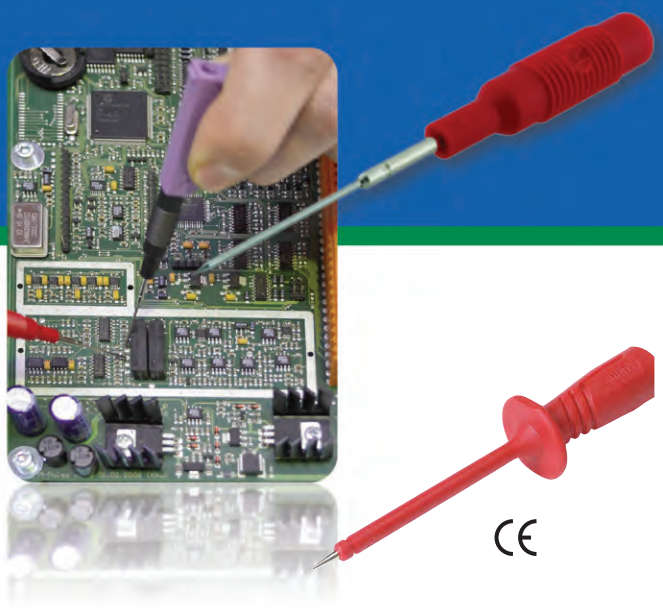
Drawing

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



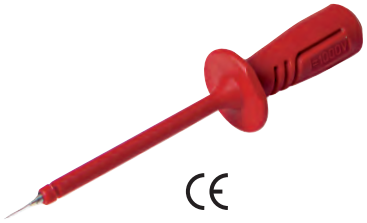


* Please consider derating graph on page 80.



Test Probes
4 mm Safety System

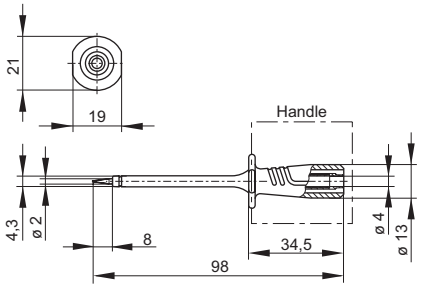


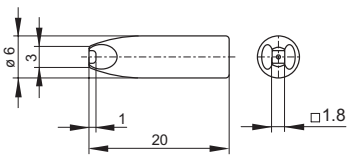


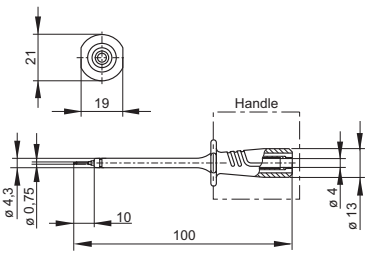
Type	PRUEF 2600 C2	SS 260	PRUEF 2610 FT
	Test probe shatter - proof insulating sleeve and slender stainless steel tip. Tip for penetration of insulation and oxide layers. 4mm diameter brass socket connection. Connection with safety measuring leads. Accessory (optional): protector and IC - tap SS 260	Tip protection and IC tap. Clipping onto the PRUEF 2, PRUEF 2 S and PRUEF 2600 C2 test probe covers the needle tip and provides protection against injury. Contact is made with ICs without short circuiting or slipping off.	Test probe with insulated sleeve and slender, sprung stainless steel tip. This allows a constant pressure to be applied without the tip slipping off the component, even in the smallest measuring points. 4 mm diameter brass socket connection.
Tip diameter	2 mm (0.079 in.)	–	0.75 mm (0.029 in.)
PART NO. / Housing color	**972327100** ● **972327101** ●	**973865001** ○	**972318100** ● **972318101** ●
Technical Data			
Connection Type	stationary tip	–	spring-loaded tip
Voltage Rating	fixed socket Ø 4 mm	–	fixed socket Ø 4 mm
Measurement Category (IEC61010)	AC/DC 1000V	–	AC/DC 1000 V
Current Rating*	CAT II	–	CAT II
Contact Resistance	1 A	–	1 A
Material Specifications	50 mOhm	–	50 mOhm
Tip	stainless steel	–	stainless steel
Connection pin/ socket	nickel plated brass	–	nickel plated brass
Contact Spring	–	–	–
Housing	PP	–	PP
Environmental Conditions			
Temperature range	-20°C to +60°C (-4°F to 140°F)	–	-25 °C to +80 °C (13°F to 176°F)
Flamability Rating			
Housing	UL 94 HB	–	UL 94 HB

Drawing

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







* Please consider derating graph on page 80.

Test Probes
4 mm Safety System

Altech Corp.® by HIRSCHMANN® Test & Measurement



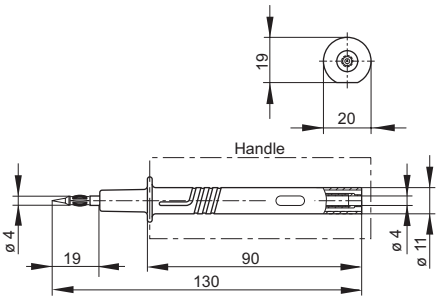


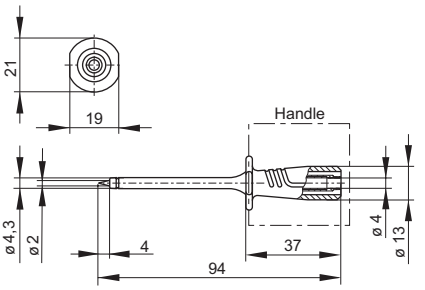
Type	PRUEF 2700	PRUEF 2600
	Safety test probe with dual function. Tip for penetrating insulation and oxide layers and 4 mm diameter pin for insertion in sockets. 4 mm diameter brass socket connection. Connects with safety measuring leads.	Test probe with elastic, shatter-proof insulated sleeve and slender stainless steel tip. Tip for penetration of insulation and oxide layers. 4 mm diameter brass socket connection. 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** ● **972319101** ●	**972317100** ● **972317101** ●

Technical Data		
Connection Type	stationary tip	stationary tip
Voltage Rating	fixed socket Ø 4 mm	fixed socket Ø 4 mm
Measurement Category (IEC61010)	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
Tip	nickel plated brass	stainless steel
Connection pin/ socket	nickel plated brass	nickel plated brass
Contact Spring	–	–
Housing	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)
Flamability Rating		
Housing	UL 94 HB	UL 94 HB

Drawing

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





* Please consider derating graph on page 80.



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.

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

Type

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:

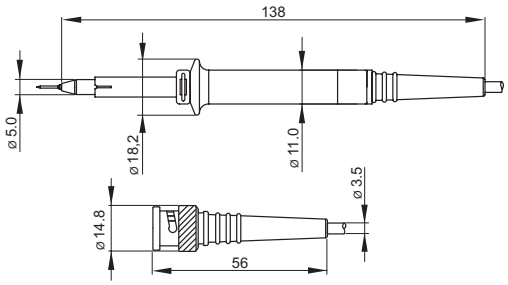
- Modular Probe
- Coaxial Design
- Coaxial Reed Switch
- New IC contact system for 0.003" to 0.004" grids
- Interchable Spring Contact Tip for reliable Contacting

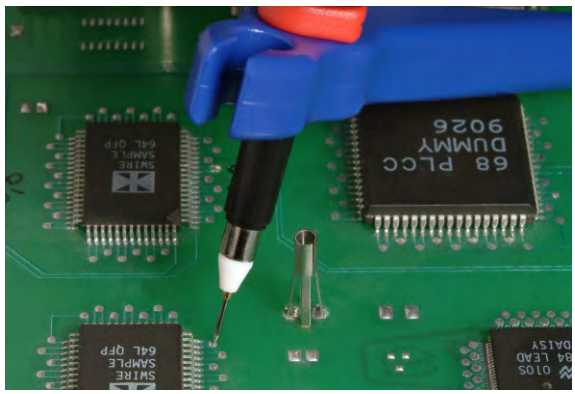
PART NO. **974312000**

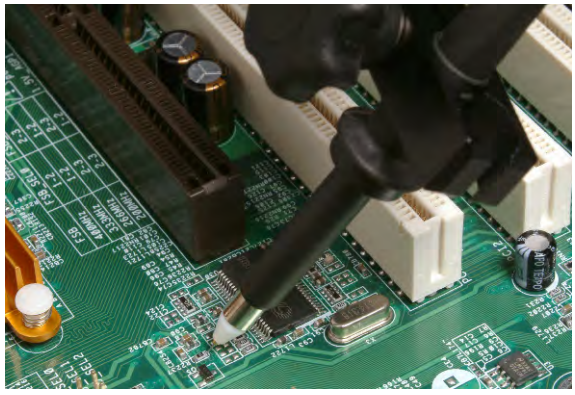
Technical Data		
Probe Ratio	1:1	10:1
Input Ressitance	-	10 MΩ
Input Capacitence	78 pF inkl. Oszi.	13 pF
Oscilloscope Input	1 MΩ AC/DC	1 MΩ AC/DC
Probe bandwidth	20 MHz	150 MHz
Risetime	18 nsec	2,4 nsec
Compensation Range		15 ... 40 pF
Measurement category	55 V eff. CAT II	300 V rms CAT II
Pollution degree	2	2
Safety standard	IEC 61010-031	
Cable length	1.2 m (3.94 ft.)	

Drawing

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







Contents



- Test Probe
- Manual
- 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")
- IC covers 0.8 to 1.27mm (0.003-0.004")
- Spring Hook 5.0mm (0.016")
- Adjustment Tool T

Oscilloscope Test Probes
High Frequency Measurement

Altech Corp.® by HIRSCHMANN® Test & Measurement





Type

TKO 2,5 - PML 711A

Passive High Impedance Miniature Test Probe with 500 MHz Bandwith and Probe Ratio 10:1. Designed for Oscilloscopes having 1MOhm Input resistance.

Features:

- Compact Size (0.008” probe tip) ideal for measuring SMD Components
- 0.002” gold plated spring loaded changeable Probe tip
- Innovative IC contact system for 0.002” to 0.004” grids
- With ReadOut (RO)

TKO 5 - PMT 221A

Passive High Impedance Miniature Test Probe with 250 MHz Bandwith and Probe Ratio 10:1 (Switchable, 30 MHz @ Probe Ratio 1:1). The probe is adjustable for low frequencies.

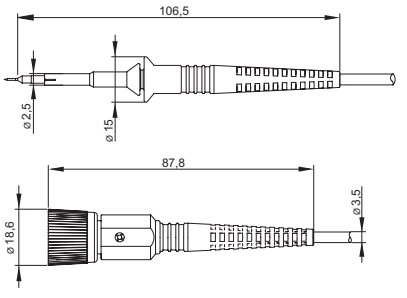
Features:

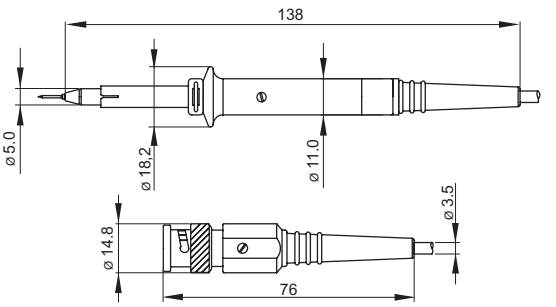
- Modular Probe
- Coaxial Design
- Coaxial Reed Switch
- Innovative IC contact system for 0.003” to 0.004” grids
- Interchable Spring Contact Tip for reliable Contacting
- HF- Adjustment

PART NO.	**974301000**	**974311000**	
Technical Data			
Probe Ratio	10:1	1:1	10:1
Input Impedence	10 MΩ	-	10 MΩ
Input Capacitence	9,5 pF	80 pF inkl. Oszi.	13 pF
Oscilloscope Input	1 MΩ AC/DC	1 MΩ AC/DC	1 MΩ AC/DC
Probe bandwidth (3dB)	500 MHz	30 MHz	250 MHz
Risetime (10% - 90%)	700 psec	12 nsec	1,4 nsec
Compensation Range	10 ... 25 pF	-	10...35 pF (**)
Measurement category	300 V CAT II	55 V eff. CAT II	300 V rms CAT II
Pollution degree	2	2	2
Safety standard	IEC 61010-031	IEC 61010-031	
Cable length	1.3 m (4.27 ft.)	1.2 m (3.94 ft.)	

Drawing

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



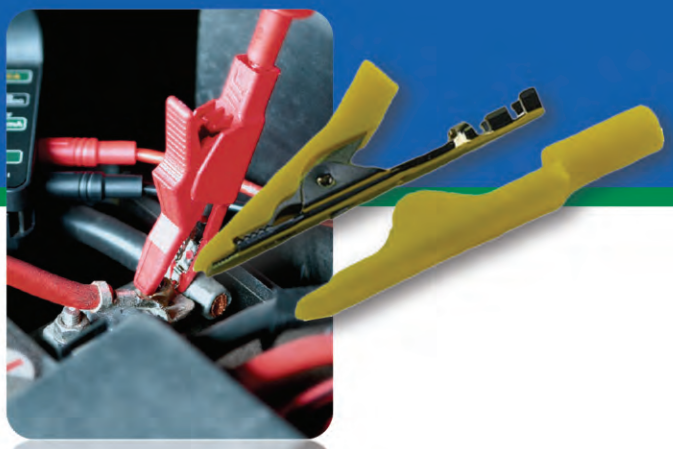


Contents



- Test Probe
- Manual
- Spring Tip gold plated 0.5mm (0.002”)
- Solid Tip CuBe 0.5mm (0.002”)
- Coding Rings (3x4 colors)
- Ground Lead 0.11m (0.36”)
- Ground Blade 2.5mm (0.008”)
- 2 self adhesive Cu Pads
- Isolation Cover 2.5mm (0.008”)
- Protection Cover 2.5mm (0.008”)
- IC covers 0.5 to 1.27mm (0.002-0.004”)
- Spring Hook 2.5mm (0.008”)
- Ground Spring 2.5mm (0.008”)
- PCB Adapter Kit 2.5mm (0.008”)
- 2 Foot Positioner
- Adjustment Tool T

- Test Probe
- Manual
- 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”)
- IC covers 0.8 to 1.27mm (0.003-0.004”)
- Spring Hook 5.0mm (0.016”)
- BNC Adapter 5.0mm (0.016”)
- 2 Foot Positioner
- Adjustment Tool T



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.

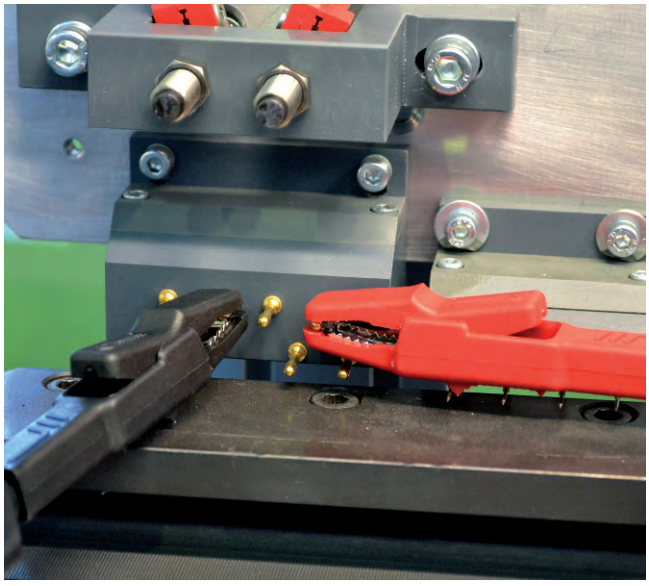
- Various clamping ranges
- Stainless steel versions for use in galvanic and acid environments
- Soldering connections for “do it yourself” connections



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



Special solution for very small SMD components MICRO-SMD CLIP 1.



Alligator Clips
0.64 and 2 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



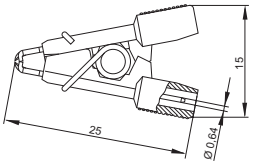


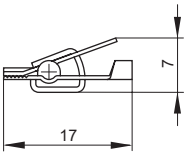
Type	MICRO-SMD CLIP 1	AGF 1
	Spring loaded 2 pole test clip designed for MSD components; gold plated, hardened tip; flat nose for testing individual components; insulated spring, 0.64mm connection pin terminal.	Mini alligator clip for small components, silver plated, solder/ crimp terminal max. 0.5mm².
Clamping range	0 mm to 8 mm (0.31")	1 mm (0.04")
PART NO. / Housing color	**972416100** ●	**930476001** ●

Technical Data		
Contact Type	alligator clip	alligator clip
Connection Type	2x pin 0.64 mm	solder, crimp 0.5mm²
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurment Category (IEC61010)	CAT I	CAT I
Current Rating*	1 A	3 A
Contact Resistance	6 mOhm	15 mOhm
Material Specifications		
Alligator Clip	gold plated copper beryllium	silver plated brass
Housing	PBT	–
Environmental Conditions		
Temperature Range	-30 °C to +100 °C (22°F to 212°F)	-25°C to +100 °C (13°F to 212°F)
Flamability Rating		
Housing	UL 94 HB	–

Drawing

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





* Please consider derating graph on page 80.

Alligator Clips
2 mm System



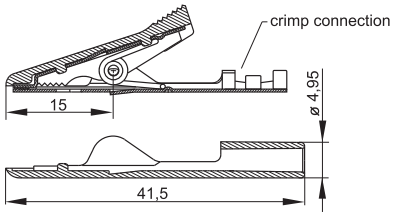


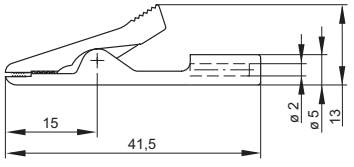


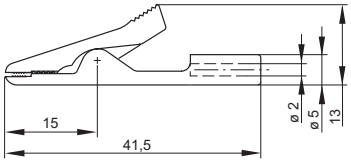
Type	MA 1 Crimp	MA 1	MA 1 S
	Mini Alligator Clip, high-strength insulation, nickel plated brass/ bronze jaws, crimp terminal 0.25mm 2-0.5mm² for suitable crimp tool insert.	Mini Alligator Clip, high-strength insulation, nickel plated brass/ bronze jaws, 2mm system socket terminal.	Mini Alligator Clip, high-strength insulation, stainless steel spring, nickel plated brass/ bronze jaws, 2mm system socket terminal.
Clamping range	4 mm (0.16")	4 mm (0.16")	4 mm (0.16")
PART NO. / Housing color	**930318100** ● **930318104** ● **930318101** ● **930318106** ● **930318102** ● **930318107** ○ **930318103** ●	**930317800** ● **930317804** ● **930317801** ● **930317806** ● **930317802** ● **930317807** ○ **930317803** ●	**973584100** ● **973584104** ● **973584101** ● **973584106** ● **973584102** ● **973584107** ○ **973584103** ●
Technical Data			
Contact Type	alligator clip	alligator clip	alligator clip
Connection Type	crimp 0.25 mm² up to 0.5 mm²	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
Environmental Conditions			
Temperature Range	-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)
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.







* Please consider derating graph on page 80.

Alligator Clips
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement





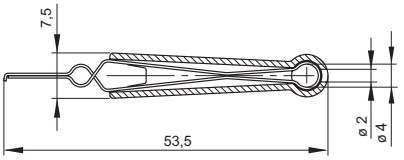


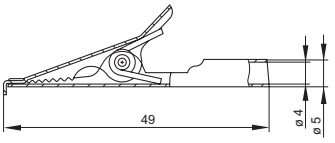
Type	AGF 2	AGF 20	AGF 30
	Extra small Alligator Clip, for extremely small dense contact points, jaws insulated on the outside, 2mm and 4mm system socket terminal.	Steel Alligator Clip, nickel plated, max, jaw opening 12mm, 4mm system socket and solder terminal.	Stainless Steel Alligator Clip, max, jaw opening 10mm, 4mm system socket and solder terminal.
Clamping range	4 mm (0.16")	12 mm (0.47")	10 mm (0.40")
PART NO. / Housing color	**931272100** ● **931272101** ●	**930120000**	**930122000**

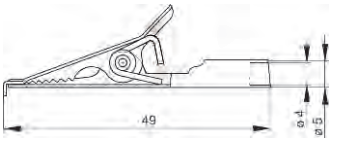
Technical Data			
Contact Type	alligator clip	alligator clip	alligator clip
Connection Type	socket Ø 4mm and Ø 2mm	socket Ø 4 mm, solder terminal	socket Ø 4 mm, solder terminal
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurment Category (IEC61010)	CAT I	CAT I	CAT I
Current Rating*	6 A	4 A	4 A
Contact Resistance	300 mOhm	15 mOhm	15 mOhm
Material Specifications			
Alligator Clip	stainless steel	nickel plated steel	stainless steel
Housing	PVC-P	–	–
Environmental Conditions			
Temperature Range	-25°C to +80 °C (13°F to 176°F)	-25°C to +100 °C (13°F to 212°F)	-25°C to +100 °C (13°F to 212°F)
Flamability Rating			
Housing	–	–	–

Drawing

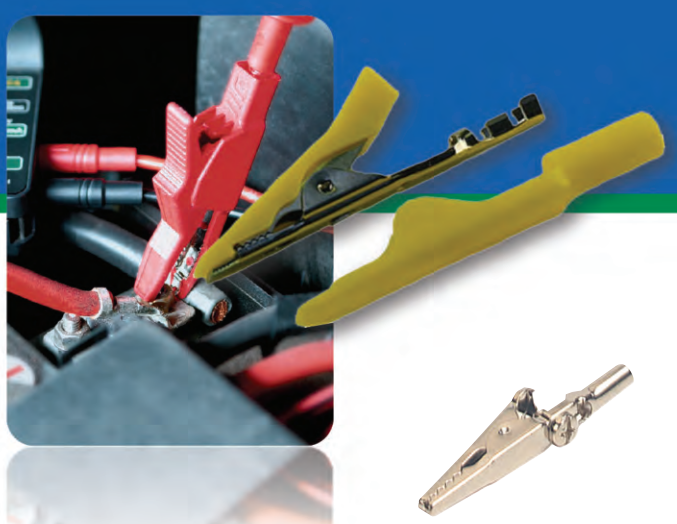
Measurements are shown in millimeters.
Multiply by 0.03937 to convert to inches.







* Please consider derating graph on page 80.



Alligator Clips
4 mm System

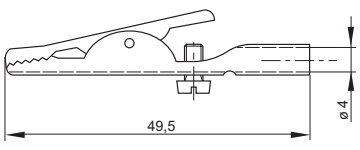


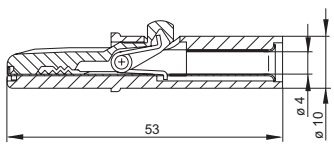


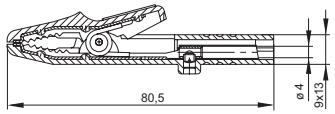
Type	AGS 20	AK 10	AK 2 S
	Steel Alligator Clip, nickel plated, max, jaw opening mm, 4mm system socket and solder/ screw terminal.	Insulated Alligator Clip, tin plated brass insert, suitable for very thin wires, 4mm system socket terminal.	High Strength Alligator Clip, insuslated, nickel plated brass, 4mm system socket and screw terminal max. 1.5mm².
Clamping range	5 mm (0.20")	6 mm (0.24")	9.5 mm (0.37")
PART NO. / Housing color	**603006001**	**930126100** ● **930126101** ● **930126102** ● **930126103** ● **930126104** ●	**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	-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)
Flamability Rating			
Housing	–	UL 94 HB	UL 94 HB

Drawing

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







* Please consider derating graph on page 80.

Alligator Clips
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



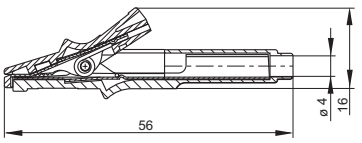


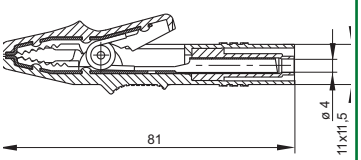


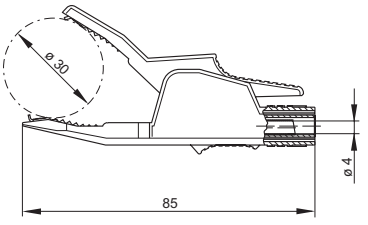
Type	MA 260 SH	AK 2 B	AK 2 B 2540 I
	Touch proof mini Alligator Clip, nickel plated bronze, jaw opening 6mm, 4mm system socket and solder terminal.	High Strength Alligator Clip, touch proof, nickel plated brass, 9.5mm jaw opening, 4mm system socket terminal.	High Strength wide opening Alligator Clip, touch proof, nickel plated brass, 30mm jaw opening, 4mm system socket 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			
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

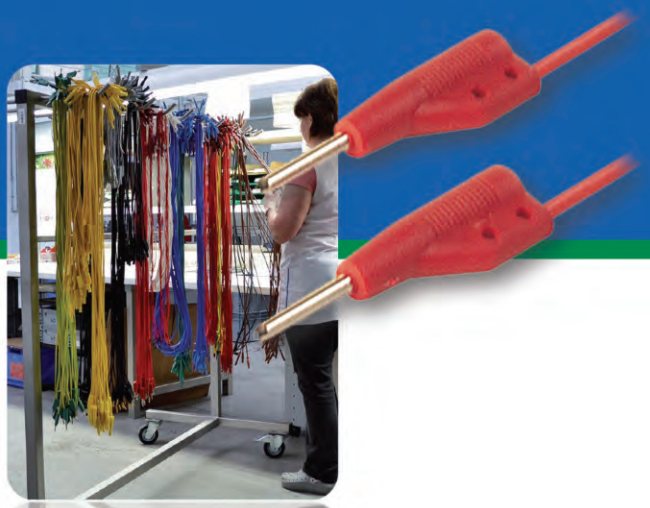
Measurements are shown in millimeters.
Multiply by 0.03937 to convert to inches.







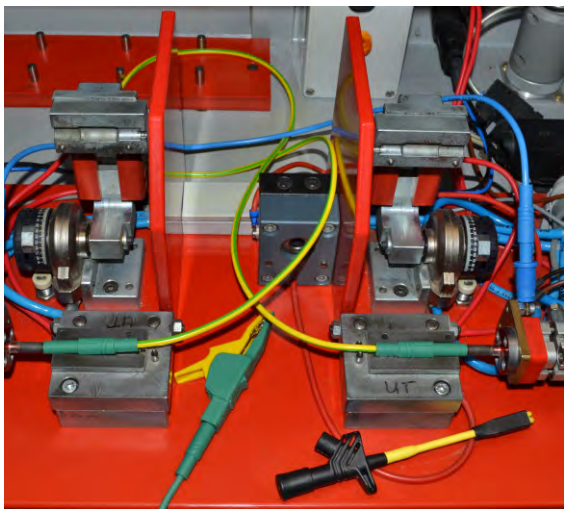
* Please consider derating graph on page 80.

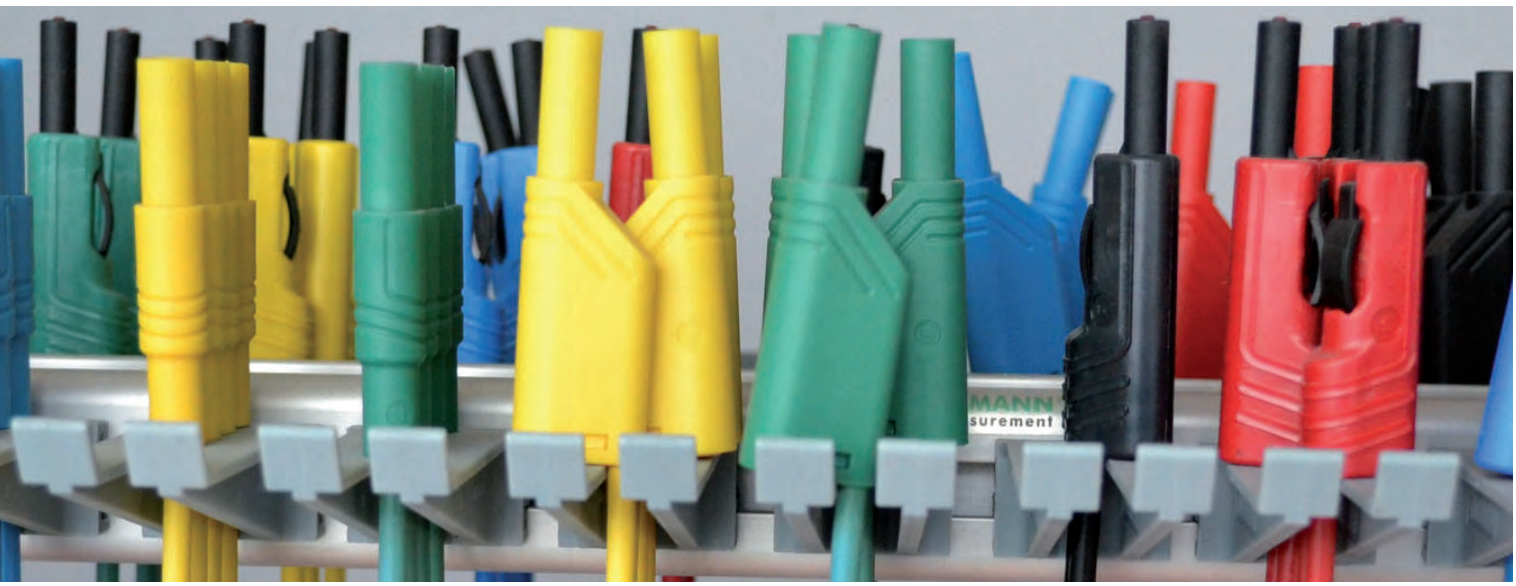


Measuring Leads

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

Altech Corp.® by HIRSCHMANN® Test & Measurement



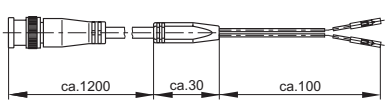


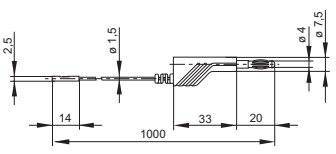


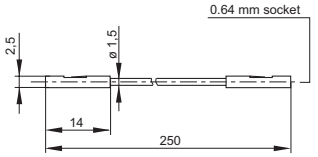
Type	BNC AL 0,64	MAL N 4-0,64/100-0,25	MKL 0,64/25-0,25
	BNC adapter lead with insulated sockets for 0.64 mm round and rectangular pin. Red inner lead, black shielding; cable type RG 58 A/U, 50 Ohm. For use with oscilloscopes, PC cards, etc.	Injection-moulded measuring lead with spring loaded 4 mm diameter plug and 4 mm diameter socket for further connection and insulated socket for 0.64 mm round and rectangular pin. Highly flexible 0.25 mm² stranded wire.	Measuring lead with two insulated sockets for 0.64 mm round and rectangular pin. Highly flexible 0.25 mm² stranded wire with two 0.64 mm diameter sockets.
Cable length	1.2m (47.2") BNC + 0.1m (3.9") wires	0.1m (39.4")	25 mm
Cable size	–	0.25 mm² (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
PART NO. / Housing color	● **933844001**	● **934160100** ● **934160101**	● **973604100** ● **973604101**
Technical Data			
Contact Type	BNC conenctor, 2x0.64 mm (0.025") spring loaded square pin socket	pin (spring-loaded), 0.64mm (0.025") spring loaded square pin socket	2x0.64mm (0.025 in.) spring loaded square pin socket
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I	CAT I
Current Rating*	–	3 A	3 A
Contact Resistance	–	70 mOhm	20 mOhm
Material Specifications			
Contact Pin	–	nickel plated brass	gold plated copper beryllium
Contact Spring	–	nickel plated copper beryllium	–
Housing	–	PVC	PPO
Environmental Conditions			
Temperature Range	-15 °C to +70 °C (5°F to 158°F)	-15°C to +70°C (5°F to 158°F)	-40 °C to +60 °C (-40°F to 140°F)
Flamability Rating			
Housing	–	–	UL 94 HB

Drawing

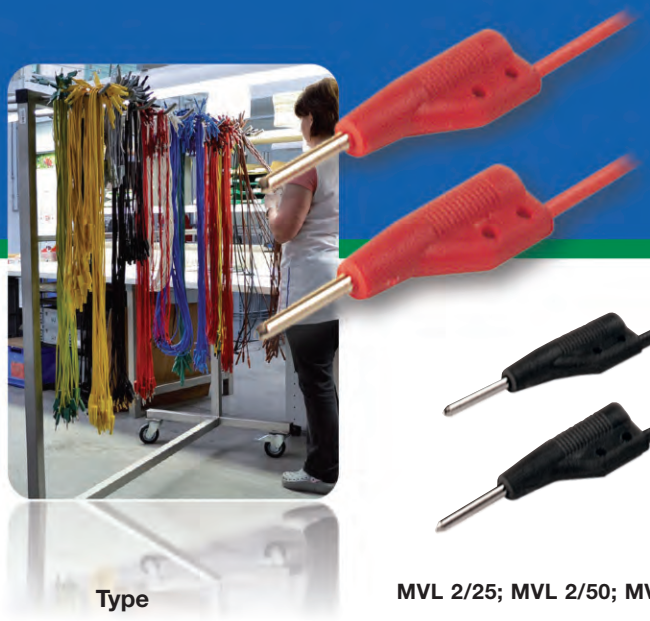
Measurements are shown in millimeters.
Multiply by 0.03937 to convert to inches.







* Please consider derating graph on page 80.



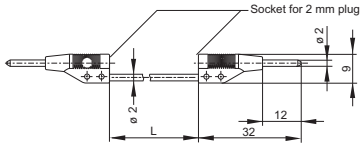
Measuring Leads
2 mm System

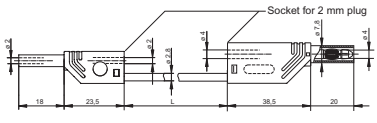


Type	MVL 2/25; MVL 2/50; MVL 2/100	MAL S WS 2-4 100/1
	Injection-moulded measuring lead, at either end 2 mm diameter nickel-plated brass connector and 2 mm diameter socket with contact spring, for tower constructions. Highly flexible stranded lead, grip and lead shatter-proof.	Safety measuring lead according 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 / nickel-plated 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.
Cable length	0.25m (9.8”), 0.5m (19.7”), 1.0m (39.4”)	100 m (39.4”)
Cable size	0.5 mm² (20AWG)	1 mm² (18 AWG)
Cable material	PVC	PVC
Pin dimensions	2 mm (0.078”)	2 mm (0.078”) / 4 mm (0.157”)
Cable type	LF-Y	LEH-XY
PART NO. / Housing color	0.25 m **973594100** ● **973594101** ● 0.5 m **973595100** ● **973595101** ● 1.0 m **973596100** ● **973596101** ●	● **975163100** ● **975163105** ● **975163101** ● **975163106** ● **975163102** ● **975163107** ● **975163103** ● **975163109** ● **975163104**
Technical Data		
Contact Type	stationary pin	spring-loaded pin
Voltage Rating	30 VAC / 60 VDC	AC/DC 1000V
Measurement Category (IEC61010)	CAT I	CAT II
Current Rating*	6 A	10 A
Contact Resistance	26 mOhm	21 mOhm
Material Specifications		
Contact Pin	nickel plated brass	nickel plated brass
Contact Spring	copper beryllium	gold plated copper beryllium
Housing	Polypropylene	Polyamide
Environmental Conditions		
Temperature Range	-40 °C to +60 °C (-40°F to 140°F)	-15 °C to +70 °C (5°F 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.

Measuring Leads
2 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement

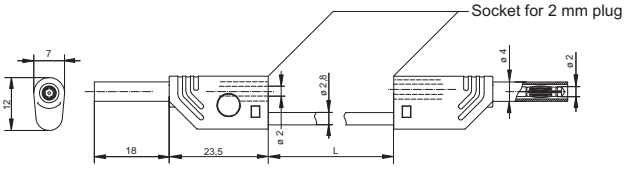


Type	MVL S WS 25/1 Au	MVL S WS 50/1 Au	MVL S WS 100/1 Au	MVL S WS 200/1 Au
	Safety measuring lead according to IEC 61010, with 2 mm safety plugs on both sides and 2 mm sockets for onward connection capability. Gold-plated copper-beryllium contact spring. Highly flexible, double insulated stranded lead and shatter-proof grip sleeves. Built in colour indicator for easy identification of insulation damages.			
Cable length	**0.25m (9.8")**	**0.5m (19.7")**	**1.0m (39.4")**	**2.0m (78.7")**
Cable size	1 mm² (18 AWG)	1 mm² (18 AWG)	1 mm² (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**
●	**975694703**	**975695703**	**975696703**	**975698703**
●	**975694704**	**975695704**	**975696704**	**975698704**
●	**975694705**	**975695705**	**975696705**	**975698705**
○	**975694706**	**975695706**	**975696706**	**975698706**
○	**975694707**	**975695707**	**975696707**	**975698707**
●	**975694709**	**975695709**	**975696709**	**975698709**

Technical Data				
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 copper-berylium			
Housing	Polyamide			
Environmental Conditions				
Temperature Range	-15 °C to +70 °C (5°F to 158°F)			
Flamability Rating				
Housing	UL 94 V-2			

Drawing

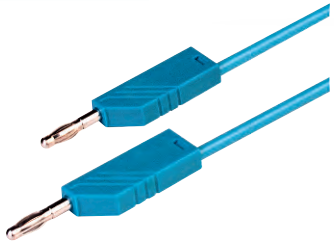
Measurements are shown in millimeters.
Multiply by 0.03937 to convert to inches.



* Please consider derating graph on page 80.



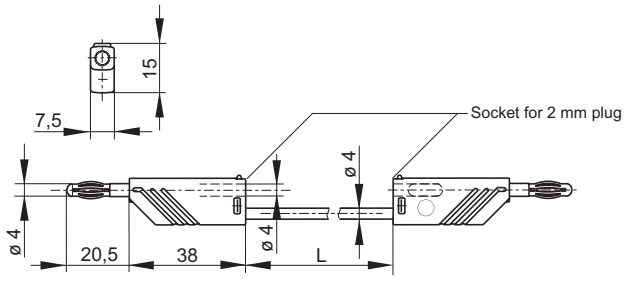
Measuring Leads
4 mm Solder Resistant System



Type	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 shatter-proof. Built in colour indicator for easy identifcation of insulation damages.				
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 (18 AWG)	1 mm² (18 AWG)	1 mm² (18 AWG)	1 mm² (18 AWG)	1 mm² (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	**934091103**	**934092103**	**934093103**	**934094103**
	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 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-berylium				
Housing	Polyamide				
Environmental Conditions					
Temperature Range	-15 °C to +70 °C (5°F to 158°F)				
Flamability Rating					
Housing	UL 94 V-2				

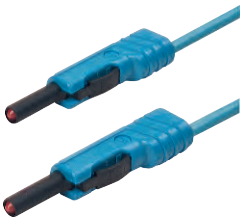
Drawing
Measurements are shown in millimeters.
Multiply by 0.03937 to convert to inches.



* Please consider derating graph on page 80.

Measuring Leads
4 mm Retractable Sleeve System

Altech Corp.® by HIRSCHMANN® Test & Measurement

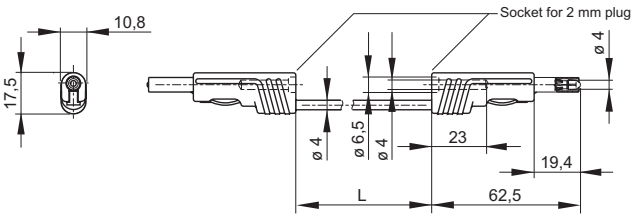


Type	MLB 25/1 V	MLB 50/1 V	MLB 100/1 V	MLB 200/1 V
	Contact-protected measuring lead, at either end: 4 mm diameter plug, insulated by latching and sprung insulated sleeve which is only released by pressure on the side mounted locking spring. 4 mm diameter nickel-plated. Highly flexible, double insulated stranded conductor. Color indicator for the recognition of damage to the insulation. 4 mm diameter socket for tower construction.			
Cable length	**0.25m (9.8")**	**0.5m (19.7")**	**1.0m (39.4")**	**2.0m (78.7")**
Cable size	1 mm² (18 AWG)	1 mm² (18 AWG)	1 mm² (18 AWG)	1 mm² (18 AWG)
Cable material	PVC	PVC	PVC	PVC
Pin dimensions	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
PART NO. / Housing color	**973644100**	**973645100**	**973646100**	**973647100**
	973644101	**973645101**	**973646101**	**973647101**
	973644102	**973645102**	**973646102**	**973647102**
	973644103	**973645103**	**973646103**	**973647103**
	973644104	**973645104**	**973646104**	**973647104**
			973646188	

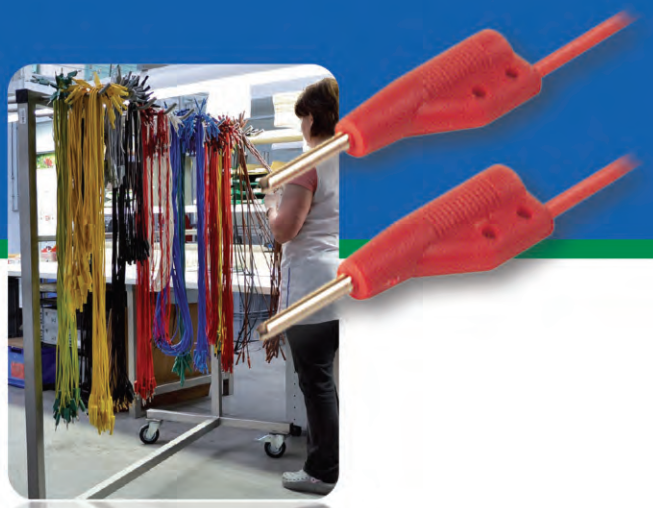
Technical Data				
Contact Type	spring-loaded pin	spring-loaded pin	spring-loaded pin	spring-loaded pin
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I	CAT I	CAT I
Current Rating*	16 A	16 A	16 A	16 A
Contact Resistance	8.5 mOhm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

Drawing

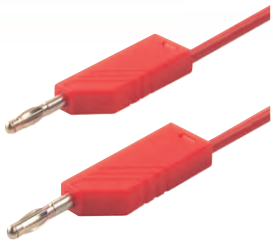
Measurements are shown in millimeters.
Multiply by 0.03937 to convert to inches.



* Please consider derating graph on page 80.



Measuring Leads
4 mm System



Type	MLN 25/1	MLN 50/1	MLN 100/1	MLN 150/1	MLN 200/1

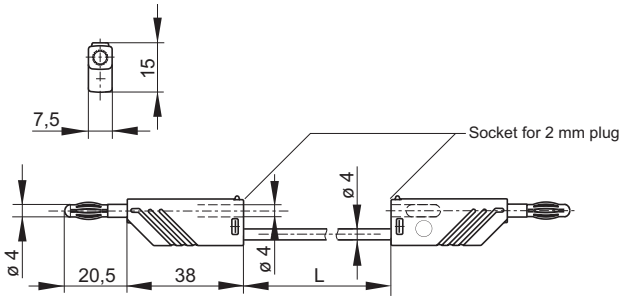
Measuring lead, at either end 4mm diameter plug with caged spring and 4mm diameter socket for tower construction. Nickel-plated copper beryllium contact spring. Highly flexible, double insulated stranded lead, grip and lead shatter-proof. Built in colour indicator for easy identifcation of insulation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

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 mm² (17 AWG)	1 mm² (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		

Drawing

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



* Please consider derating graph on page 80.

2.5 mm² (14 AWG)
Nickel plated contacts

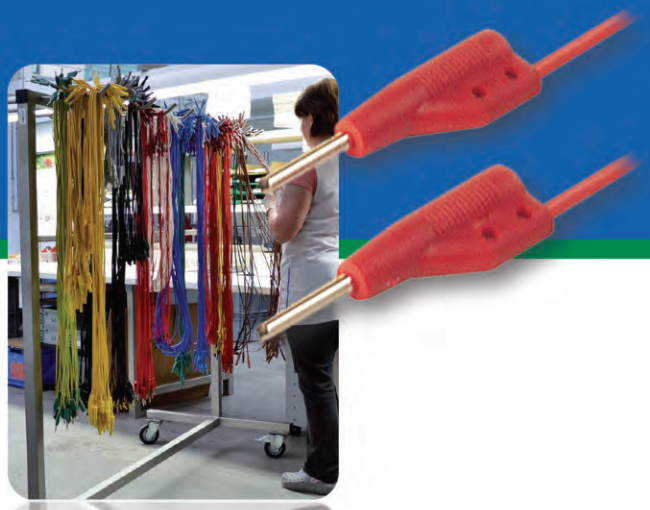
Type	MLN 25/2.5	MLN 50/2.5	MLN 100/2.5	MLN 150/2.5	MLN 200/2.5
PART NO. / Housing color					
	934059100	934061100	934063100	934507100	934066100
	934059101	934061101	934063101	934507101	934066101
	934059102	934061102	934063102	934507102	934066102
	934059103	934061103	934063103	934507103	934066103
	934059104	934061104	934063104	934507104	934066104
	934059105	934061105	934063105	934507105	934066105
	934059106	934061106	934063106	934507106	934066106
	934059107	934061107	934063107	934507107	934066107
	934059109	934061109	934063109	934507109	934066109
	934059188	934061188	934063188	934507188	934066188

2.5 mm² (14 AWG)
Gold plated contacts

Type	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
	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
	934059707	934061707	934063707	934507707	934066707
	934059709	934061709	934063709	934507709	934066709
	934059788	934061788	934063788	934507788	934066788

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*	32A	32A	32A	32A	32A
Contact Resistance	6 mOhm	8 mOhm	12 mOhm	16 mOhm	20 mOhm
Material Specifications					
Contact Pin	nickel /gold plated brass				
Contact Spring	nickel/gold plated copper-beryllium				
Housing	Polyamide				
Environmental Conditions					
Temperature Range	-15 °C to +70 °C				
Flamability Rating					
Housing	UL 94 V-2				

* Please consider derating graph on page 80.



Measuring Leads
4.0 mm Safety Plug System



CE

Type	MLS GG 25/1 MLS GG 25/2,5	MLS GG 50/1 MLS GG 50/2,5	MLS GG 100/1 MLS GG 100/2,5	MLS GG 200/1 MLS GG 200/2,5

Safety measuring lead, at either end 4 mm diameter safety connector with straight outlet. Nickel-plated copper beryllium contact spring. Highly flexible, double insulated stranded lead, shatter-proof grip sleeve and lead. 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 mm² (18 AWG)	1 mm² (18 AWG)	1 mm² (18 AWG)	1 mm² (18 AWG)
Cable material	PVC	PVC	PVC	PVC
Pin dimensions	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

1 mm² (18 AWG)

PART NO. / Housing color				
●	**934070100**	**934072100**	**934074100**	**934076100**
●	**934070101**	**934072101**	**934074101**	**934076101**
●	**934070102**	**934072102**	**934074102**	**934076102**
●	**934070103**	**934072103**	**934074103**	**934076103**
●	**934070104**	**934072104**	**934074104**	**934076104**

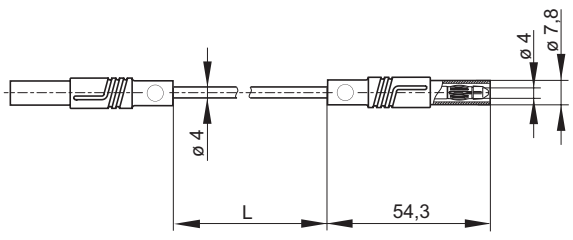
2.5 mm² (14 AWG)

PART NO. / Housing color				
●	**934071100**	**934073100**	**934075100**	**934077100**
●	**934071101**	**934073101**	**934075101**	**934077101**
●	**934071102**	**934073102**	**934075102**	**934077102**
●	**934071103**	**934073103**	**934075103**	**934077103**
●	**934071104**	**934073104**	**934075104**	**934077104**
●	**934071105**	**934073105**	**934075105**	**934077105**
●	**934071106**	**934073106**	**934075106**	**934077106**
○	**934071107**	**934073107**	**934075107**	**934077107**
●	**934071109**	**934073109**	**934075109**	**934077109**
●	**934071188**	**934073188**	**934075188**	**934077188**

Technical Data				
Contact Type	spring-loaded pin	spring-loaded pin	spring-loaded pin	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*	16 A 32 A	16 A 32 A	16 A 32 A	16 A 32 A
Contact Resistance	8.5 mOhm 6 mOhm	13 mOhm 8 mOhm	22 mOhm 12 mOhm	40 mOhm 20 mOhm
Material Specifications				
Contact Pin	nickel plated brass			
Contact Spring	copper-berylium			
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.

Measuring Leads
4.0 mm Safety Plug System

Altech Corp.® by HIRSCHMANN® Test & Measurement

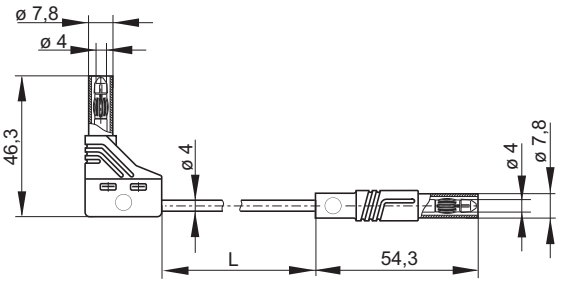


CE

Type	MLS WG 25/1 MLS WG 25/2.5	MLS WG 50/1 MLS WG 50/2.5	MLS WG 100/1 MLS WG 100/2.5	MLS WG 200/1 MLS WG 200/2.5
	Safety measuring lead, at either end 4mm diameter safety connector with straight and angled outlet. Nickel-plated copper beryllium contact spring. Highly flexible, double insulated stranded lead, shatter-proof grip sleeve and lead. 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 mm² (18 AWG) 2.5 mm² (14 AWG)	1 mm² (18 AWG) 2.5 mm² (14 AWG)	1 mm² (18 AWG) 2.5 mm² (14 AWG)	1 mm² (18 AWG) 2.5 mm² (14 AWG)
Cable material	PVC	PVC	PVC	PVC
Pin dimensions	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
1 mm² **PART NO.** / Housing color				
	934078100	**934080100**	**934082100**	**934084100**
	934078101	**934080101**	**934082101**	**934084101**
	934078102	**934080102**	**934082102**	**934084102**
	934078103	**934080103**	**934082103**	**934084103**
	934078104	**934080104**	**934082104**	**934084104**
2.5 mm² **PART NO.** / Housing color				
	934079100	**934081100**	**934083100**	**934085100**
	934079101	**934081101**	**934083101**	**934085101**
	934079102	**934081102**	**934083102**	**934085102**
	934079103	**934081103**	**934083103**	**934085103**
	934079104	**934081104**	**934083104**	**934085104**
	934079188	**934081188**	**934083188**	**934085188**
Technical Data				
Contact Type	spring-loaded pin	spring-loaded pin	spring-loaded pin	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*	16 A 32 A	16 A 32 A	16 A 32 A	16 A 32 A
Contact Resistance	8 mOhm 6 mOhm	13 mOhm 8 mOhm	22 mOhm 12 mOhm	40 mOhm 20 mOhm
Material Specifications				
Contact Pin		nickel plated brass		
Contact Spring		copper-berylium		
Housing		Polyamide		
Environmental Conditions				
Temperature Range		-15 °C to +70 °C (5°F to 158°F)		
Flamability Rating				
Housing		UL 94 V-2		

Drawing

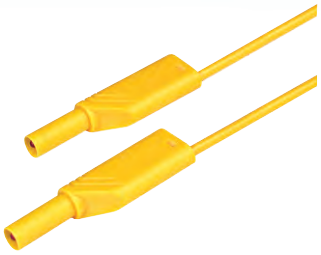
Measurements are shown in millimeters.
Multiply by 0.03937 to convert to inches.



* Please consider derating graph on page 80.



Measuring Leads
4 mm - Safety Plug System



CE

Type	MLS WS 25/1 MLS WS 25/2,5	MLS WS 50/1 MLS WS 50/2,5	MLS WS 100/1 MLS WS 100/2,5	MLS WS 200/1 MLS WS 200/2,5

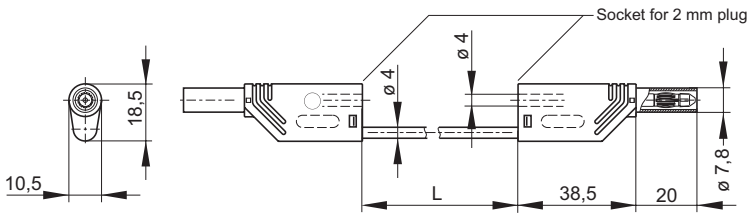
Safety measuring lead, at either end 4 mm diameter safety connector with onward connection capability (4mm socket). Nickel-plated copper beryllium contact spring. Highly flexible, double insulated stranded lead, shatter-proof grip sleeve and lead. Built in colour indicator for easy identifcation of insulation damages.

Cable length	**0.25m (9.8")**	**0.5m (19.7")**	**1.0m (39.4")**	**2.0m (78.7")**
Cable size	1 mm² (18 AWG) 2.5 mm² (14 AWG)	1 mm² (18 AWG) 2.5 mm² (14 AWG)	1 mm² (18 AWG) 2.5 mm² (14 AWG)	1 mm² (18 AWG) 2.5 mm² (14 AWG)
Cable material	PVC	PVC	PVC	PVC
Pin dimensions	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
1 mm²				
PART NO. / Housing color				
●	**934067100**	**934068100**	**934095100**	**934069100**
●	**934067101**	**934068101**	**934095101**	**934069101**
●	**934067102**	**934068102**	**934095102**	**934069102**
●	**934067103**	**934068103**	**934095103**	**934069103**
●	**934067104**	**934068104**	**934095104**	**934069104**
2.5 mm²				
PART NO. / Housing color				
●	**934086100**	**934087100**	**934088100**	**934089100**
●	**934086101**	**934087101**	**934088101**	**934089101**
●	**934086102**	**934087102**	**934088102**	**934089102**
●	**934086103**	**934087103**	**934088103**	**934089103**
●	**934086104**	**934087104**	**934088104**	**934089104**
●	**934086105**	**934087105**	**934088105**	**934089105**
●	**934086106**	**934087106**	**934088106**	**934089106**
○	**934086107**	**934087107**	**934088107**	**934089107**
●	**934086109**	**934087109**	**934088109**	**934089109**
●	**934086188**	**934087188**	**934088188**	**934089188**

Technical Data				
Contact Type	spring-loaded pin	spring-loaded pin	spring-loaded pin	spring-loaded pin
Voltage Rating	AC/DC 1000V**	AC/DC 1000V**	AC/DC 1000V**	AC/DC 1000V**
Measurement Category (IEC61010)	CAT II**	CAT II**	CAT II**	CAT II**
Current Rating*	16 A 32 A	16 A 32 A	16 A 32 A	16 A 32 A
Contact Resistance	8 mOhm 6 mOhm	13 mOhm 8 mOhm	22 mOhm 12 mOhm	40 mOhm 20 mOhm
Material Specifications				
Contact Pin		nickel plated brass		
Contact Spring		copper-berylium		
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.
** 600VV AC/DC CAT III

Measuring Leads
4 mm - Safety Plug System

Altech Corp.® by HIRSCHMANN® Test & Measurement



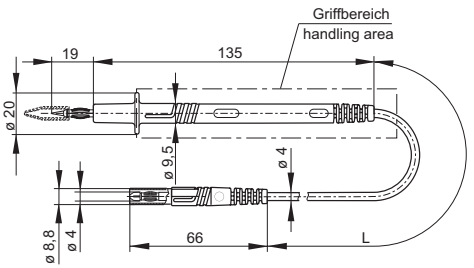


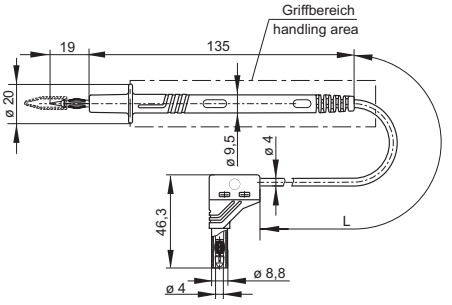
	PL 2600 S	PL 2600 S W
Type	**PL 2600 S** Safety measuring lead with dual function safety test probe. Tip for penetration of insulation and oxide layers and 4 mm diameter pin for insertion into sockets. 4 mm diameter safety connector with straight outlet. Incl. Tip protection	**PL 2600 S W** Safety measuring lead with dual function safety test probe. Tip for penetration of insulation and oxide layers and 4 mm diameter pin for insertion into sockets. 4 mm diameter safety connector with right-angled outlet. Incl. Tip protection
Cable length	1.0m (39.4”)	1.0m (39.4”)
Conductor size	**1 mm² (18 AWG)**	**1 mm² (18 AWG)**
Cable material	PVC	PVC
Pin dimensions	4 mm (0.157”)	4 mm (0.157”)
Clamp type	LEH-XY	LEH-XY
PART NO. / Housing color	● **934159100** ● **934159101** ● **934159102**	● **934158100** ● **934158101**

Technical Data		
Contact Type	spring-loaded pin, stationary tip	spring-loaded pin, stationary tip
Voltage Rating	AC/DC 1000 V	AC/DC 1000 V
Measurement Category (IEC61010)	CAT II	CAT II
Current Rating*	16 A	16 A
Contact Resistance	20 mOhm	20 mOhm
Material Specifications		
Contact Pin	nickel plated brass	nickel plated brass
Contact Spring	nickel plated copper-beryllium	nickel plated copper-beryllium
Housing	PA, PP	PA, PP
Environmental Conditions		
Temperature Range	-15°C to +70°C (5°F to 158°F)	-15°C to +70°C (5°F 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.





* Please consider derating graph on page 80.



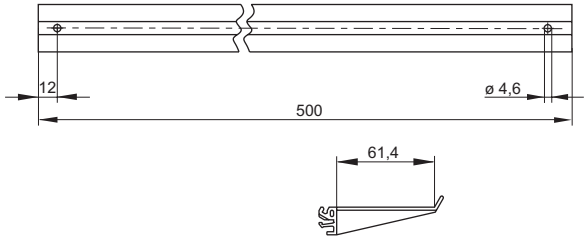
Measuring Leads
4 mm Safety System

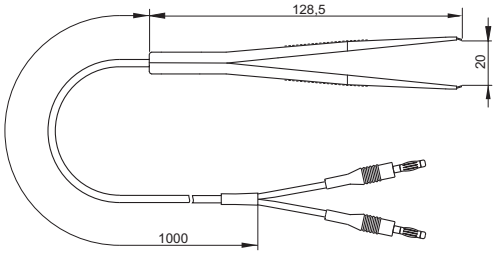


Type	LMLH 50	TW 120 BAN
	Laboratory test lead holder with plastic brackets. Measuring leads can be laid neatly on walls, cabinets, etc. Consists: one aluminium profile rail, 30 plastic brackets, fastening kit.	SMD Test Tweezer for 2 wire measurements with multimeters. The gold-plating ensures lowest transition resistance. Available with BNC Connectors or Banana Plugs. Contacts gold-plated. Other cable lengths on request.
Cable length	–	1.2m (47.2”)
Conductor size	–	–
Cable material	–	–
Pin dimensions	–	–
Clamp type	–	RG 174
PART NO. / Housing color	● **973919001**	● **974330000**
Technical Data		
Contact Type	–	2 gold-plated 4 mm banana plugs to gold-plated tweezer tips
Voltage Rating	–	30 VAC / 60 VDC
Measurement Category (IEC61010)	–	CAT I
Current Rating*	–	–
Contact Resistance	–	–
Material Specifications		
Contact Pin	–	–
Contact Spring	–	–
Housing	–	–
Environmental Conditions		
Temperature Range	–	–
Flamability Rating		
Housing	–	–

Drawing

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





* Please consider derating graph on page 80.

Measuring Leads
4 mm Safety System

Altech Corp.® by HIRSCHMANN® Test & Measurement

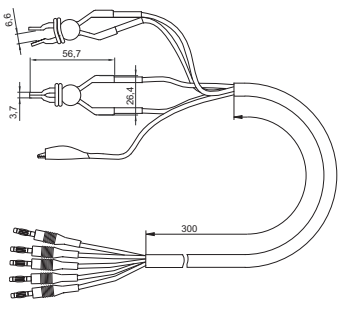


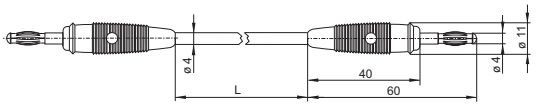


Type	TKL 065 BAN	SML 100/1
	High quality Kelvin Measuring Leads for 4 wire measurements with LCR measuring bridges and multimeters. The gold-plating ensures lowest transition resistance. Available with BNC Connectors or Banana Plugs. Contacts gold-plated. Other cable lengths on request.	Silicone measuring lead, 4 mm plug with caged spring on both 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	0.65m (25.6")	1m (39.37")
Conductor size	–	1 mm² (18 AWG)
Cable material	–	silicone
Pin dimensions	4 mm (0.157")	4 mm (0.157")
Clamp type	RG 174	LEH-XY
PART NO. / Housing color	● **974340000**	● **973388100** ● **973388101** ● **973388102** ● **973388103** ● **973388104**
Technical Data		
Contact Type	spring-loaded pin, stationary tip	spring-loaded pin
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	–	16 A
Contact Resistance	–	20 mOhm
Material Specifications		
Contact Pin	–	brass
Contact Spring	–	nickel plated copper-beryllium
Housing	–	PA, PP
Environmental Conditions		
Temperature Range	–	-15°C to +70°C (5°F to 158°F)
Flamability Rating		
Housing	–	–

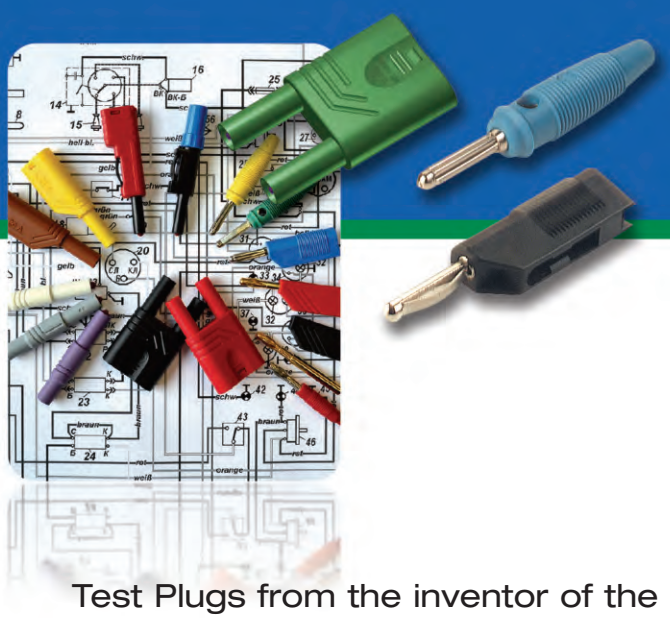
Drawing

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





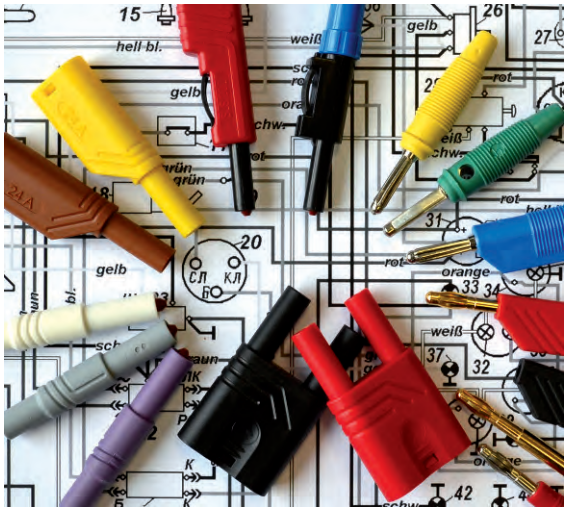
* Please consider derating graph on page 80.

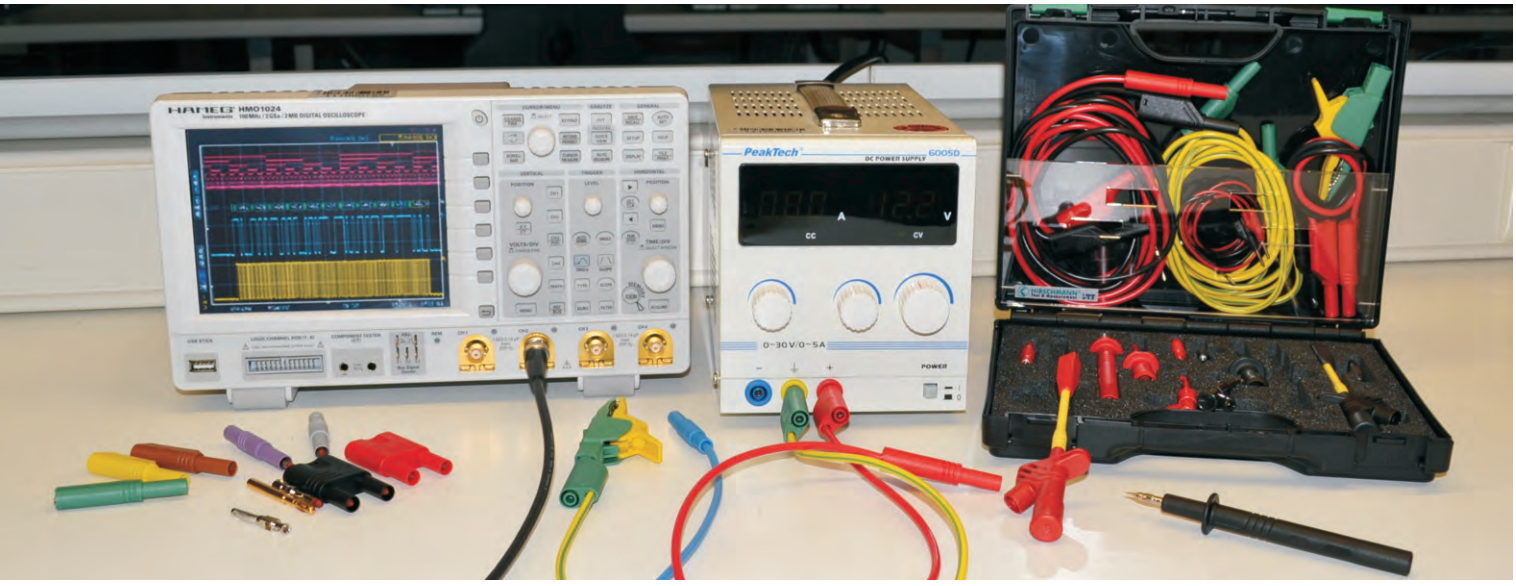


Test Plugs

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





Test Plugs
2 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



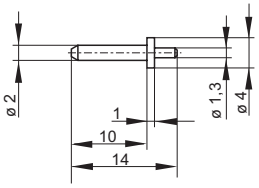


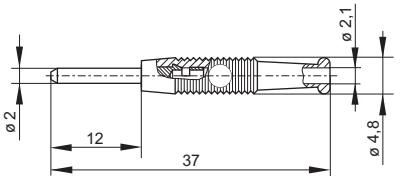
Type	**MST 201**	**MST 3**
	2mm mini connector pin for PCB boards, fits MKU1 and MBU2 (for stacking PCB boards), pin spacing 5mm and up.	2mm mini connector, nickel plated brass pin with solder connection, flexible and shatter proof insulated sleeve, connecting leads up to 1.9mm.
Pin diameter	2 mm (0.078")	2 mm (0.078")
PART NO. / Housing color	**931338001**	● **973509100** ● **973509101** ● **973509102** ● **973509103** ● **973509104** ● **973509106**

Technical Data		
Contact Type	pin	spring loaded pin
Connection Type	solder terminal	solder terminal
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	6A	6A
Contact Resistance	6 mOhm	6 mOhm
Material Specifications		
Plug	nickel plated brass	nickel plated brass
Contact Spring	–	–
Housing	–	PVC-P
Environmental Conditions		
Temperature range	-20 °C to +60 °C (-4 to 140°F)	-20 °C to +60 °C (-4 to 140°F)
Flamability Rating		
Housing	–	–

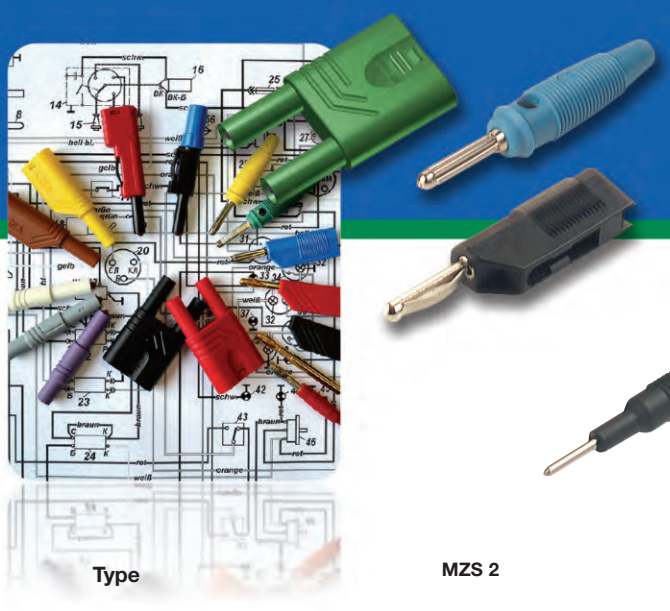
Drawing

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





* Please consider derating graph on page 80.



Test Plugs
2 mm System

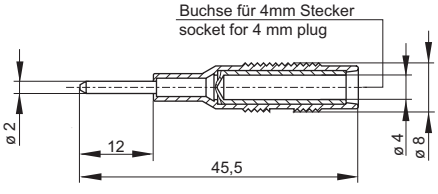


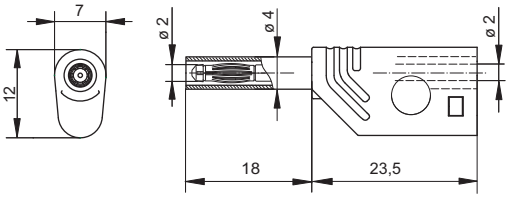
Type	MZS 2	MST S WS 30 AU
	Shrouded Adapter 2mm plug to 4mm jack.	2mm safety plug, spring loaded pin, gold plated, solder terminal 0.5mm2-1.0mm2, 1000V system.
Pin diameter	2 mm (0.078")	2 mm (0.078")
PART NO. / Housing color	● **973600100** ● **973600101**	● **975090700** ● **975090701** ● **975090702** ● **975090703** ● **975090704** ● **975090705** ● **975090706** ● **975090707** ● **975090709**

Technical Data		
Contact Type	stationary	spring loaded pin
Connection Type	jack Ø4mm	solder terminal
Voltage Rating	30 VAC / 60 VDC	AC/DC 1000V
Measurement Category (IEC61010)	CAT I	CAT III
Current Rating*	6A	10A
Contact Resistance	6 mOhm	2 mOhm
Material Specifications		
Plug	nickel plated brass	gold plated copper-beryllium
Contact Spring	–	gold plated brass
Housing	PP	Polyamide
Environmental Conditions		
Temperature range	-20 °C to +60 °C (-4 to 140°F)	-15°C to +70°C (-5 to 158°F)
Flamability Rating		
Housing	UL94 HB	–

Drawing

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





* Please consider derating graph on page 80.

Test Plugs
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



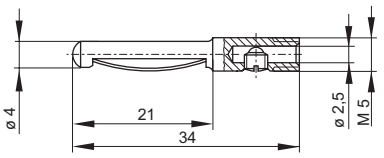


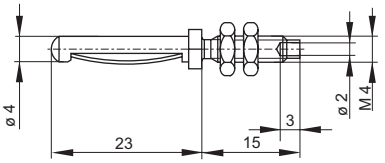
Type	**VST 100**	**VST 20**
	4mm spring loaded connector pin, nickel plated brass, screw terminal up to 1.5mm².	4mm spring loaded connector pin, nickel plated brass, M4 thread/ screw terminal up to 2mm².
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color	**930581000**	**930050000**

Technical Data		
Contact Type	spring loaded pin	spring loaded pin
Connection Type	screw terminal max. 1.5mm²	M4 thread / soldering max. 2mm²
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
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	–	–
Environmental Conditions		
Temperature range	-25 °C to +100°C (-13 to 212°F)	-25 °C to +100°C (-13 to 212°F)
Flamability Rating		
Housing	–	–

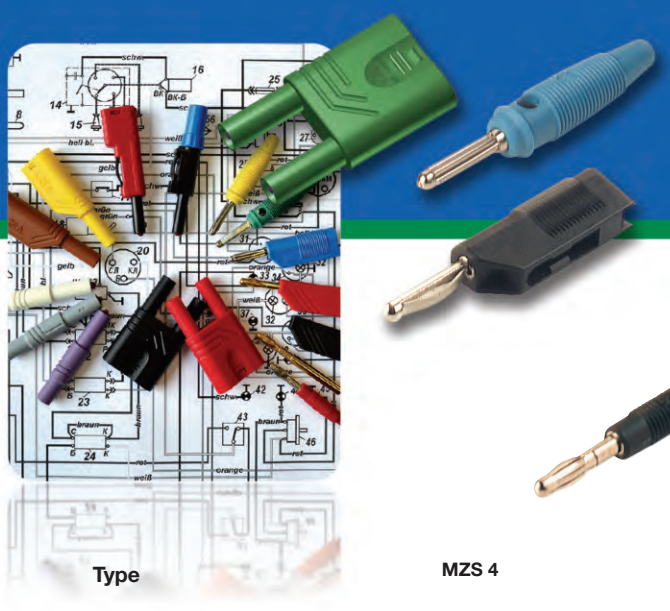
Drawing

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





* Please consider derating graph on page 80.



Test Plugs
4 mm System

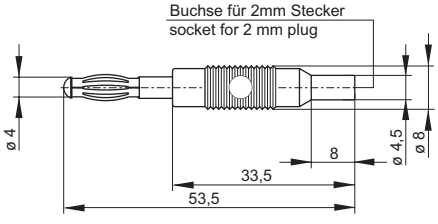


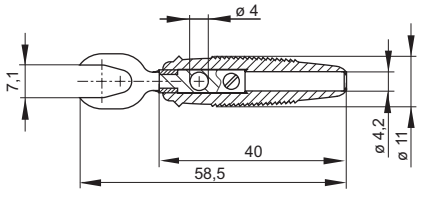
Type	MZS 4	KB 2
	Shrouded Adapter 4mm plug to 2mm jack.	Fork type cable lug, nickel plated brass, flexible insulation sleeve, screw terminal up to 2.5mm².
Pin diameter	4 mm (0.157")	Fork
PART NO. / Housing color	● **973599100** ● **973599101**	● **930584100** ● **930584101**

Technical Data		
Contact Type	spring loaded pin	fork cable lug
Connection Type	spring-loaded jack (Ø 2 mm)	screw terminal max. 2.5mm²
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	6A	30A
Contact Resistance	6 mOhm	1 mOhm
Material Specifications		
Plug	nickel plated brass	nickel plated brass
Contact Spring	nickel plated copper-beryllium	–
Housing	PP	PVC-P
Environmental Conditions		
Temperature range	-20 °C to +60 °C (-4 to 140°F)	-25 °C to +70 °C (-13 to 158°F)
Flamability Rating		
Housing	–	–

Drawing

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





* Please consider derating graph on page 80.

Test Plugs
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



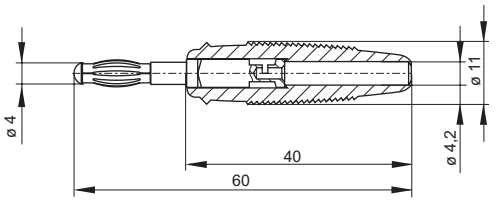


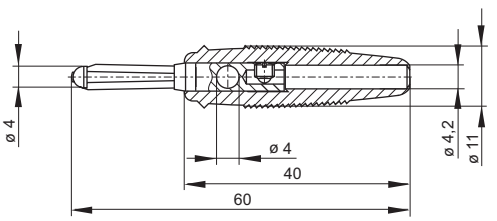
	LAS 30 / LAS 30 Au	BUELA 20 K
Type	4mm spring loaded plug, nickel/ gold plated contact spring, solder terminal up 1.5mm².	4mm multi spring plug, flexible, insulated sleeve with 4mm cross hole, nickel plated brass, screw terminal max. 1.5mm².
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color	Nickel Plated / Gold Plated	
● black	**972518100** / **972518700**	**930726100**
● red	**972518101** / **972518701**	**930726101**
● blue	**972518102** / **972518702**	**930726102**
● yellow	**972518103** / **972518703**	**930726103**
● green	**972518104** / **972518704**	**930726104**
○ white		**930726107**

Technical Data		
Contact Type	spring loaded pin	spring loaded pin
Connection Type	solder terminal max. 1.5mm²	screw terminal max. 1.5mm²
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	32A	16A
Contact Resistance	3 mOhm	3 mOhm
Material Specifications		
Plug	nickel plated brass; gold plated brass	nickel plated brass
Contact Spring	nickel pl. copper-beryllium; gold pl. copper-beryllium	–
Housing	PVC-P	PVC-P
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	–	–

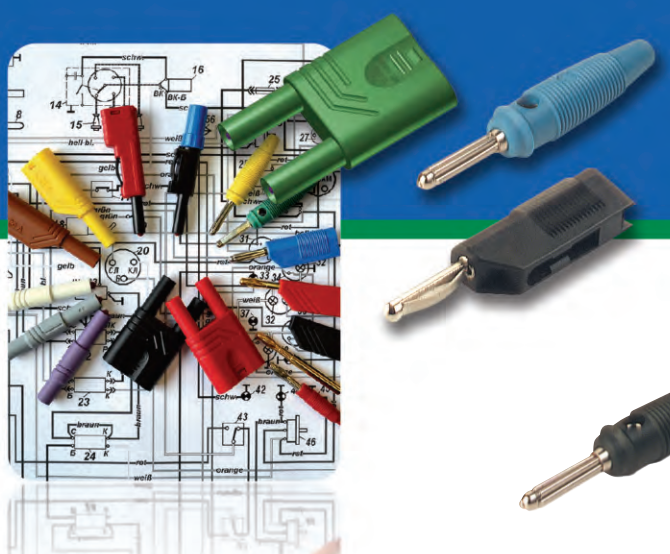
Drawing

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





* Please consider derating graph on page 80.



Test Plugs
4 mm System

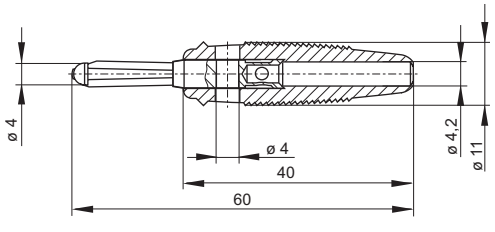


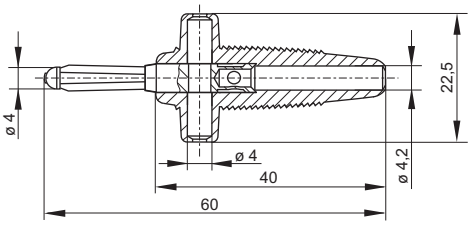
Type	BUELA 30 K	BUELA 300 K
	4mm multi spring plug, flexible, insulated sleeve with 4mm cross hole, nickel plated brass, solder terminal max. 2.5mm².	4mm multi spring plug, flexible, insulated sleeve with 4mm cross hole, nickel plated brass, solder terminal max. 2.5mm².
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color	● **930727100** ● **930727101** ● **930727102** ● **930727103** ● **930727104** ○ **930727107**	● **931667100** ● **931667101** ● **931667102** ● **931667103** ● **931667104**

Technical Data		
Contact Type	spring loaded pin	fork cable lug
Connection Type	solder terminal max. 2.5mm²	solder terminal max. 2.5mm²
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	30A	30A
Contact Resistance	3 mOhm	3 mOhm
Material Specifications		
Plug	nickel plated brass	nickel plated brass
Contact Spring	–	–
Housing	PVC-P	PVC-P
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	–	–

Drawing

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





* Please consider derating graph on page 80.

Test Plugs
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



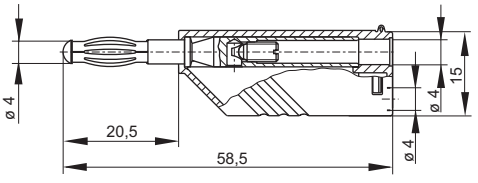


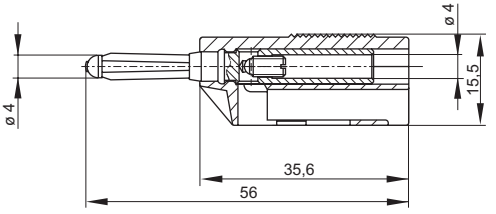
	LAS N WS / LAS N WS Au	BSB 20 K
Type	4mm stackable plug, nickel/ gold plated contact spring, screw terminal 0.5-1.5mm².	4mm multi spring plug with cable gland, nickel plated brass, screw terminal max. 2.5mm².
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color	**Nickel Plated** / **Gold Plated**	
● black	**934100100** / **934100700**	**930729100**
● red	**934100101** / **934100701**	**930729101**
● blue	**934100102** / **934100702**	**930729102**
● yellow	**934100103** / **934100703**	**930729103**
● green	**934100104** / **934100704**	**930729104**
● brown	**934100105** / **934100705**	
● grey	**934100106** / **934100706**	
○ white	**934100107** / **934100707**	
● violet	**934100109** / **934100709**	

Technical Data		
Contact Type	spring loaded pin	spring loaded pin
Connection Type	screw terminal max. 1.5mm²	screw terminal max. 2.5mm²
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	24A	30A
Contact Resistance	3 mOhm	3 mOhm
Material Specifications		
Plug	nickel plated brass; gold plated brass	brass
Contact Spring	nickel pl. copper-beryllium; gold pl. copper-beryllium	nickel
Housing	Polyamide	PP
Environmental Conditions		
Temperature range	-15 °C to +70°C (5 to 158°F)	-25 °C to +100°C (-13 to 212°F)
Flamability Rating		
Housing	UL 94 V-2	UL 94 HB

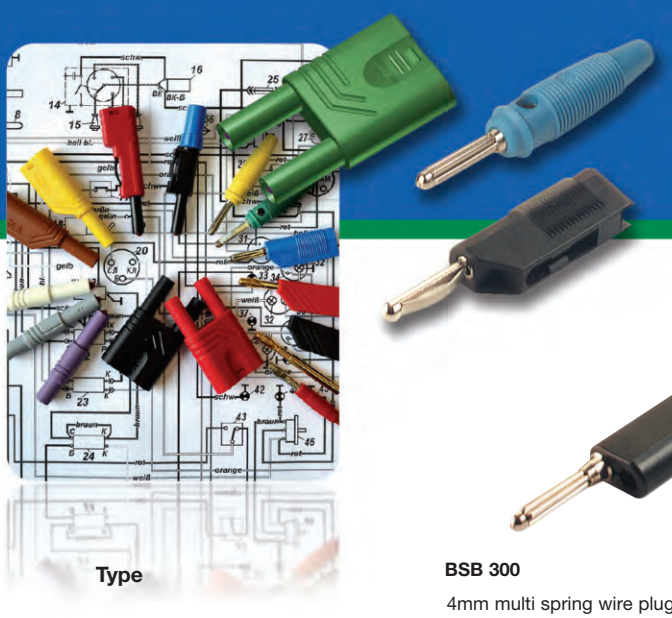
Drawing

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





* Please consider derating graph on page 80.



Test Plugs
4 mm System

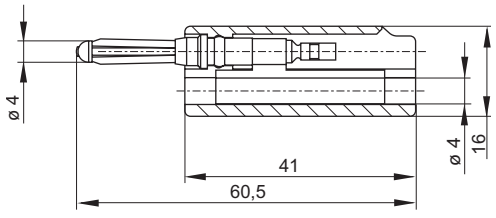


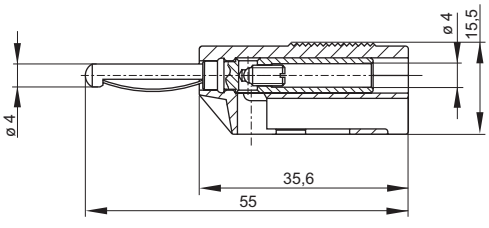
Type	BSB 300	VSB 20
	4mm multi spring wire plug with parallel adapter for shorting proof connection, nickel plated brass, solder terminal max. 1.5mm².	4mm spring loaded plug with cable gland, stackable (4mm jack), screw terminal max. 2.5mm².
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color	● **931294100** ● **931294101** ● **931294102** ● **931294103** ● **931294104**	● **930435100** ● **930435101** ● **930435102** ● **930435103** ● **930435104**

Technical Data		
Contact Type	spring loaded pin	spring loaded pin
Connection Type	solder terminal max. 1.5mm²	screw terminal max. 2.5mm²
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.





* Please consider derating graph on page 80.

Test Plugs
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



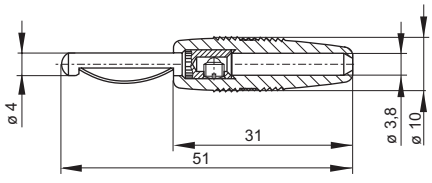


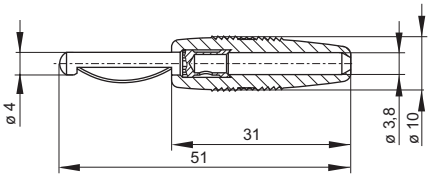
Type	**VON 20** 4mm spring loaded plug, flexible insulation sleeve, nickel plated brass, screw terminal max. 1.5mm².	**VON 30** 4mm spring loaded plug, flexible insulation sleeve, nickel plated brass, solder terminal max. 2.5mm².
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color	● **930046100** ● **930046101** ● **930046102** ● **930046103** ● **930046104**	● **930047100** ● **930047101** ● **930047102** ● **930047103** ● **930047104**

Technical Data		
Contact Type	spring loaded pin	spring loaded pin
Connection Type	screw terminal max. 1.5mm²	screw terminal max. 2.5mm²
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	PVC-P	PVC-P
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	–	–

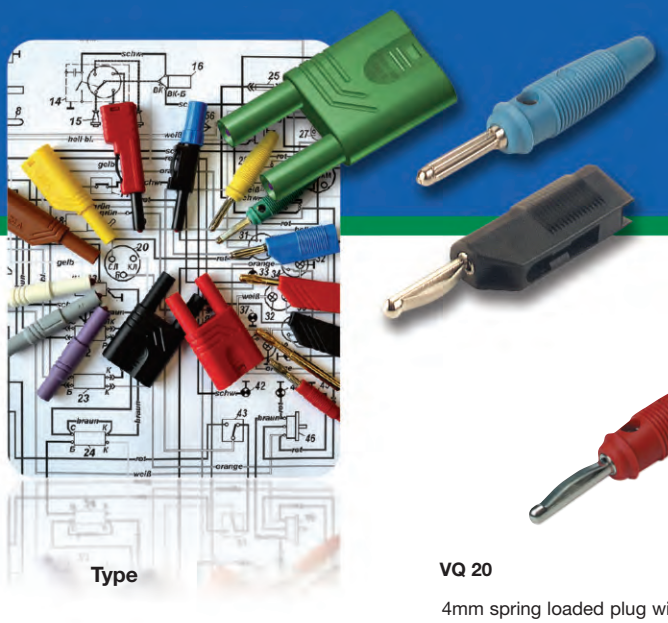
Drawing

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





* Please consider derating graph on page 80.



Test Plugs
4 mm System

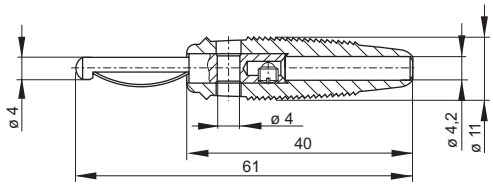


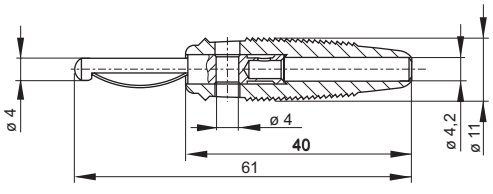
Type	VQ 20	VQ 30
	4mm spring loaded plug with 4mm cross hole, flexible insulation sleeve, nickel plated brass, screw terminal max. 1.5mm².	4mm spring loaded plug with 4mm cross hole, flexible insulation sleeve, nickel plated brass, solder terminal max. 2.5mm².
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color		
●	**930058100**	**930061100**
●	**930058101**	**930061101**
●	**930058102**	**930061102**
●	**930058103**	**930061103**
●	**930058104**	**930061104**
○	**930058107**	**930061107**

Technical Data		
Contact Type	spring loaded pin	spring loaded pin
Connection Type	screw terminal max. 1.5mm²	solder terminal max. 2.5mm²
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	PVC-P	PP
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	–	–

Drawing

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





* Please consider derating graph on page 80.

Test Plugs
4 mm Retractable Plug System

Altech Corp.® by HIRSCHMANN® Test & Measurement



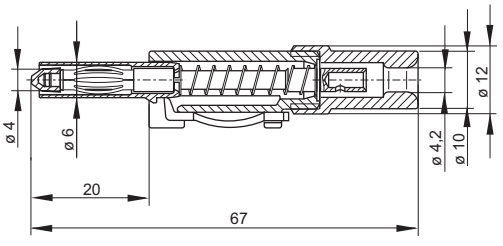


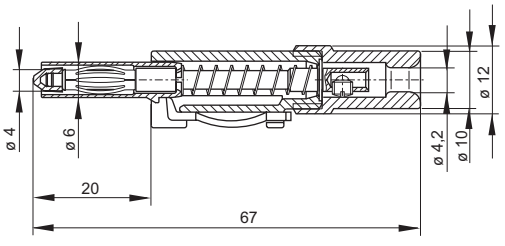
	SLS 10 B	SLS 20 B
Type	4mm touch proof banana plug, sliding sleeve system, solder terminal max. 2.5mm² leads.	4mm touch proof banana plug, sliding sleeve system, screw terminal max. 1.5mm² leads.
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color		
●	**931824100**	**931825100**
●	**931824101**	**931825101**
●	**931824102**	**931825102**
●	**931824103**	**931825103**
●	**931824104**	**931825104**
○	**931824107**	**931825107**

Technical Data		
Contact Type	spring loaded plug	spring loaded plug
Connection Type	solder terminal max. 2.5mm²	screw terminal max. 1.5mm²
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC[1]
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	30A	16A
Contact Resistance	5 mOhm	5 mOhm
Material Specifications		
Plug	nickel plated brass	nickel plated brass
Contact Spring	nickel plated copper-beryllium	nickel plated copper-beryllium
Housing	POM	POM
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 HB

Drawing

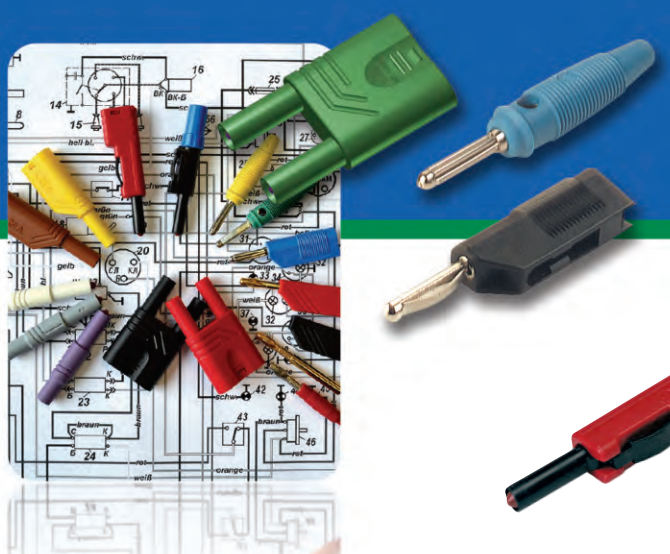
Measurements are shown in millimeters.
Multiply by 0.03937 to convert to inches.





* Please consider derating graph on page 80.

[1]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.



Test Plugs
4 mm System Retractable Plug



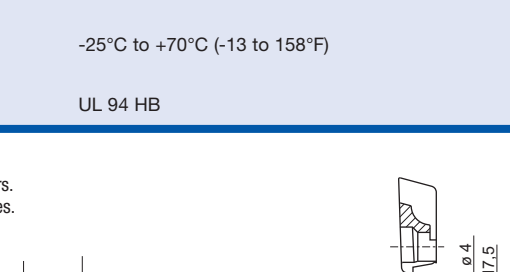
61010

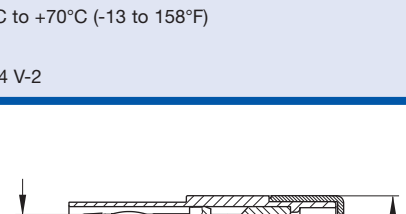
Type	SLS 200	LAS S W
	4mm touch proof banana plug, stackable, sliding sleeve system, screw terminal max. 2.5mm² leads.	4mm safety banana plug, angled, 1000V system, screw terminal 0.5-1.5mm² leads.
Pin diameter	4 mm (0.157")	4 mm (0.157")
PART NO. / Housing color		
●	**932153100**	**934098100**
●	**932153101**	**934098101**
●	**932153102**	**934098102**
●	**932153103**	**934098103**
●	**932153104**	**934098104**

Technical Data		
Contact Type	spring loaded plug	spring loaded plug
Connection Type	screw terminal max. 2.5mm²	screw terminal 0.5-1.5mm²
Voltage Rating	30 VAC / 60 VDC[1]	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.

[1]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.

Test Plugs
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement





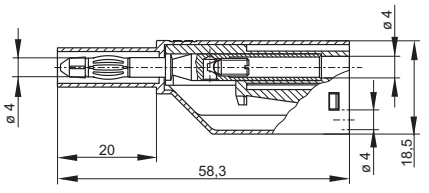


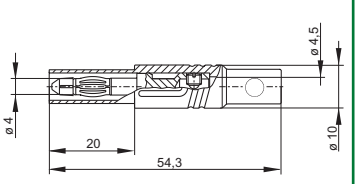
Type	**LAS S WS** 4mm safety banana plug, stackable, 1000V system, screw terminal 0.5-1.5mm² leads.	**LAS S G** 4mm safety banana plug, stackable, 1000V system, screw terminal 0.5-1.5mm² leads.	**KST S WS** 4mm dual safety plug, stackable, 1000V system, nickel plated, 4mm jack.
Pin diameter	4 mm (0.157”)	4 mm (0.157”)	4 mm (0.157”)
PART NO. / Housing color	**934099100** **934099101** **934099102** **934099103** **934099104** **934099105** **934099106** **934099107** **934099109**	**934097100** **934097101** **934097102** **934097103** **934097104** **934097105** **934097106** **934097107** **934097109**	**932200100** **932200101** **932200102** **932200103** **932200104**

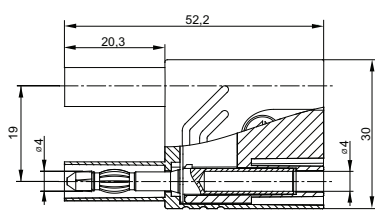
Technical Data			
Contact Type	spring loaded plug	spring loaded plug	2x spring loaded plug
Connection Type	screw terminal 0.5-1.5mm²	screw terminal 0.5-1.5mm²	jack Ø 4 mm
Voltage Rating	AC/DC 1000 V	AC/DC 1000 V	AC/DC 1000 V
Measurement Category (IEC61010)	CAT II	CAT III	CAT II
Current Rating*	24A	24A	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

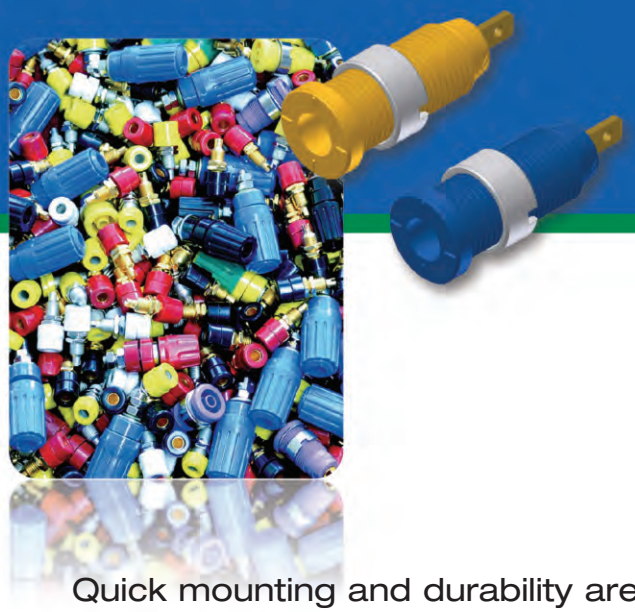
Measurements are shown in millimeters.
Multiply by 0.03937 to convert to inches.







* Please consider derating graph on page 80.

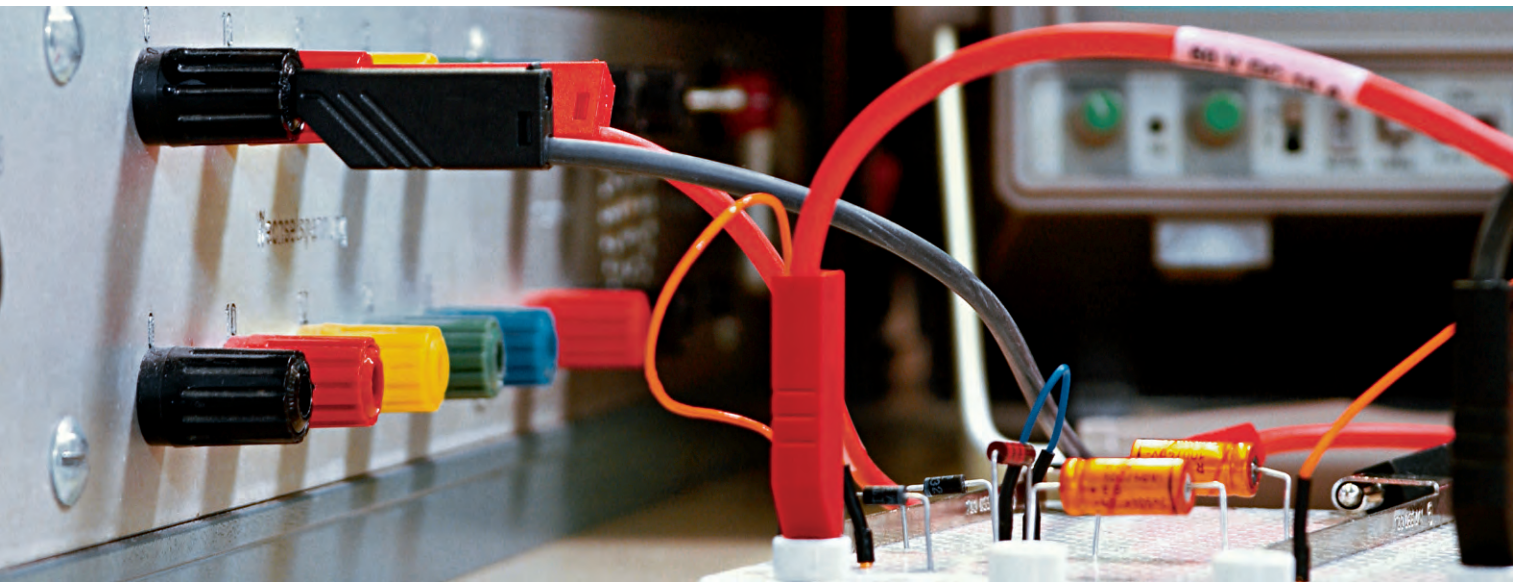


Test Jacks

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





Test Jacks
2 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



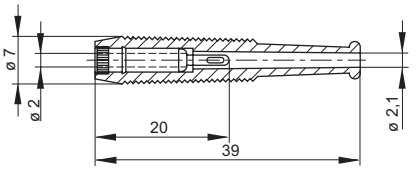


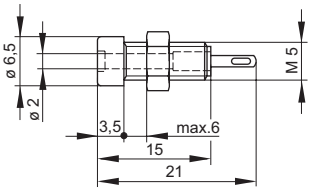
Type	**MKU 1** 2mm mini Adapter, tin plated Copper-Beryllium contact spring with solder terminal. Flexible, shatter-proof insulation sleeve, max. connecting lead diameter 2mm.	**MBI 1 / MBI 1 Au** 2mm panel mount mini test jack, tin/ gold plated Copper-Beryllium contact spring with solder terminal. Installation in equipment chassis and switch panels, max. wall thickness 5mm.
Pin Diameter	2 mm	2 mm
PART NO. / Housing color		Nickel Plated / Gold Plated
●	**930320100**	**930308100** / **930308700**
●	**930320101**	**930308101** / **930308701**
●	**930320102**	**930308102** / **930308702**
●	**930320103**	**930308103** / **930308703**
●	**930320104**	**930308104** / **930308704**
○	**930320107**	**930308106** / **930308706**

Technical Data		
Contact Type	spring-loaded jack Ø 2 mm	spring-loaded jack Ø 2 mm
Connection Type	solder terminal max Ø 2 mm	solder terminal
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	6 mOhm	6 mOhm
Mounting Type	–	screw thread M5
Material Specifications		
Jack Body	–	–
Contact Spring	tin plated copper-beryllium	tin plated copper-beryllium | gold plated copper-beryllium
Housing	PVC-P	Polyamide
Environmental Conditions		
Temperature Range	-20°C to +60 °C (-4 to 140°F)	-20°C to +60 °C (-4 to 140°F)
Flamability Rating		
Housing	–	UL 94 HB

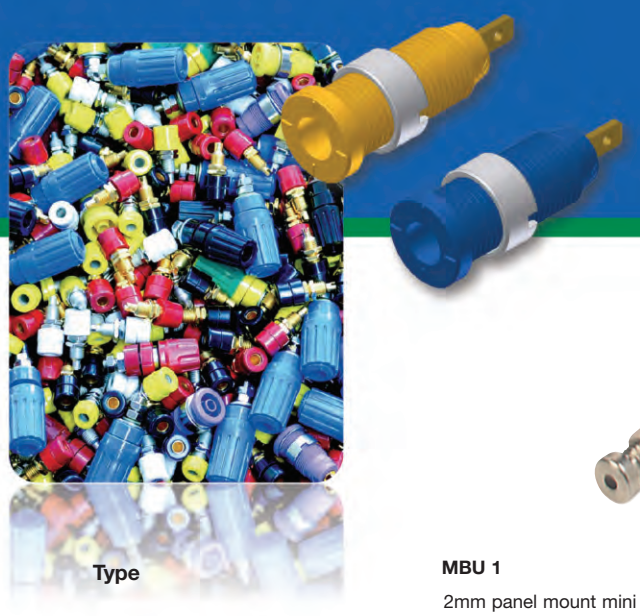
Drawing

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





* Please consider derating graph on page 80.



Test Jacks
2 mm System



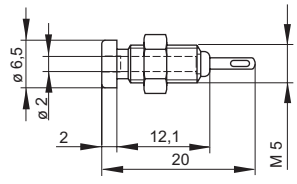


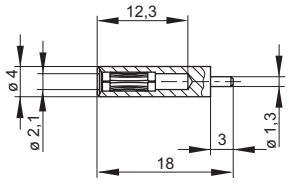
Type	MBU 1	MBU 2
	2mm panel mount mini test jack, nickel plated brass, spring loaded with solder terminal. max. installation wall thickness 8mm.	2mm mini metal test jack, tin plated brass, spring loaded with PCB soldering terminal. Fits MST3, MVL 2 and MST201.
Pin Diameter	2 mm	2 mm
PART NO. / Housing color	**930312000**	**931337000**

Technical Data		
Contact Type	spring-loaded jack Ø 2 mm	spring-loaded jack Ø 2 mm
Connection Type	solder terminal	solder terminal
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	6 mOhm	6 mOhm
Mounting Type	screw thread M5	screw
Material Specifications		
Jack Body	nickel plated brass	tin plated brass
Contact Spring	tin plated copper-beryllium	gold plated copper-beryllium
Housing	–	–
Environmental Conditions		
Temperature Range	-20°C to +60 °C (-4 to 140°F)	-20°C to +60 °C (-4 to 140°F)
Flamability Rating		
Housing	–	–

Drawing

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





* Please consider derating graph on page 80.

Test Jacks
2 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



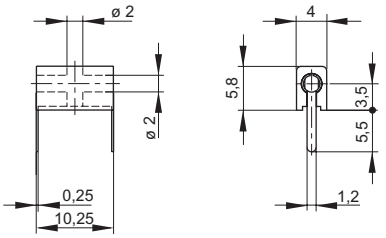


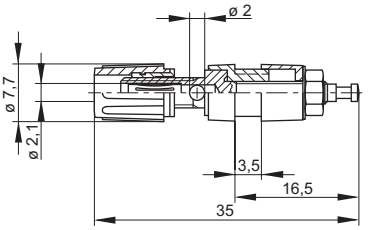
	MPB 1	MPK 1
Type	2mm mini test jack, dimensions according to DIN41649. Suitable for testing PCB boards during operation.	2mm insulated panel mount binding post with cross hole, gold plated Copper-Beryllium contact spring, tin plated brass thread bold with solder terminal. max. panel thickness 8mm
Pin Diameter	2 mm	2 mm
PART NO. / Housing color	● **930224100** ● **930224101**	● **930268100** ● **930268101**

Technical Data		
Contact Type	spring-loaded jack Ø 2 mm	spring-loaded jack Ø 2 mm, cross hole Ø 2 mm
Connection Type	solder terminal	solder terminal
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	6 mOhm	6 mOhm
Mounting Type	PCB	screw thread M3
Material Specifications		
Jack Body	–	gold plated copper-beryllium
Contact Spring	tin plated bronze	–
Housing	PC	Polyamide
Environmental Conditions		
Temperature Range	-20°C to +60 °C (-4 to 140°F)	-20°C to +60 °C (-4 to 140°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.



Test Jacks
2 mm System

Type

61010

MSEB 2600 G M3 Au

2mm panel mount safety test jack, gold plated brass with M3 thread and solder terminal. max. installation wall thickness 8mm.



61010

MSEB 2610 F2.8 Au

2mm panel mount safety test jack, gold plated brass with flat 2.8x0.8mm DIN46244 terminal. max. installation wall thickness 8mm.



61010

MSEB 2630 S1.9 Au

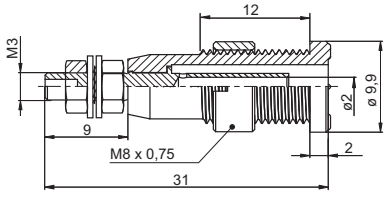
2mm panel mount safety test jack, gold plated brass with 1.9mm solder pin terminal. max. installation wall thickness 8mm.

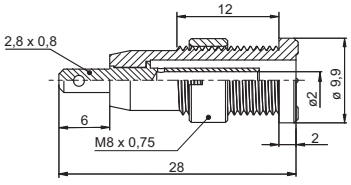
Pin Diameter	2 mm	2 mm	2 mm
PART NO. / Housing color			
	975454700	**975455700**	**975459700**
	975454701	**975455701**	**975459701**
	975454702	**975455702**	**975459702**
	975454703	**975455703**	**975459703**
	975454704	**975455704**	**975459704**
	975454705	**975455705**	**975459705**
	975454706	**975455706**	**975459706**
	975454707	**975455707**	**975459707**
	975454709	**975455709**	**975459709**

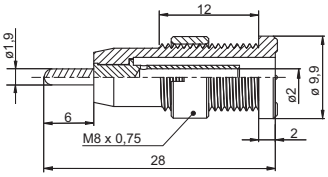
Technical Data			
Contact Type	jack Ø 2 mm	jack Ø 2 mm	jack Ø 2 mm
Connection Type	M3 thread, solder terminal	flat 2.8x0.8 mm push in tab	solder terminal
Voltage Rating	AC/DC 1000V	AC/DC 1000V	AC/DC 1000V
Measurement Category (IEC61010)	CAT III	CAT III	CAT III
Current Rating*	10 A	10 A	10 A
Contact Resistance	5 mOhm	5 mOhm	5 mOhm
Mounting Type	screw thread M8	screw thread M8	screw thread M8
Material Specifications			
Jack Body	gold plated brass	gold plated brass	gold plated brass
Contact Spring	–	–	–
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

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







* Please consider derating graph on page 80.

Test Jacks
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



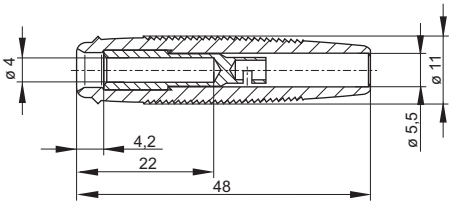


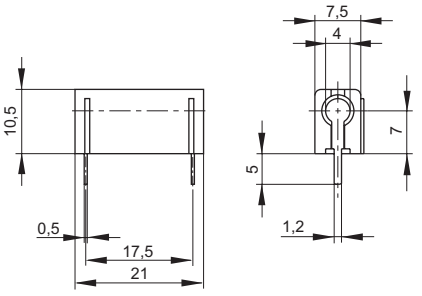
Type	**KUN 30 / KUN 30 Au** 4mm Adapter, nickel/ gold plated brass with solder terminal max 2.5mm2. Flexible, shatter-proof insulation sleeve	**PB 4** 4mm test jack, dimensions according to DIN41649. Suitable for testing PCB boards during operation.
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	Nickel Plated / Gold Plated	
	● **931804100** / ● **931804700**	● **973582100**
	● **931804101** / ● **931804701**	● **973582101**
	● **931804102** / ● **931804702**	
	● **931804103** / ● **931804703**	
	● **931804104** / ● **931804704**	
	○ **931804107** / ○ **931804707**	
	nickel / gold	

Technical Data		
Contact Type	jack Ø 4 mm	jack Ø 4 mm
Connection Type	solder terminal (max. 2.5mm²)	solder
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	16 A	16 A
Contact Resistance	3 mOhm	5 mOhm
Mounting Type	–	PCB
Material Specifications		
Jack Body	nickel plated brass | gold plated brass	tin plated brass
Contact Spring	–	–
Housing	PVC-P	PC
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

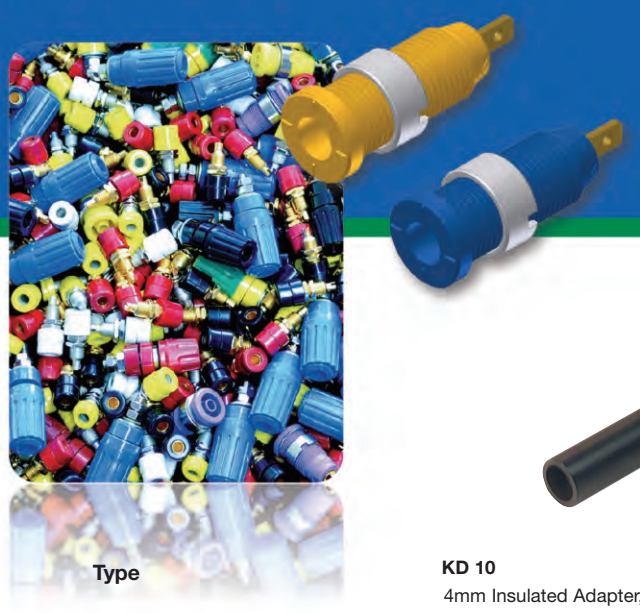
Drawing

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





* Please consider derating graph on page 80.



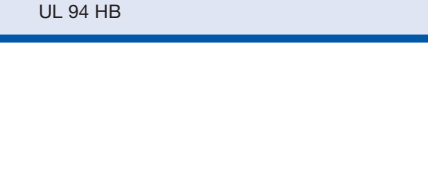
Test Jacks
4 mm System

Type	KD 10	KUN 10
		
	4mm Insulated Adapter, nickel plated brass, for two 4mm plugs	4mm Insulated Adapter, tin plated brass jack and screw terminal max 1.5mm2
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	● **930109100** ● **930109101**	● **930189100** ● **930189101**

Technical Data		
Contact Type	jack Ø 4 mm	jack Ø 4 mm
Connection Type	jack (Ø 4 mm)	screw terminal max. 1.5mm²
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	10 A	16 A
Contact Resistance	5 mOhm	3 mOhm
Mounting Type	–	–
Material Specifications		
Jack Body	nickel plated brass	tin plated brass
Contact Spring	–	–
Housing	PS	PS
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 HB

Drawing

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



* Please consider derating graph on page 80.

Test Jacks
4 mm System

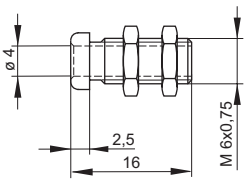
Altech Corp.® by HIRSCHMANN® Test & Measurement

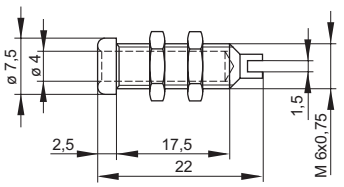
		
Type	**BO 10** 4mm panel mount test jack, nickel plated brass, M6 thread screw terminal. panel thickness 1.5-8mm	**BU 10 / BU 10 Au** 4mm panel mount test jack, nickel/gold plated brass, M6 thread screw/ solder terminal. max. panel thickness 11mm
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	**930160000**	**930147000** (Nickel plated) **930147700** (Gold plated)

Technical Data		
Contact Type	jack Ø 4 mm	jack Ø 4 mm
Connection Type	M6 thread	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	16 A
Contact Resistance	5 mOhm	5 mOhm
Mounting Type	screw thread M6	screw thread M6
Material Specifications		
Jack Body	nickel plated brass	nickel / gold plated brass
Contact Spring	–	–
Housing	–	–
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	–	–

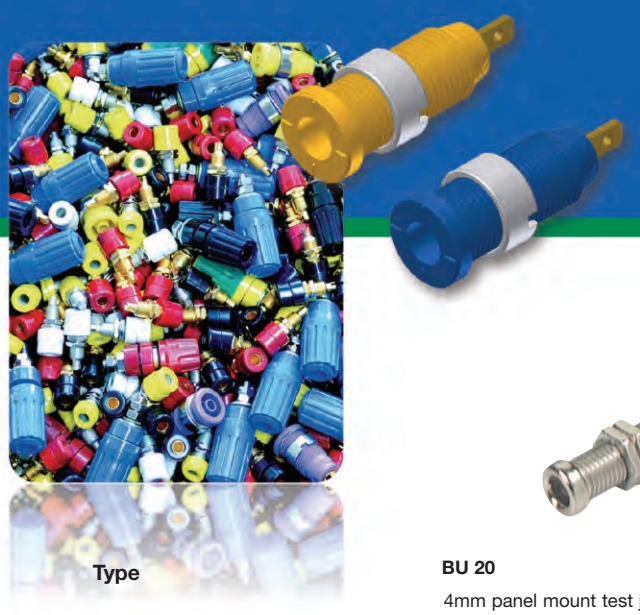
Drawing

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





* Please consider derating graph on page 80.

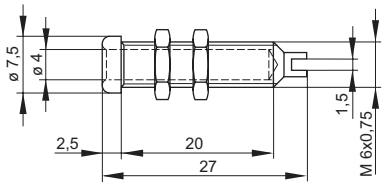


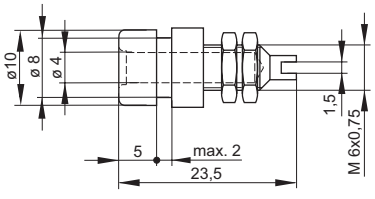
Test Jacks
4 mm System

Type		
		
	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
PART NO. / Housing color	**930177000**	Nickel Plated / Gold Plated
		930176100 / **930176700**
		930176101 / **930176701**
		930176102 / **930176702**
		930176103 / **930176703**
		930176104 / **930176704**
		930176105 / **930176705**
		930176106 / **930176706**
		930176107 / **930176707**
		930176109 / **930176709**
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	5 mOhm
Mounting Type	screw thread M6	screw thread M6
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		
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.

Test Jacks
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement





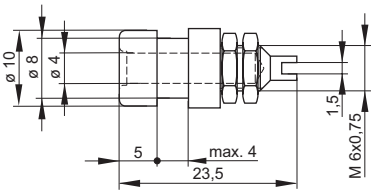
	BIL 30 / BIL 30 Au	BUG 10 / BUG 10 Au
Type	4mm panel mount test jack, tin/ gold plated brass, M6 thread screw/ solder terminal, max. panel thickness 4mm	4mm panel mount test jack, tin/ gold plated brass, M6 thread screw/ solder terminal, max. panel thickness 8mm
Pin Diameter	4 mm	4 mm

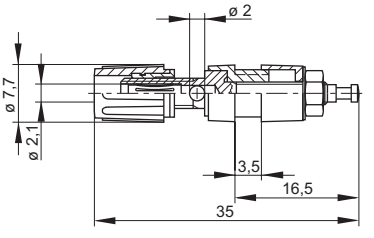
PART NO. / Housing color	Nickel Plated	Gold Plated	Nickel Plated	Gold Plated
	930166100	**930166700**	**930175100**	**930175700**
	930166101	**930166701**	**930175101**	**930175701**
	930166102	**930166702**	**930175102**	**930175702**
	930166103	**930166703**	**930175103**	**930175703**
	930166104	**930166704**	**930175104**	**930175704**
	930166105	**930166705**	**930175107**	**930175707**
	930166106	**930166706**		
	930166107	**930166707**		
	930166109	**930166709**		

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*	32 A	16 A
Contact Resistance	5 mOhm	5 mOhm
Mounting Type	screw thread M6	screw thread M6
Material Specifications		
Jack Body	tin / gold plated brass	tin / gold plated brass
Contact Spring	–	–
Housing	Polyamide	Polyamide
Environmental Conditions		
Temperature Range	-25°C to +85 °C (-13 to 185°F)	-25°C to +85 °C (-13 to 185°F)
Flamability Rating		
Housing	UL 94 V-2	UL 94 V-2

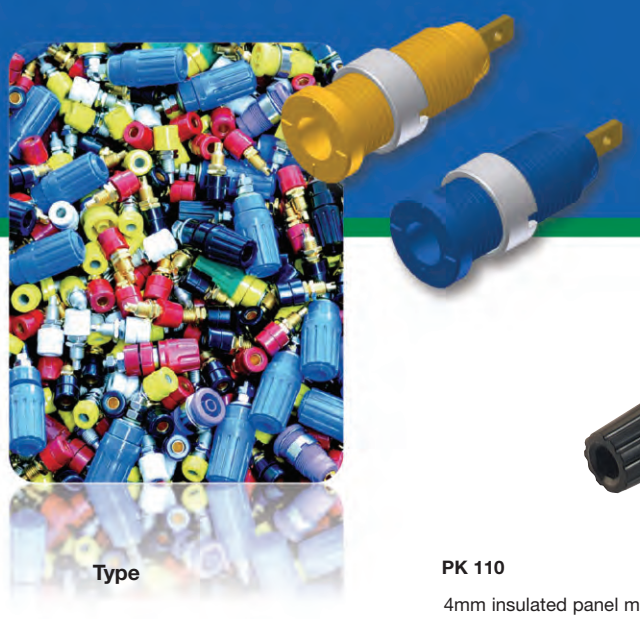
Drawing

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





* Please consider derating graph on page 80.



Test Jacks
4 mm System

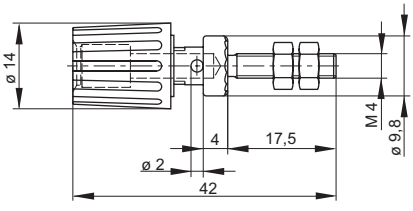


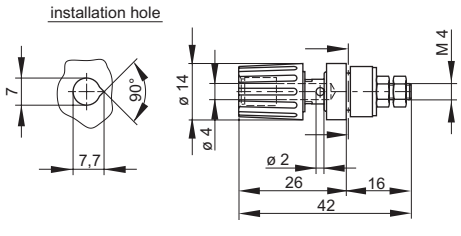


Type	PK 110	PKI 110
	4mm insulated panel mount binding post with 2mm cross hole, nickel plated brass M4 thread terminal.	4mm insulated panel mount binding post with 2mm cross hole, nickel plated brass, M4 thread terminal, max. panel thickness 3.5mm.
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	● **931713100** ● **931713101**	● **931714100** ● **931714101** ● **931714102** ● **931714103** ● **931714104** ● **931714188**
Technical Data		
Contact Type	jack Ø 4 mm, cross hole Ø 2 mm	jack Ø 4 mm, cross hole Ø 2 mm
Connection Type	M4 thread terminal	M4 thread terminal
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	35 A	35 A
Contact Resistance	2 mOhm	2 mOhm
Mounting Type	screw thread M4	screw thread M4
Material Specifications		
Jack Body	nickel plated brass	nickel plated brass
Contact Spring	–	–
Housing	Polyamide	Polyamide
Environmental Conditions		
Temperature Range	-25°C to +100 °C (-13 to 212°F)	-25°C to +100 °C (-13 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.





* Please consider derating graph on page 80.

Test Jacks
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



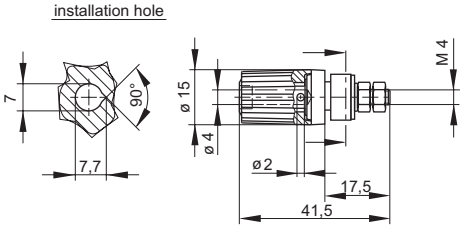


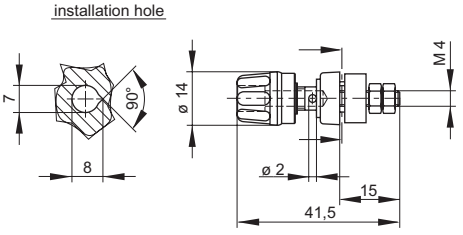
Type	**PKI 100** 4mm insulated panel mount binding post with 2mm cross hole, nickel plated brass, M4 thread terminal, max. panel thickness 3.5mm.	**PKI 10 A / PKI 10 A Au** 4mm insulated panel mount binding post with 2mm cross hole, nickel/ gold plated brass, M4 thread terminal, max. panel thickness 2mm
Pin Diameter	4 mm	4 mm
PART NO. / Housing color		Nickel Plated / Gold Plated
	930757100	**930103100** / **930103700**
	930757101	**930103101** / **930103701**
	930757102	**930103102** / **930103702**
	930757103	**930103103** / **930103703**
	930757104	**930103104** / **930103704**
	930757188	**930103188** / **930103788**

Technical Data		
Contact Type	jack Ø 4 mm, cross hole Ø 2 mm	jack Ø 4 mm, cross hole Ø 2 mm
Connection Type	M4 thread terminal	M 4 thread terminal
Voltage Rating	30 VAC / 60 VDC	30 VAC / 60 VDC
Measurement Category (IEC61010)	CAT I	CAT I
Current Rating*	32 A	35 A
Contact Resistance	2 mOhm	2 mOhm
Mounting Type	screw thread M4	screw thread M4
Material Specifications		
Jack Body	nickel plated brass	nickel plated brass | gold plated brass
Contact Spring	–	–
Housing	Polyamide	PF
Environmental Conditions		
Temperature Range	-25°C to +100 °C (-13 to 212°F)	-25°C to +100 °C (-13 to 212°F)
Flamability Rating		
Housing	UL 94 V-2	–

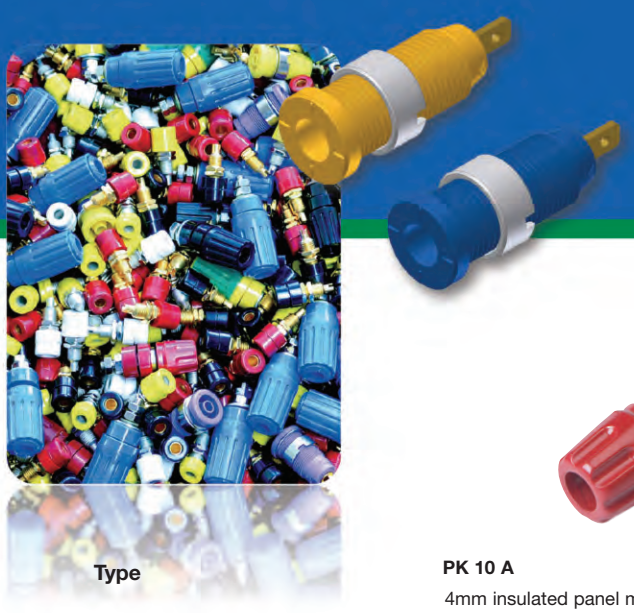
Drawing

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





* Please consider derating graph on page 80.



Test Jacks
4 mm System



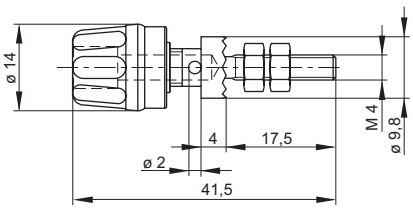


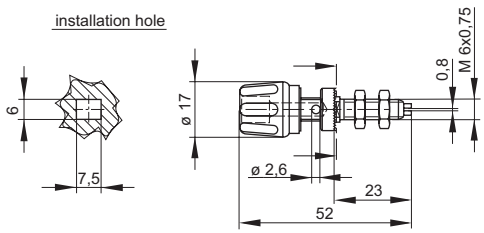
Type	PK 10 A	PKN 10 B
	4mm insulated panel mount binding post with 2mm cross hole, nickel plated brass, M4 thread terminal	4mm insulated panel mount binding post with 2.6mm cross hole, nickel plated brass, M6 thread terminal
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	● **930099100** ● **930099101** ● **930099102** ● **930099103** ● **930099104** ● **930099188**	● **930117100** ● **930117101**

Technical Data		
Contact Type	jack Ø 4 mm, cross hole Ø 2 mm	jack Ø 4 mm, cross hole Ø 2,6 mm
Connection Type	M 4 thread 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	63 A
Contact Resistance	2 mOhm	2 mOhm
Mounting Type	screw thread M4	screw thread M6
Material Specifications		
Jack Body	nickel plated brass	brass
Contact Spring	nickel	nickel plated nickel
Housing	PF	PF
Environmental Conditions		
Temperature Range	-25°C to +100 °C (-13 to 212°F)	-25°C to +100 °C (-13 to 212°F)
Flamability Rating		
Housing	–	UL 94 HB

Drawing

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





* Please consider derating graph on page 80.



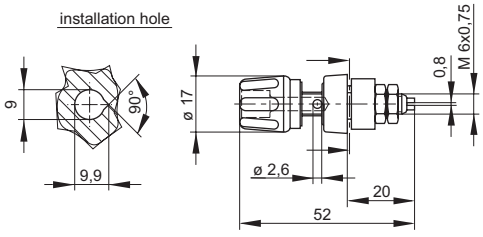


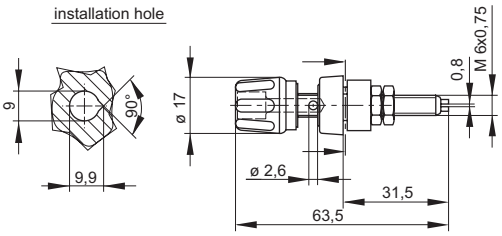
Type	**PKNI 10 B** 4mm insulated panel mount binding post with 2.6mm cross hole, nickel plated brass, M6 thread/ solder terminal, max. panel thickness 3.5mm	**PKNI 20 B** 4mm insulated panel mount binding post with 2.6mm cross hole, nickel plated brass, M6 thread/ solder terminal, max. panel thickness 3.5mm
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	● **930136100** ● **930136101**	● **930144100** ● **930144101**

Technical Data		
Contact Type	jack Ø 4 mm, cross hole Ø 2.6 mm	jack Ø 4 mm, cross hole Ø 2.6 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*	63 A	63 A
Contact Resistance	2 mOhm	2 mOhm
Mounting Type	screw thread M6	screw thread M6
Material Specifications		
Jack Body	nickel plated brass	nickel plated brass
Contact Spring	–	–
Housing	PF	PF
Environmental Conditions		
Temperature Range	-25°C to +100 °C (-13 to 212°F)	-25°C to +100 °C (-13 to 212°F)
Flamability Rating		
Housing	UL 94 HB	UL 94 HB

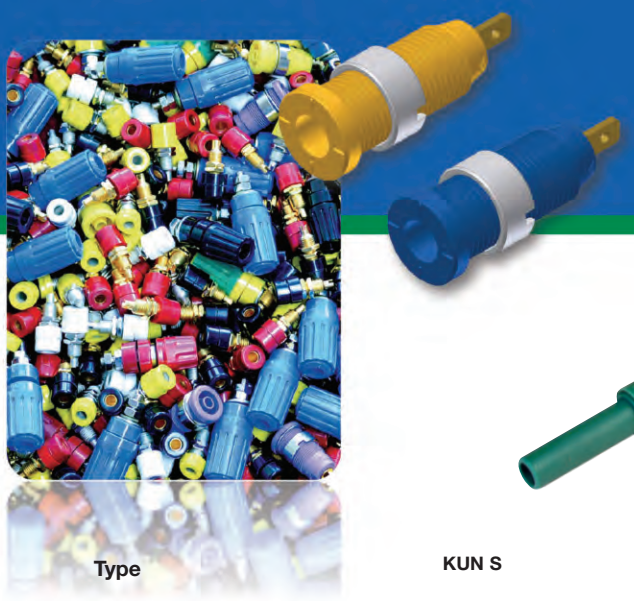
Drawing

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





* Please consider derating graph on page 80.



Test Jacks
4 mm System



CE IEC 61010



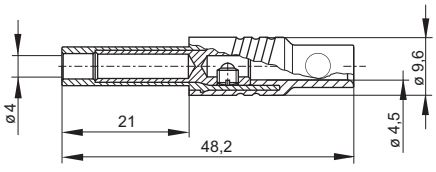
CE IEC 61010

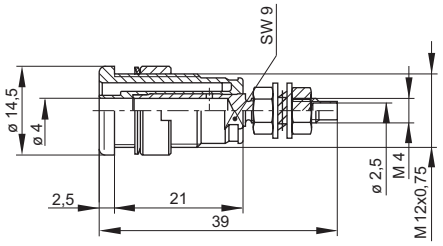
Type	KUN S	SEB 2600 G M4
	4mm Safety adapter, nickel plated brass with screw terminal 0.5-1.5mm2, IEC61010 1000V system	4mm panel mount safety Jack, touch proof, gold plated brass with M4 thread/ solder terminal, max. panel thickness 6mm
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	**934096100**	**972354100**
	934096101	**972354101**
	934096102	**972354102**
	934096103	**972354103**
	934096104	**972354104**
		972354105
		972354106
		972354107
		972354109
		972354188

Technical Data		
Contact Type	jack Ø 4 mm	jack Ø 4 mm
Connection Type	screw terminal max. 1.5mm^2	M4 thread, solder terminal
Voltage Rating	AC/DC 1000 V	AC/DC 1000 V
Measurement Category (IEC61010)	CAT III	CAT III
Current Rating*	24 A	32 A
Contact Resistance	–	5 mOhm
Mounting Type	–	screw thread M12
Material Specifications		
Jack Body	nickel plated brass	gold plated brass
Contact Spring	–	–
Housing	Polyamide	Polymide
Environmental Conditions		
Temperature Range	-15°C to +70°C (5 to 158°F)	-40°C to +80°C (-40 to 176°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.





* Please consider derating graph on page 80.

Test Jacks
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement



CE IEC 61010



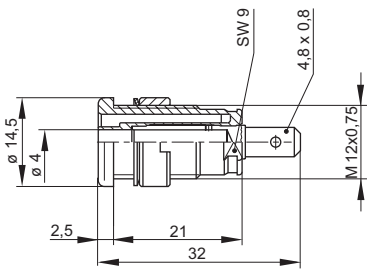
CE IEC 61010

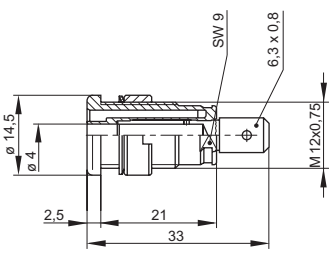
Type	**SEB 2610 F4,8** 4mm panel mount safety Jack, touch proof, gold plated brass with flat 4.8x0.8mm DIN46244 terminal, max. panel thickness 6mm	**SEB 2620 F6,3** 4mm panel mount safety Jack, touch proof, gold plated brass with flat 6.3x0.8mm DIN46244 terminal, max. panel thickness 6mm
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	**972355100**	**972356100**
	972355101	**972356101**
	972355102	**972356102**
	972355103	**972356103**
	972355104	**972356104**
	972355105	**972356105**
	972355106	**972356106**
	972355107	**972356107**
	972355109	**972356109**
	972355188	**972356188**

Technical Data		
Contact Type	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
Voltage Rating	AC/DC 1000 V	AC/DC 1000 V
Measurement Category (IEC61010)	CAT III	CAT III
Current Rating*	25 A	32 A
Contact Resistance	5 mOhm	5 mOhm
Mounting Type	screw thread M12	screw thread M12
Material Specifications		
Jack Body	gold plated brass	gold plated brass
Contact Spring	–	–
Housing	Polyamide	Polyamide
Environmental Conditions		
Temperature Range	-40°C to +80°C (-40 to 176°F)	-40°C to +80°C (-40 to 176°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.





* Please consider derating graph on page 80.

Test Jacks
4 mm System



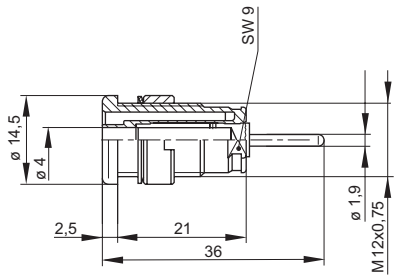


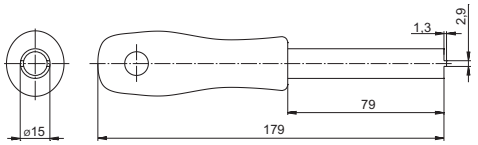


Type	SEB 2630 S1,9	MW SEB
	4mm panel mount safety Jack, touch proof, gold plated brass with soldering pin 1.9mm, max. panel thickness 6mm	Installation tool for 4mm panel mount safety jacks.
Pin Diameter	4 mm	4 mm
PART NO. / Housing color	**972359100**	**973929000**
	972359101	
	972359102	
	972359103	
	972359104	
	972359105	
	972359106	
	972359107	
	972359109	
	972359188	

Technical Data		
Contact Type	jack Ø 4 mm	–
Connection Type	solder pin 1.9mm	–
Voltage Rating	AC/DC 1000 V	–
Measurement Category (IEC61010)	CAT III	–
Current Rating*	24 A	–
Contact Resistance	5 mOhm	–
Mounting Type	screw thread M12	–
Material Specifications		
Jack Body	gold plated brass	–
Contact Spring	–	–
Housing	Polyamide	–
Environmental Conditions		
Temperature Range	-40°C to +80°C (-40 to 176°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.

Test Jacks
4 mm System

Altech Corp.® by HIRSCHMANN® Test & Measurement





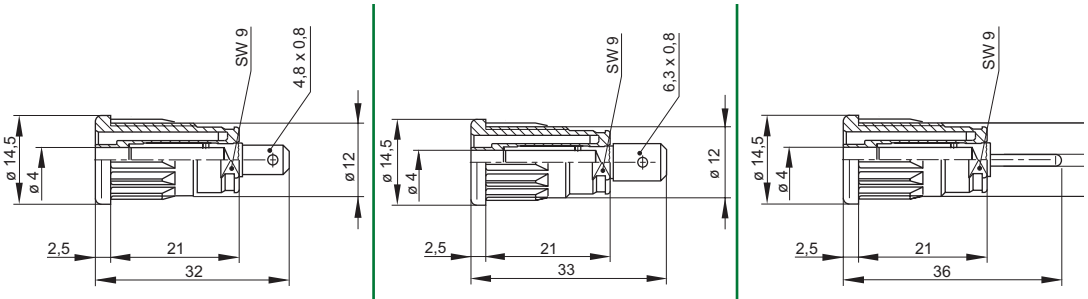


Type	**SEP 2610 F4,8** Safety press-in socket, 4 mm diameter, contact-protected, with 4.8 x 0.8 tab connector complying with DIN 46 244, gold-plated brass. For rapid installation into switch panels with wall thicknesses between 1-10 mm. Installation hole: 12.2 +/- 0.1 mm diameter. Entry chamfer: 0.5 x 45 degree.	**SEP 2620 F6,3** 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 +/- 0.1 mm diameter. Entry chamfer: 0.5 x 45 degree.	**SEP 2630 S1,9** 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**
●	**972361188**	**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
Voltage Rating	AC/DC 1000 V	AC/DC 1000 V	AC/DC 1000V
Measurement Category (IEC61010)	CAT III	CAT III	CAT III
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	–	–	–
Housing	PA	PA	PA
Environmental Conditions			
Temperature Range	-40°C to +80°C (-40 to 176°F)	-40°C to +80°C (-40 to 176°F)	-40°C to +80°C (-40 to 176°F)
Flamability Rating			
Housing	UL 94 V-2	UL 94 V-2	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.



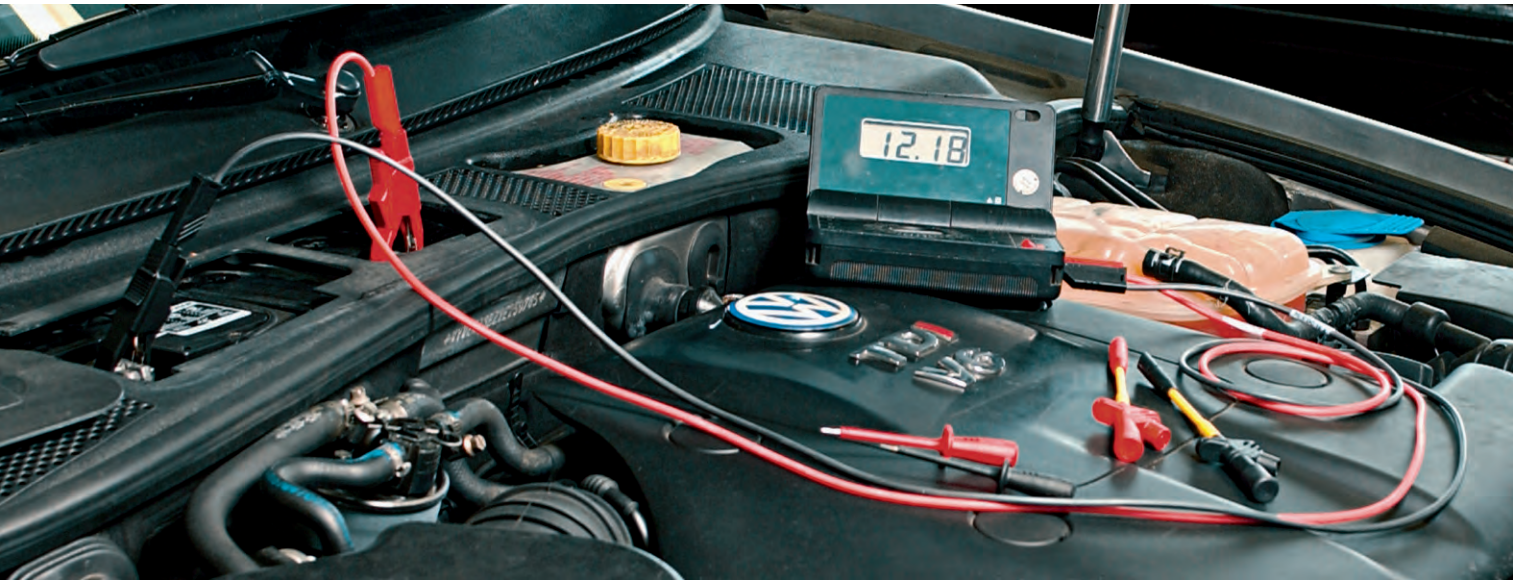
Test & Measurement Sets

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



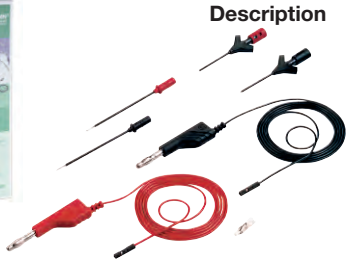




For the latest on Altech Test & Measurement specifications please visit www.altechcorp.com/test-equipment

Test & Measurement Sets





Type **PMS 0.64**
PART No. **932959001**
Description Micro Test Equipment Set for SMD Components and 0.64mm systems.

1 x Plunger Style Test Probe MICRO-KLEPS black 973972100
1 x Plunger Style Test Probe MICRO-KLEPS red 973972101
1 x Test Probe MICRO-PRUEF MPS 2/0,64 FT black 973995100
1 x Test Probe MICRO-PRUEF MPS 2/0,64 FT red 973995101
1 x Alligator Clip AGF 1 930476001
1 x Measuring Lead MAL N 4-0,64/100-0,25 black 934160100
1 x Measuring Lead MAL N 4-0,64/100-0,25 red 934160101





Type **PMS 2**
PART No. **932961001**
Description Test Equipment Set for 2mm systems.

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 MPS 1 black 973531100
1 x Test Probe MPS 1 red 973531101
1 x Alligator Clip MA 1 black 930317800
1 x Alligator Clip MA 1 red 930317801
1 x Measuring Lead MVL 2/100 black 973596100
1 x Measuring Lead MVL 2/100 red 973596101



Type **PMS 2 S LMLH**
PART No. **975604001**
Description Laboratory Test Holder with 10 measuring leads in various colors for 2mm safety system.

1 x Test Lead Holder LMLH 973919001
2 x Test Lead MVL S WS 100/1 AU black 975696700
2 x Test Lead MVL S WS 100/1 AU red 975696701
2 x Test Lead MVL S WS 100/1 AU blue 975696702
2 x Test Lead MVL S WS 100/1 AU yellow 975696703
2 x Test Lead MVL S WS 100/1 AU green 975696704





Type **PMS 4**
PART No. **932793001**
Description Test Equipment Set for 4mm systems.

1 x Plunger Style Test Probe KLEPS 30 black 930113100
1 x Plunger Style Test Probe KLEPS 30 red 930113101
1 x Test Probe PRUEF 2 black 973368100
1 x Test Probe PRUEF 2 red 973368101
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

Test & Measurement Sets



Type **PMS 4 KFZ**
PART No. **933003001**
Description 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

Type **PMS 4 SKS**
PART No. **932794001**
Description 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

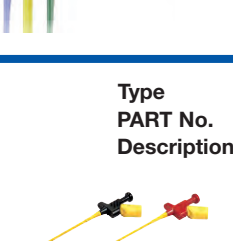
Type **PMS 4 LMLH**
PART No. **972604001**
Description Laboratory Test Holder with 10 measuring leads in various colors for 4mm safety system.



1 x Test Lead Holder LMLH 973919001
2 x Test Lead MLN 100/1 black 934062100
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

Type **PMS 250**
PART No. **932827001**
Description 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

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Test & Measurement Sets

Altech Corp.® by HIRSCHMANN Test & Measurement





Type **PMS PMS 2600**
PART No. **972338001**
Description Test Equipment Set Safety Applications for 4mm system (Accessory for measuring instruments)

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 Measuring Lead MLS GG 100/1 black 934074100
1 x Measuring Lead MLS GG 100/1 red 934074101





Type **PL 2600 S Set**
PART No. **972337002**
Description Test Probe Set for measuring devices with straight connectors.

1 x Measuring Lead PL 2600 S black 934159100
1 x Measuring Lead PL 2600 S red 934159101





Type **PL 2600 S W Set**
PART No. **972425002**
Description Test Probe Set for measuring devices with angled connectors.

1 x Measuring Lead PL 2600 S W black 934158100
1 x Measuring Lead PL 2600 S W red 934158101





Type **MMS 2010**
PART No. **972339001**
Description Test Equipment Set for Safety Applications – Plunger Test Clips KLEPS 2800, Test probes, Measuring Leads.

1 x Safety Plunger Style Test Probe KLEPS 2800 black 972308100
1 x Safety Plunger Style Test Probe KLEPS 2800 red 972308101
1 x Safety Test Probe PRUEF 2700 black 972319100
1 x Safety Test Probe PRUEF 2700 red 972319101
1 x Safety Test Lead MLS WG 100/1 black 934082100
1 x Safety Test Lead MLS WG 100/1 red 934082101





Type **MMS 2020**
PART No. **972340001**
Description Test Equipment Set for Safety Applications – Alligator Clips, Test probes, Measuring Leads.

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 Safety Test Probe PRUEF 2700 black 972319100
1 x Safety Test Probe PRUEF 2700 red 972319101
1 x Safety Test Lead MLS WG 100/1 black 934082100
1 x Safety Test Lead MLS WG 100/1 red 934082101

Test & Measurement Sets

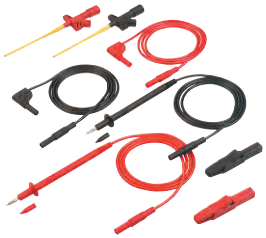




Type **MMS 2030**
PART No. **972341001**
Description Test Equipment Set for Safety Applications – Plunger Test Clips KLEPS 2600, Test probes, Measuring Leads.

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





Type **MMS 2040**
PART No. **972342100**
Description 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



Type **PMS SKS Safety**
PART No. **932795001**
Description 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 **PMS 4 S LMLH**
PART No. **972605001**
Description 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 MLS WS 100/1 black 934095100
2 x Test Lead MLS WS 100/1 red 934095101
2 x Test Lead MLS WS 100/1 blue 934095102
2 x Test Lead MLS WS 100/1 yellow 934095103
2 x Test Lead MLS WS 100/1 green 934095104



Type **PMS SKS Elektronik**
PART No. **932791001**
Description Service Case Electronic

1 x Safety Test Probe PRUEF 2610 FT black 972318100
1 x Safety Test Probe PRUEF 2610 FT red 972318101
1 x Test Probe MICRO-PRUEF MPS 2/0,64 FT black 973995100
1 x Test Probe MICRO-PRUEF MPS 2/0,64 FT red 973995101
1 x Plunger Style Test Probe MICRO-KLEPS black 973972100
1 x Plunger Style Test Probe MICRO-KLEPS red 973972101
1 x Mini Alligator Clip KLEPS 064 PCH black 974201100
1 x Mini Alligator Clip KLEPS 064 PCH red 974201101
1 x Mini Alligator Clip KLEPS 064 PCH blue 974201102
1 x Mini Alligator Clip KLEPS 064 PCH yellow 974201103
1 x Mini Alligator Clip KLEPS 064 PCH green 974201104
1 x Mini Alligator Clip KLEPS 064 PCH gray 974201106
1 x Mini Alligator Clip KLEPS 064 PCH white 974201107
1 x Adapter MZS 4 black 973599100
1 x Adapter MZS 4 red 973599101
1 x 2 pole Test Clip MICRO-SMD CLIP 1 972416100
1 x Mini Alligator Clip MA 260 SH black 973889100
1 x Mini Alligator Clip MA 260 SH red 973889101
1 x Alligator Clip AK 2 B 2540 I yellow-green 972405188
1 x Test Lead MLS WS 50/2,5 black 934087100
1 x Test Lead MLS WS 50/2,5 red 934087101
1 x Test Lead MLS WS 50/2,5 yellow-green 934087188
1 x Measuring Lead MAL N 4-0,64/100-0,25 black 934160100
1 x Measuring Lead MAL N 4-0,64/100-0,25 red 934160101
1 x Test Lead MKL 0,64/25-0,25 black 973604100
1 x Test Lead MKL 0,64/25-0,25 red 973604101
1 x Adapter BNC AL 0,64 black 933844001
1 x Passive Divider Probe TKO 5 – PMS 221 A 974312000
1 x 2 foot positioner for oscilloscope test probes 974401000

Test & Measurement Sets





Type **PMS SKS Electrical**
PART No. **932791001**
Description 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.

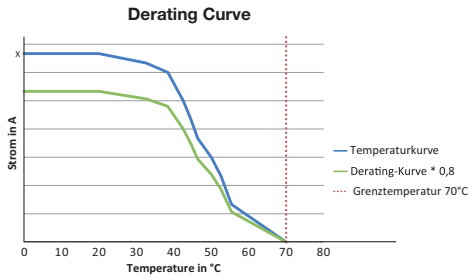
Contact Surface Material
Contact Surface Material is the material on the surface of the electrical contact. For Test & Measurement purposes special nickel or gold plating is used for ideal electrical and mechanical conditions.

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.

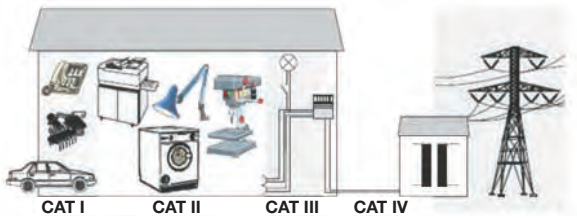
Insulation
Basic insulation - is the insulation applied to live parts to provide basic protection against electric shock, eg. the failure of the basic insulation could cause the risk of electric shock.

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.

Index By Type Number

Type No.	Part No.	Page
AGF 1	930476001	21
AGF 2	9312721xx	23
AGF 20	930120000	23
AGF 30	930122000	23
AGS 20	603006001	24
AK 10	9301261xx	24
AK 2 B 2540 I	9724051xx	25
AK 2 B	9324351xx	25
AK 2 S	9321461xx	24
BIL 20	9301761xx	62
BIL 20 Au	9301767xx	62
BIL 30	930166100	63
BIL 30 Au	9301667xx	63
BNC AL 0,64	933844001	27
BO 10	930160000	61
BSB 20 K	9307291xx	47
BSB 300	9312941xx	48
BU 10	930147000	61
BU 10 Au	930147700	61
BU 20	930177000	62
BUELA 20 K	9307261xx	45
BUELA 30 K	9307271xx	46
BUELA 300 K	9316671xx	46
BUG 10	9301751xx	63
BUG 10 Au	9301757xx	63
KB 2	9305841xx	44
KD 10	9301091xx	60
KLEPS 064 PCH	9742011xx	6
KLEPS 2	9314671xx	7
KLEPS 2 BU	9735011xx	7
KLEPS 250	9735281xx	9
KLEPS 1600	9751061xx	8
KLEPS 2600	9723061xx	9
KLEPS 2700	9723071xx	10
KLEPS 2800	9723081xx	10
KLEPS 2900	9723091xx	10
KLEPS 60	9730531xx	8
KLEPS 3 ST	9735921xx	5
KLEPS 30	9301131xx	8
KLEPS FP 2B	974101188	6
KST S WS	9322001xx	53
KUN 10	9301891xx	60
KUN 30	9318041xx	59
KUN 30 Au	9318047xx	59
KUN S	9340961xx	68
LAS 30	9725181xx	45
LAS 30 Au	9725187xx	45
LAS N WS	9341001xx	47
LAS N WS Au	9341007xx	47
LAS S G	9340971xx	53
LAS S W	9340981xx	52
LAS S WS	9340991xx	53
LMLH 50	973919001	38

Type No.	Part No.	Page
MA 1	9303178xx	22
MA 1 Crimp	9303181xx	22
MA 1 S	9735841xx	22
MA 260 SH	9738891xx	25
MAL N 4-0,64/100-0,25	9341601xx	27
MAL S WS 2-4 100/1	9751631xx	28
MBI 1	9303081xx	55
MBI 1 Au	9303087xx	55
MBU 1	930312000	56
MBU 2	931337000	56
MICRO-KLEPS	9739721xx	5
MICRO-PRUEF MPS 2 0,64 FT	9739951xx	13
MICRO-SMD CLIP 1	972416100	21
MKL 0,64/25-0,25	9736041xx	27
MKU 1	9303201xx	55
MLB 25/1 V	9736441xx	31
MLB 50/1 V	9736451xx	31
MLB 100/1 V	9736461xx	31
MLB 200/1 V	9736471xx	31
MLN 25/1	9340581xx	32
MLN 25/2,5	9340591xx	33
MLN 25/2,5 Au	9340597xx	33
MLN 50/1	9340601xx	32
MLN 50/2,5	9340611xx	33
MLN 50/2,5 Au	9340617xx	33
MLN 100/1	9340621xx	32
MLN 100/2,5	9340631xx	33
MLN 100/2,5 Au	9340637xx	33
MLN 150/1	9340641xx	32
MLN 150/2,5	9345071xx	33
MLN 150/2,5 Au	9345077xx	33
MLN 200/1	9340651xx	32
MLN 200/2,5	9340661xx	33
MLN 200/2,5 Au	9340667xx	33
MLN SIL 25/1	9340901xx	30
MLN SIL 50/1	9340911xx	30
MLN SIL 100/1	9340921xx	30
MLN SIL 150/1	9340931xx	30
MLN SIL 200/1	9340941xx	30
MLS GG 25/1	9340701xx	34
MLS GG 25/2,5	9340711xx	34
MLS GG 50/1	9340721xx	34
MLS GG 50/2,5	9340731xx	34
MLS GG 100/1	9340741xx	34
MLS GG 100/2,5	9340751xx	34
MLS GG 200/1	9340761xx	34
MLS GG 200/2,5	9340771xx	34
MLS WG 25/1	9340781xx	35
MLS WG 25/2,5	9340791xx	35
MLS WG 50/1	9340801xx	35
MLS WG 50/2,5	9340811xx	35
MLS WG 100/1	9340821xx	35
MLS WG 100/2,5	9340831xx	35

Index By Type Number

Type No.	Part No.	Page
MLS WG 200/1	9340841xx	35
MLS WG 200/2,5	9340851xx	35
MLS WS 25/1	9340671xx	36
MLS WS 25/2,5	9340861xx	36
MLS WS 50/1	9340681xx	36
MLS WS 50/2,5	9340871xx	36
MLS WS 100/1	9340951xx	36
MLS WS 100/2,5	9340881xx	36
MLS WS 200/1	9340691xx	36
MLS WS 200/2,5	9340891xx	36
MMS 2010	972339001	75
MMS 2020	972340001	75
MMS 2030	972341001	76
MMS 2040	972342001	76
MPB 1	9302241xx	57
MPK 1	9302681xx	57
MPS 1	9735311xx	14
MSEB 2600 G M3 Au	9754547xx	58
MSEB 2610 F2,8 Au	9754557xx	58
MSEB 2630 S1,9 Au	9754597xx	58
MST 201	931338001	41
MST 3	9735091xx	41
MST S WS 30 Au	9750907xx	42
MVL 2/25	9735941xx	28
MVL 2/50	9735951xx	28
MVL 2/100	9735961xx	28
MVL S WS 25/1 Au	9756947xx	29
MVL S WS 50/1 Au	9756957xx	29
MVL S WS 100/1 Au	9756967xx	29
MVL S WS 200/1 Au	9756977xx	29
MW SEB	973929000	70
MZS 1 - PRUEF	9736011xx	15
MZS 2	9736001xx	42
MZS 4	9735991xx	44
PB 4	9735821xx	59
PK 10 A	9300991xx	66
PK 110	9317131xx	64
PKI 10 A	9301031xx	65
PKI 10 A Au	9301037xx	65
PKI 100	9307571xx	65
PKI 110	9317141xx	64
PKN 10 B	9301171xx	66
PKNI 10 B	9301361xx	67
PKNI 20 B	9301441xx	67
PL 2600 S	9341591xx	37
PL 2600 S Set	972337002	75
PL 2600 S W	9341581xx	37
PL 2600 S W Set	972425002	75
PMS 0,64	932959001	73
PMS 2	932961001	73
PMS 2 S LMLH	975604001	73
PMS 250	932827001	74
PMS 2600	972338001	75

Type No.	Part No.	Page
PMS 4	932793001	73
PMS 4 KFZ	933003001	74
PMS 4 LMLH	972604001	74
PMS 4 S LMLH	972605001	76
PMS SKS	932794001	74
PMS SKS Elektronik	932791001	77
PMS SKS Elektroinstallation	932792001	78
PMS SKS safety	932795001	76
PRUEF 1	9313761xx	13
PRUEF 2	9733681xx	15
PRUEF 1600 Au	9750177xx	14
PRUEF 1610 FT Au	9750187xx	14
PRUEF 2600	9723171xx	17
PRUEF 2600 C2	9723271xx	16
PRUEF 2610 FT	9723181xx	16
PRUEF 2700	9723191xx	17
SEB 2600 G M4	9723541xx	68
SEB 2610 F4,8	9723551xx	69
SEB 2620 F6,3	9723561xx	69
SEB 2630 S1,9	9723591xx	70
SEP 2610 F4,8	9723611xx	71
SEP 2620 F6,3	9723621xx	71
SEP 2630 S1,9	9723631xx	71
SLS 10 B	9318241xx	51
SLS 20 B	9318251xx	51
SLS 200	9321531xx	52
SML 100/1	9733881xx	39
SS 260	973865001	16
TKL 065 BAN	974340000	39
TKO 2,5 - PML 711A	974301000	19
TKO 5 - PMS 221A	974312000	18
TKO 5 - PMT 221A	974311000	19
TW 120 BAN	974330000	38
VON 20	9300461xx	49
VON 30	9300471xx	49
VQ 20	9300581xx	50
VQ 30	9300611xx	50
VSB 20	9304351xx	48
VST 100	930581000	43
VST 20	930050000	43

Instructions for Index and Part No.

Example Part No. 9340621xx

00 =	black	05 =	brown
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Index By Part Number

Part No.	Type No.	Page
603006001	AGS 20	24
9300461xx	VON 20	49
9300471xx	VON 30	49
930050000	VST 20	43
9300581xx	VQ 20	50
9300611xx	VQ 30	50
9300991xx	PK 10 A	66
9301031xx	PKI 10 A	65
9301037xx	PKI 10 A Au	65
9301091xx	KD 10	60
9301131xx	KLEPS 30	8
9301171xx	PKN 10 B	66
930120000	AGF 20	23
930122000	AGF 30	23
9301261xx	AK 10	24
9301361xx	PKNI 10 B	67
9301441xx	PKNI 20 B	67
930147000	BU 10	61
930147700	BU 10	61
930160000	BO 10	61
9301661xx	BIL 30	63
9301667xx	BIL 30 Au	63
9301751xx	BUG 10	63
9301757xx	BUG 10 Au	63
9301761xx	BIL 20	62
9301767xx	BIL 20 Au	62
930177000	BU 20	62
9301891xx	KUN 10	60
9302241xx	MPB 1	57
9302681xx	MPK 1	57
9303081xx	MBI 1	55
9303087xx	MBI 1 Au	55
930312000	MBU 1	56
9303178xx	MA 1	22
9303181xx	MA 1 Crimp	22
9303201xx	MKU 1	55
9304351xx	VSB 20	48
930476001	AGF 1	21
930581000	VST 100	43
9305841xx	KB 2	44
9307261xx	BUELA 20 K	45
9307271xx	BUELA 30 K	46
9307291xx	BSB 20 K	47
9307571xx	PKI 100	65
9312721xx	AGF 2	23
9312941xx	BSB 300	48
931337000	MBU 2	56
931338001	MST 201	41
9313761xx	PRUEF 1	13
9314671xx	KLEPS 2	7
9316671xx	BUELA 300 K	46
9317131xx	PK 110	64
9317141xx	PKI 110	64

Part No.	Type No.	Page
9318041xx	KUN 30	59
9318047xx	KUN 30 Au	59
9318241xx	SLS 10 B	51
9318251xx	SLS 20 B	51
9321461xx	AK 2 S	24
9321531xx	SLS 200	52
9322001xx	KST S WS	53
9324351xx	AK 2 B	25
932791001	PMS SKS Elektronik	77
932792001	PMS SKS Elektroinstallation	78
932793001	PMS 4	73
932794001	PMS 4 SKS	74
932795001	PMS SKS safety	76
932827001	PMS 250	74
932959001	PMS 0,64	73
932961001	PMS 2	73
933003001	PMS 4 KFZ	74
933844001	BNC AL 0,64	27
9340581xx	MLN 25/1	32
9340591xx	MLN 25/2,5	33
9340597xx	MLN 25/2,5 Au	33
9340601xx	MLN 50/1	32
9340611xx	MLN 50/2,5	33
9340617xx	MLN 50/2,5 Au	32
9340621xx	MLN 100/1	32
9340631xx	MLN 100/2,5	33
9340637xx	MLN 100/2,5 Au	33
9340641xx	MLN 150/1	32
9340651xx	MLN 200/1	32
9340661xx	MLN 200/2,5	33
9340667xx	MLN 200/2,5 Au	33
9340671xx	MLS WS 25/1	36
9340681xx	MLS WS 50/1	36
9340691xx	MLS WS 200/1	36
9340701xx	MLS GG 25/1	34
9340711xx	MLS GG 25/2,5	34
9340721xx	MLS GG 50/1	34
9340731xx	MLS GG 50/2,5	34
9340741xx	MLS GG 100/1	34
9340751xx	MLS GG 100/2,5	34
9340761xx	MLS GG 200/1	34
9340771xx	MLS GG 200/2,5	34
9340781xx	MLS WG 25/1	35
9340791xx	MLS WG 25/2,5	35
9340801xx	MLS WG 50/1	35
9340811xx	MLS WG 50/2,5	35
9340821xx	MLS WG 100/1	35
9340831xx	MLS WG 100/2,5	35
9340841xx	MLS WG 200/1	35
9340851xx	MLS WG 200/2,5	35
9340861xx	MLS WS 25/2,5	36
9340871xx	MLS WS 50/2,5	36
9340881xx	MLS WS 100/2,5	36

Index By Part Number

Part No.	Type No.	Page
9340891xx	MLS WS 200/2,5	36
9340901xx	MLN SIL 25/1	30
9340911xx	MLN SIL 50/1	30
9340921xx	MLN SIL 100/1	30
9340931xx	MLN SIL 150/1	30
9340941xx	MLN SIL 200/1	30
9340951xx	MLS WS 100/1	36
9340961xx	KUN S	68
9340971xx	LAS S G	53
9340981xx	LAS S W	52
9340991xx	LAS S WS	53
9341001xx	LAS N WS	47
9341007xx	LAS N WS Au	47
9341581xx	PL 2600 S W	37
9341591xx	PL 2600 S	37
9341601xx	MAL N 4-0,64/100-0,25	27
9345071xx	MLN 150/2,5	33
9345077xx	MLN 150/2,5 Au	33
9723061xx	KLEPS 2600	9
9723071xx	KLEPS 2700	10
9723081xx	KLEPS 2800	10
9723091xx	KLEPS 2900	10
9723171xx	PRUEF 2600	17
9723181xx	PRUEF 2610 FT	16
9723191xx	PRUEF 2700	17
9723271xx	PRUEF 2600 C2	16
972337002	PL 2600 S Set	75
972338001	PMS 2600	75
972339001	MMS 2010	75
972340001	MMS 2020	75
972341001	MMS 2030	76
972342001	MMS 2040	76
9723541xx	SEB 2600 G M4	68
9723551xx	SEB 2610 F4,8	69
9723561xx	SEB 2620 F6,3	69
9723591xx	SEB 2630 S1,9	70
9723611xx	SEP 2610 F4,8	71
9723621xx	SEP 2620 F6,3	71
9723631xx	SEP 2630 S1,9	71
9724051xx	AK 2 B 2540 I	25
972416100	MICRO-SMD CLIP	21
972425002	PL 2600 S W Set	75
9725181xx	LAS 30	45
9725187xx	LAS 30 Au	45
972604001	PMS 4 LMLH	74
972605001	PMS 4 S LMLH	76
9730531xx	KLEPS 60	8
9733681xx	PRUEF 2	15
9733881xx	SML 100/1	39
9735011xx	KLEPS 2 BU	7
9735091xx	MST 3	41
9735281xx	KLEPS 250	9
9735311xx	MPS 1	14

Part No.	Type No.	Page
9735821xx	PB 4	59
9735841xx	MA 1 S	22
9735921xx	KLEPS 3 ST	5
9735941xx	MVL 2/25	28
9735951xx	MVL 2/50	28
9735961xx	MVL 2/100	28
9735991xx	MZS 4	44
9736001xx	MZS 2	42
9736011xx	MZS 1 - PRUEF	15
9736041xx	MKL 0,64/25-0,25	27
9736441xx	MLB 25/1 V	31
9736451xx	MLB 50/1 V	31
9736461xx	MLB 100/1 V	31
9736471xx	MLB 200/1 V	31
973865001	SS 260	16
9738891xx	MA 260 SH	25
973919001	LMLH 50	38
973929000	MW SEB	70
9739721xx	MICRO-KLEPS	5
9739951xx	MICRO-PRUEF MPS 2 0,64 FT	13
974101188	KLEPS FP 2B	6
9742011xx	KLEPS 064 PCH	6
974301000	TKO 2,5 - PML 711A	19
974311000	TKO 5 - PMT 221A	19
974312000	TKO 5 - PMS 221A	18
974330000	TW 120 BAN	38
974340000	TKL 065 BAN	39
9750177xx	PRUEF 1600 Au	14
9750187xx	PRUEF 1610 FT Au	14
9750907xx	MST S WS 30 Au	42
9751061xx	KLEPS 1600	8
9751631xx	MAL S WS 2-4 100/1	28
9754547xx	MSEB 2600 G M3 Au	58
9754557xx	MSEB 2610 F2,8 Au	58
9754597xx	MSEB 2630 S1,9 Au	58
975604001	PMS 2 S LMLH	73
9756947xx	MVL S WS 25/1 Au	29
9756957xx	MVL S WS 50/1 Au	29
9756967xx	MVL S WS 100/1 Au	29
9756977xx	MVL S WS 200/1 Au	29

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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