



**Probing Solutions.
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EN



HSDP Series

**High-Speed Differential Probes
with Universal BNC Interface**

up to >4GHz, $\pm 42\text{V}$, 7.5m

Preliminary

Datasheet



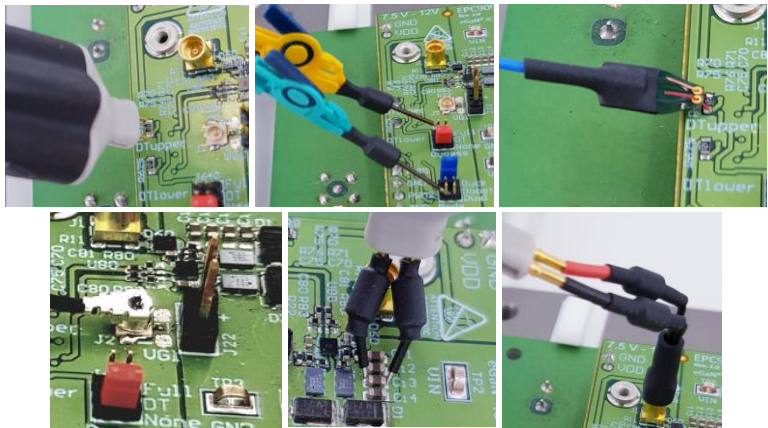
About HSDP Series

The HSDP series offers best-in-class performance with >2GHz models up to $\pm 42\text{V}$ differential input range, and $\pm 8\text{V}$ up to >4GHz bandwidth. The high input impedance, low noise, and 60V common mode voltage range the different models ideal for various in-circuit measurements for design, validation, debugging of analog signals, such as used in switched mode power supplies.

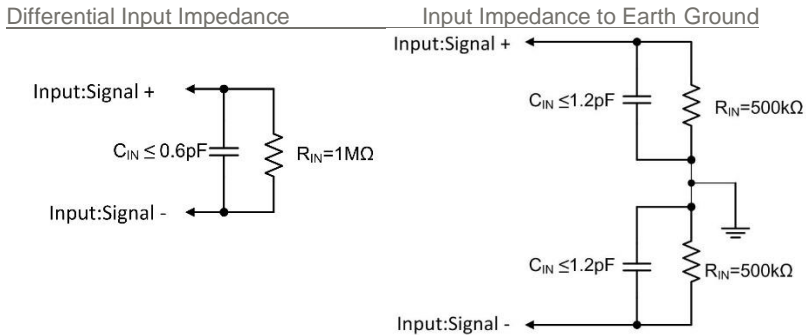
The HSDP probes series is also ideal for characterizing a wide range of serial bus designs, supporting the most popular serial bus interfaces, such as USB2.0, Ethernet (GbE), CAN/LIN, I2C, SPI, SATA, FireWire (1394b), FlexRay, HDMI etc.

The HSDP series features the industry standard 2.54mm (0.1") socketed inputs that can easily interface to a variety of connectivity options available in the market. The compact probe head design, and its variety of accessories, makes the HSDP series ideal for probing on today's smallest IC devices.

Individual Connectivity Accessories for Highest Signal Fidelity



The input offset capability extends the input range of the probe. Having an input capacitance of $<0.6\text{pF} \parallel 1\text{M}\Omega$ between the probe tips, allows the HSDP Series to be used to probe sensitive circuits without adversely loading the circuit under test.



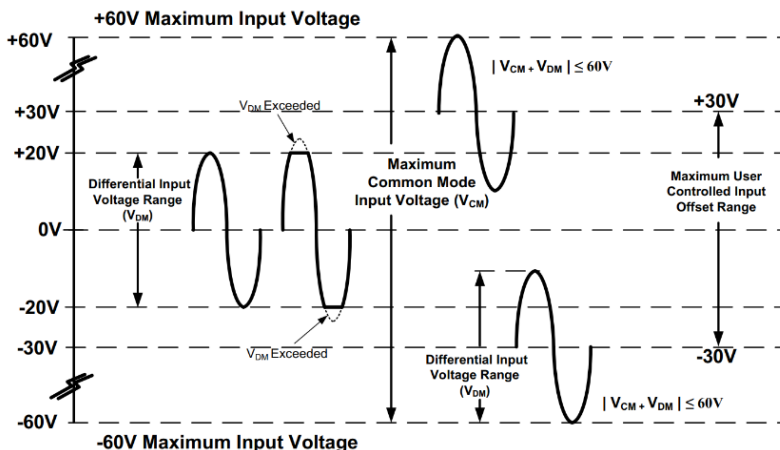
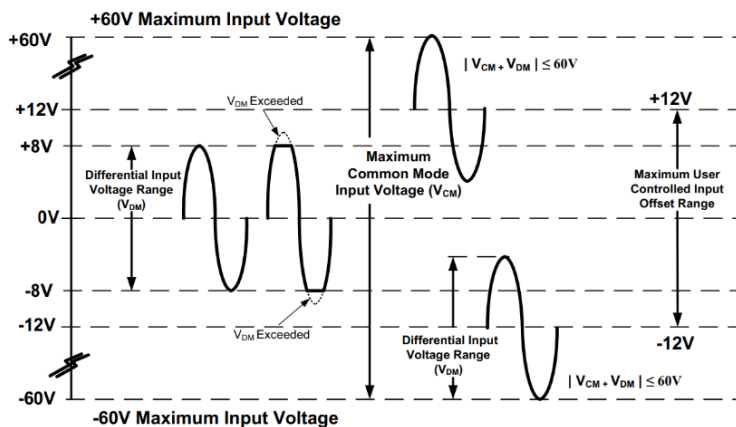
The HSDP-Series uses a PMK custom high speed FET input amplifier that provides a superior high frequency response, as well as low noise and low distortion to accurately capture the signals being measured.

All models are available with either a 7.5m or 1.3m cable length. Other lengths are available on request. The longer cable versions enable the user to probe remote, hard to reach test points that are impossible with the other probing solution in the market today.

The HSDP Series has a universal BNC output connector and is compatible with any oscilloscope with a 50Ω input impedance, or 1MΩ input impedance and a 50Ω feed-through termination, allowing the HSDP Series to be used on any oscilloscope in the lab.

HSDP-Series' DC offset can be controlled via remote control. The "PMK Probe Control" software provides the ability for the user to control the probe remotely via a computer, and provides the user with a graphical user interface. The software is free of charge, and included with PMK's 2ch and 4ch power supplies, PS2 and PS3, which are required to power the probe. The PS2 and PS3 power supplies have a USB interface as well as an optional LAN interface. The new AP-01, 1 channel battery pack power supply, provides >8h of portable and isolated operation, which allows the user the flexibility of where the probe can be used. The AP-01 supplies power only to the probe with no software remote control.

Input Voltage Range Examples



Specifications

Read the Instruction Manual before first use, and keep it for future reference. A digital copy of the latest Instruction Manual revision can be downloaded at www.pmk.de

Specifications that are not marked with (*) as guaranteed are typical. Warm-up time is 20 minutes.

The electrical specifications are separated in multiple tables. Each specification is determined when using a PS2 power supply at +23 °C ambient temperature. This probe comes with 1 year warranty.

Electrical Specifications

Model Number	Attenuation Ratio (± 2 % at DC)	Bandwidth (-3dB)	Differential Voltage Range (DC + AC peak) ¹	Differential DC Offset Range
HSDP4010	10:1	> 4 GHz 4.2 GHz (typ.)	± 8 V (16 Vpp)	± 12 V
HSDP2010	10:1	> 2 GHz 2.3 GHz (typ.)	± 8 V (16 Vpp)	± 12 V
HSDP2010L	10:1	> 1.8 GHz 2.0 GHz (typ.)	± 8 V (16 Vpp)	± 12 V
HSDP2025	25:1	> 2 GHz 2.2 GHz (typ.)	± 20 V (40 Vpp)	± 30 V
HSDP2025L	25:1	> 1.8 GHz 2.0 GHz (typ.)	± 20 V (40 Vpp)	± 30 V
HSDP2050	50:1	> 2 GHz 2.2 GHz (typ.)	± 42 V (84 Vpp)	± 60 V
HSDP2050M	50:1	> 1.8 GHz 2.0 GHz (typ.) <i>preliminary</i>	± 42 V (84 Vpp)	± 60 V
HSDP2050L	50:1	> 1.8 GHz 2.0 GHz (typ.) <i>preliminary</i>	± 42 V (84 Vpp)	± 60 V

The following specifications table is valid for all models of HSDP series. Observe the Maximum Non-Destructive Voltages between signal and GND.

Common Mode Voltage Range (DC + Peak LF-AC) ¹	± 60 V
Maximum Non-Destructive Voltage between signal and GND (DC + Peak LF-AC) ¹	± 60 V
Differential Input Impedance	1 MΩ 0.6 pF
Single-ended Input Impedance	500 kΩ 1.2 pF
Input Coupling of the Measuring Instrument	50 Ω

Notes:
¹ LF less than 10Hz

Electrical Specifications (Continued)

Review also the referring derating over frequency graphs later in this document.

Model Number	Noise (Input referred) ²	Rise time (10%-90%)	Propagation Delay	Common Mode Rejection Ratio (CMRR)
HSDP4010	< 2 mV rms 100 nV/sqrt(Hz) <i>preliminary</i>	< 140ps <i>preliminary</i>	6.7 ns	DC: > 70 dB 1 MHz: > 50 dB 10 MHz: > 45 dB 100 MHz: > 35 dB 500 MHz: > 25 dB 1 GHz: > 25 dB
HSDP2010	< 1.5 mV rms 50 nV/sqrt(Hz)	< 200 ps	6.7 ns	DC: > 70 dB 1 MHz: > 50 dB 10 MHz: > 45 dB 100 MHz: > 35 dB 500 MHz: > 25 dB 1 GHz: > 25 dB
HSDP2010L	< 2.5 mV rms 93 nV/sqrt(Hz)	< 200 ps	30.5 ns	DC: > 70 dB 1 MHz: > 50 dB 10 MHz: > 45 dB 100 MHz: > 35 dB 500 MHz: > 25 dB 1 GHz: > 25 dB
HSDP2025	< 3 mV rms 128 nV/sqrt(Hz)	< 200 ps	6.7 ns	DC: > 70 dB 1 MHz: > 50 dB 10 MHz: > 45 dB 100 MHz: > 35 dB 500 MHz: > 25 dB 1 GHz: > 25 dB
HSDP2025L	< 5 mV rms 238 nV/sqrt(Hz)	< 200 ps	30.5 ns	DC: > 70 dB 1 MHz: > 50 dB 10 MHz: > 45 dB 100 MHz: > 35 dB 500 MHz: > 25 dB 1 GHz: > 25 dB
HSDP2050	< 6 mV rms 250 nV/sqrt(Hz) <i>preliminary</i>	< 200 ps	6.7 ns	DC: > 70 dB 1 MHz: > 50 dB 10 MHz: > 45 dB 100 MHz: > 35 dB 500 MHz: > 25 dB 1 GHz: > 25 dB
HSDP2050M	< 6 mV rms 250 nV/sqrt(Hz) <i>preliminary</i>	< 200 ps	14.5 ns	DC: > 70 dB 1 MHz: > 50 dB 10 MHz: > 45 dB 100 MHz: > 35 dB 500 MHz: > 25 dB 1 GHz: > 25 dB
HSDP2050L	< 10 mV rms TBD nV/sqrt(Hz) <i>preliminary</i>	< 200 ps	30.5 ns	DC: > 70 dB 1 MHz: > 50 dB 10 MHz: > 45 dB 100 MHz: > 35 dB 500 MHz: > 25 dB 1 GHz: > 25 dB

Notes:

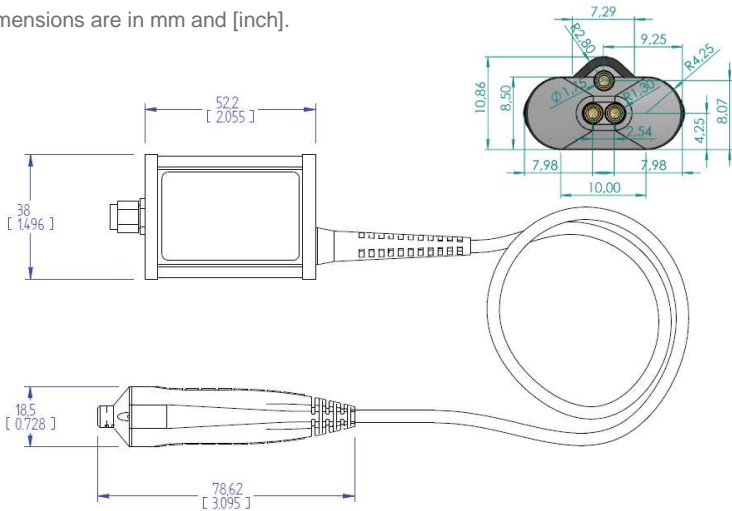
² RMS noise [mV] at 500MHz bandwidth; noise in [nV/sqrt(Hz)] at 100MHz

Environmental Specifications

Altitude	operating	up to 2000 m
	non-operating	up to 15000 m
Temperature Range	operating	0 °C to +50 °C
	non-operating	-40 °C to +71 °C
Maximum Relative Humidity	operating	80 % relative humidity for temperatures up to +31 °C, decreasing linearly to 40 % at +50 °C
	non-operating	95 % relative humidity for temperatures up to +40 °C

Probe Dimensions

The shown dimensions are in mm and [inch].



Probe’s power supply pin assignment



Probe’s power supply pin assignment “cable view”



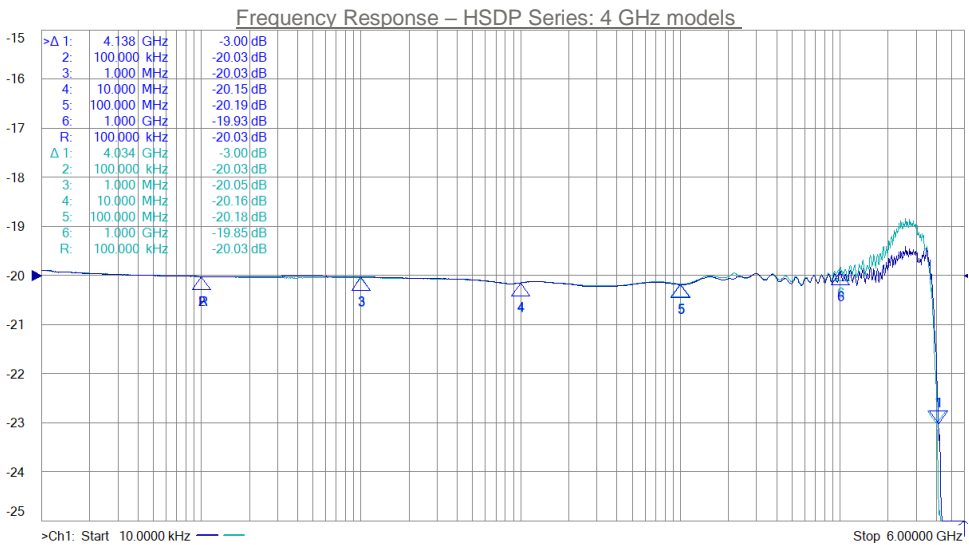
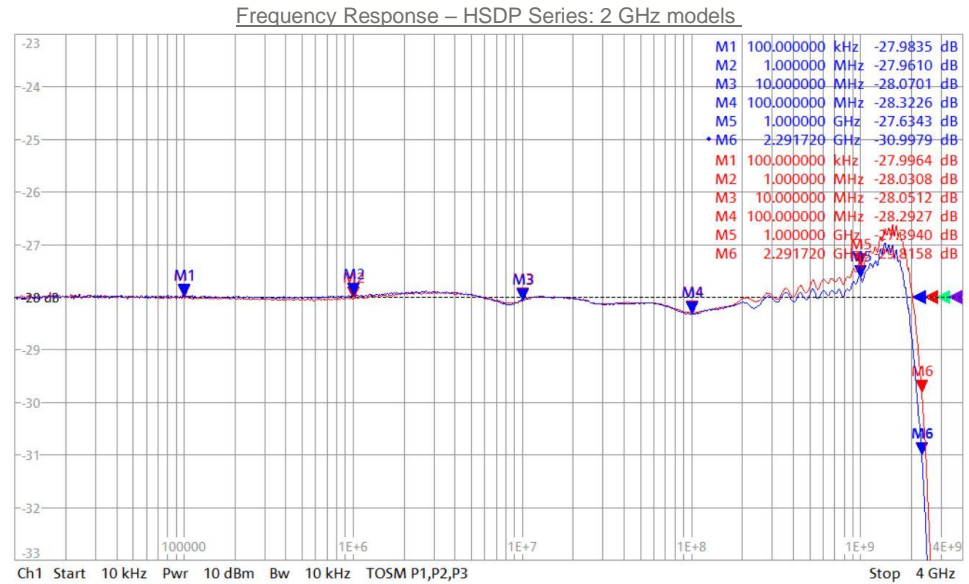
Observe the probe’s power supply pin assignment

Factory Calibration

Annual re-calibration is recommended. ISO17025 calibration upon delivery or as re-calibration will be possible on request.

Typical Frequency Response

The frequency response plot shown here is for the probe series without any accessories. Frequency responses with specific accessories are available on request.

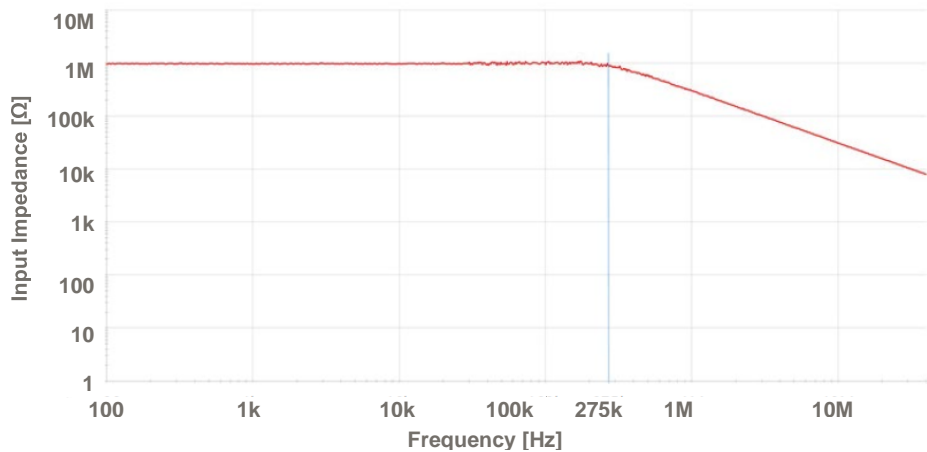


Typical Differential Input Impedance



The input impedance of the probe decreases as the frequency of the applied signal increases.

Typical Differential Input Impedance - HSDP Series

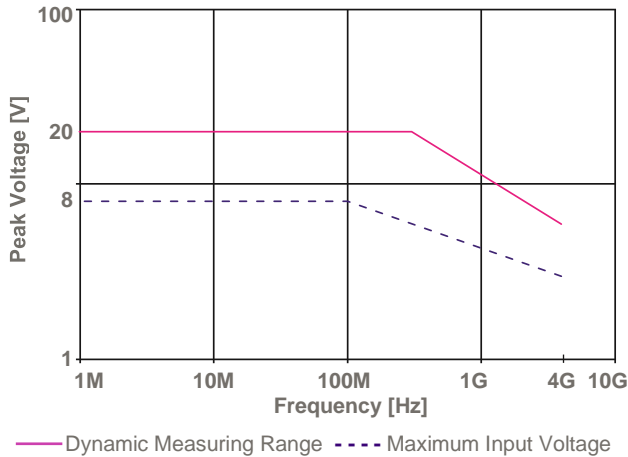


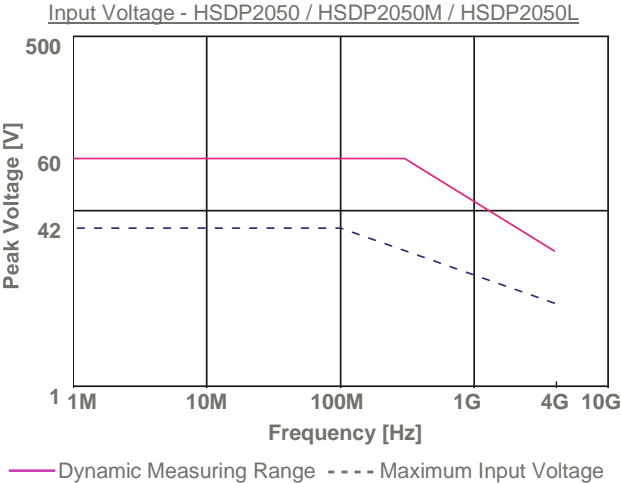
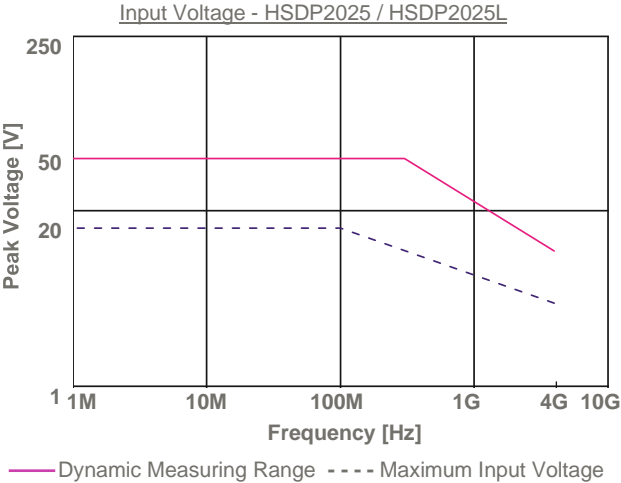
Typical Input Voltages



Note that the maximum input voltage rating of the probe decreases as the frequency of the applied signal increases.

Input Voltage - HSDP2010 / HSDP2010L / HSDP4010





Typical Rise Time

The typical rise time plots are coming soon.

Ordering Information

A power supply with remote control capabilities or a battery pack for portable use are required and optional. The standard accessories are listed in Step 3.

Step 1: Select Probe

Order No.	Item
HSDP4010	Differential probe 4GHz, $\pm 8V$ differential, $\pm 60V$ common mode, 10:1, low noise, 1.3m, including set of standard accessories
HSDP2010	Differential probe 2GHz, $\pm 8V$ differential, $\pm 60V$ common mode, 10:1, low noise, 1.3m, including set of standard accessories
HSDP2010L	Differential probe 1.8GHz, $\pm 8V$ differential, $\pm 60V$ common mode, 10:1, low noise, 7.5m, including set of standard accessories
HSDP2025	Differential probe 2GHz, $\pm 20V$ differential, $\pm 60V$ common mode, 25:1, low noise, 1.3m, including set of standard accessories
HSDP2025L	Differential probe 1.8GHz, $\pm 20V$ differential, $\pm 60V$ common mode, 25:1, low noise, 7.5m, including set of standard accessories
HSDP2050	Differential probe 2GHz, $\pm 42V$ differential, $\pm 60V$ common mode, 50:1, low noise, 1.3m, including set of standard accessories
HSDP2050M	Differential probe 1.8GHz, $\pm 42V$ differential, $\pm 60V$ common mode, 50:1, low noise, 3.5m, including set of standard accessories
HSDP2050L	Differential probe 1.8GHz, $\pm 42V$ differential, $\pm 60V$ common mode, 50:1, low noise, 7.5m, including set of standard accessories

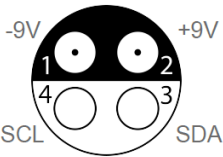
Step 2: Select Power Supply



The power supply pin assignment is different from other power supplies. Use only original PMK power supplies with PMK probes.

Order No.	Item
889-09V-PS2	PS-02 (2 channels, with USB interface for remote control)
889-09V-PS2-L	PS-02-L (2 channels, with LAN and USB interface for remote control)
889-09V-PS3	PS-03 (4 channels, with USB interface for remote control)
889-09V-PS3-L	PS-03-L (4 channels, with LAN and USB interface for remote control)
889-09V-AP01	AP-01 (battery pack, 1 channel, no remote control)
890-520-900	Power supply cable (0.5 m), included in probe's scope of delivery
890-520-915	Power supply cable (1.5 m)

Observe Connector Pin-Out
for PMK power supply cables



Step 3: Accessories



The accessories for this probe series have been safety tested.
Do not use any other accessories or power supplies than what is recommended.

Order No.	Item	Scope of Delivery	Bandwidth (-3dB)	Picture
variable	Differential probe HSDP series model	x	variable	
890-808-105	2-Footer, black	x	n/a	
891-010-814	PCB adaptors, 10x	x	> 2.5 GHz	
890-800-001	Spring tips, gold-plated, 5x	x	> 2.5 GHz	
890-800-000	Solid tips, gold-plated, 5x	x	> 2.5 GHz	
899-000-002	SMD test grabber, 1 Pair, green/yellow	x	> 0.6 GHz	
890-600-214	Solder-In Adapter Flex PCB with Micro coax cable	x	> 1.2 GHz	
890-720-8A6	Y-Lead-Adaptor, 0.8mm Socket to MMCX plug	x	> 1.5 GHz	
018-292-937	Tip Saver	x	> 2.2 GHz	
018-291-913	Z-Ground, 1 pair	x	> 2 GHz	
018-291-914	Active Probe Bent Tip, 1 pair	x	> 1.5 GHz	
890-720-001	Y-Lead to 0.8mm socket for use with 899-000-002 and 890-500-001	x	n/a	
890-600-215	Adapter UF.L with Micro coax cable (optional)		> 1.3 GHz	
890-720-002	Y-Lead-R to 0.8 mm socket, compatible with Micro SMD-Clip 972416100	x	> 1.1 GHz	






Continues on next page.

Step 3: Accessories (Continued)

Order No.	Item	Scope of Delivery	Bandwidth (-3dB)	Picture
890-500-001	QFP IC-Clips long, 1 Pair, black/red	x	> 0.6 GHz	
972416100	Micro SMD clip	x	> 0.5 GHz	
890-010-912	Marker bands 4 x 4 colors	x	n/a	
890-400-808	Ground lead 7cm	x	n/a	
890-400-809	Ground lead 13cm	x	n/a	
890-520-900	Power Supply Cable (0.5 m)	x	n/a	
n/a	Factory Calibration Certificate	x	na	

Step 4: Select 3D Positioning System

Select one of PMK's 3D probe positioning systems with the universal probe holder. The arms and probe holders are also compatible to PMK's SKID positioning systems for probes and PCBs, which are also available for temperature ranges from -55°C to +155°C. To review all 3D positioning solutions, visit us at www.pmk.de

Order No.	Item	Picture
893-350-006	Universal 3D Probe Positioner MSU1500 with steel base (893-100-001), arm with span width 200mm (893-200-200), universal probe holder (893-090-000)	
893-350-011	Universal 3D Probe Positioner with magnet foot (893-100-004), arm with span width 200mm (893-200-200), universal probe holder (893-090-000)	
893-500-START	SKID-S Starter Kit: 3U Board Tester (160 x 160mm) including SKID vertical adapter kit (893-291-501), universal probe holder (893-090-000), PMK probe holder 5-12mm (893-050-000), arm with span width 130 mm (893-200-130) and with 200 mm (893-200-200)	
893-600-START	SKID-M Starter Kit: 6U Board Tester (240 x 160mm) including SKID vertical adapter kit (893-291-501), universal probe holder (893-090-000), PMK probe holder 5-12mm (893-050-000), arm with span width 130 mm (893-200-130) and with 200 mm (893-200-200)	
893-700-START	SKID-M Starter Kit: Board Tester (340 x 300mm) including SKID vertical adapter kit (893-291-501), universal probe holder (893-090-000), PMK probe holder 5-12mm (893-050-000), arm with span width 130 mm (893-200-130) and with 200 mm (893-200-200)	

Notes

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Specifications are subject to change without notice.

Informationen in dieser Anleitung ersetzen die in allen bisher veröffentlichten Dokumenten.
Änderungen der Spezifikationen vorbehalten.



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SONIC Series

Robust Single-Ended Active Probes

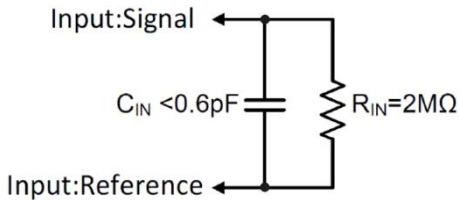
1 GHz to 4 GHz, < 1 pF, up to ± 15 V

About the SONIC Probe Series

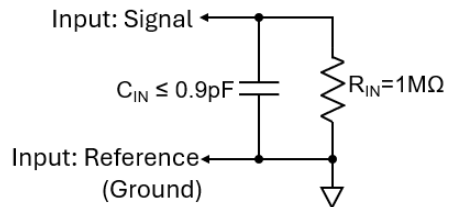
The SONIC active probe series offers best-in-class performance, robustness and is easy to use to make in-circuit measurements. With the SONIC series different bandwidth models up to 4GHz, very low $< 1\text{pF}$, input capacitance, low noise and wide dynamic input range of $\pm 8\text{V}$ or $\pm 15\text{V}$ (model depended) makes the SONIC series ideal for a variety of applications.

The 2.5GHz SONIC2500 and 4GHz SONIC4000 input capacitance of $< 0.6\text{pF}$ parallel $> 2\text{M}\Omega$ between probe tip and probe reference (1 M Ω to the oscilloscope ground) provides the best input impedance in its class. Unlike traditional single-ended probes, both models are ideal for in-circuit browsing of an energized circuit without the possibility for shortening to earth ground, because of their high impedance probe tip reference connection.

SONIC2500/4000 Input Loading Schematic



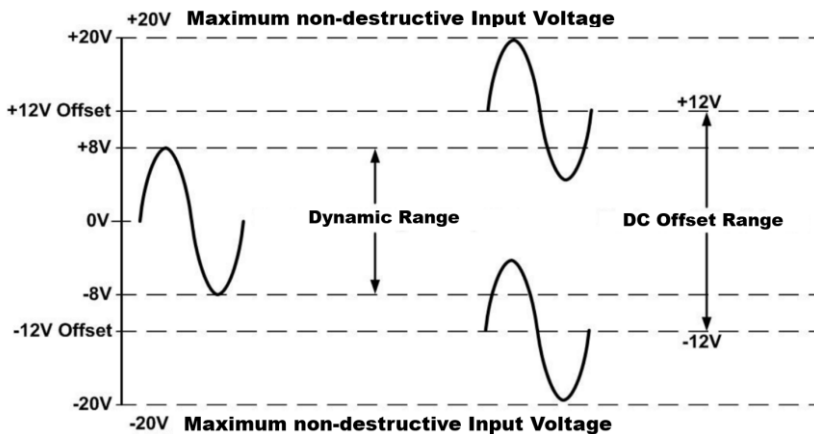
SONIC1500/1000 Input Loading Schematic



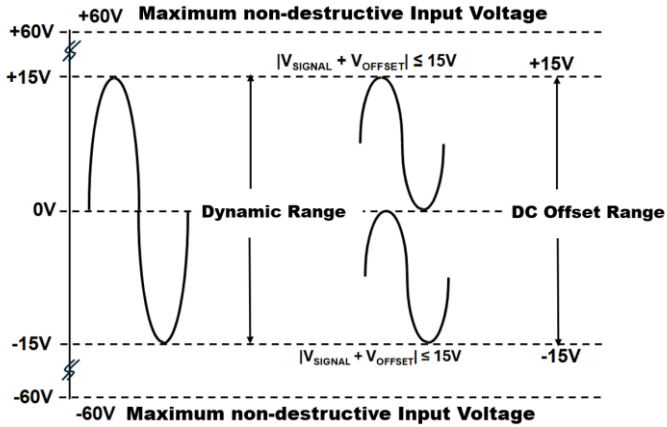
The 1GHz SONIC1000 and 1.5GHz SONIC1500 probes also have a very low input capacitance of $< 1\text{pF}$ parallel $> 1\text{M}\Omega$ between probe tip and probe reference. Both models are ideal as general-purpose single-ended probe, with the probe reference connected to the oscilloscope ground. They do not have the 1M Ω reference protective impedance to ground like the SONIC2500 and SONIC4000 models.

When used with one of PMK's multi-channel power supplies, the remote-controllable input offset range capability of SONIC series is $\pm 12\text{V}$ or $\pm 15\text{V}$, depending on model type, extending the input dynamic voltage range of each probe model.

SONIC2500/4000 Input Voltage Range example



SONIC1500/1000 Input Voltage Range example



Specifications

Read the Instruction Manual before first use, and keep it for future reference. A digital copy of the latest Instruction Manual revision can be downloaded at www.pmk.de

Specifications that are not marked with (*) as guaranteed are typical. Warm-up time is 20 minutes.

The electrical specifications are determined when using a PS2 power supply at +23 °C ambient temperature. This probe comes with 2 years warranty.

Electrical Specifications

Order Numbers	SONIC4000-BUN1 SONIC4000	SONIC2500-BUN1 SONIC2500	SONIC1500-BUN1 SONIC1500	SONIC1000-BUN1 SONIC1000
Attenuation Ratio	10:1	10:1	10:1	10:1
Attenuation Accuracy (DC) *	±1 %	±1 %	±1 %	±1 %
Bandwidth (- 3 dB)	> 4 GHz	> 2.5 GHz	> 1.5 GHz	> 1 GHz
Input Dynamic Range*	±8 V	±8 V	±15 V	±15 V
Input DC Offset ¹⁾	±12 V	±12 V	±15 V	±15 V
Non-destructive Input Voltage *	±20 V ²⁾	±20 V ²⁾	±60 V ²⁾	±60 V ²⁾
Input Impedance ³⁾	2 MΩ 0.6 pF	2 MΩ 0.6 pF	1 MΩ 0.9 pF	1 MΩ 0.9 pF
Output Impedance	50 Ω	50 Ω	50Ω	50 Ω
Propagation Delay	approx. 7 ns	approx. 7 ns	approx. 6ns	approx. 6 ns
Zero Offset Error (referred to input)	<± 20 μV	<± 20 μV	<± 20 μV	<± 20 μV

Notes:

¹⁾ Only available when used with a recommended power supply with remote control capabilities.

²⁾ See Maximum Input Voltage frequency derating on page 8.

ESD protected, IEC 61000-4-2 Contact Discharge Level 2, IEC 61000-4-2 Air Discharge Level 3.

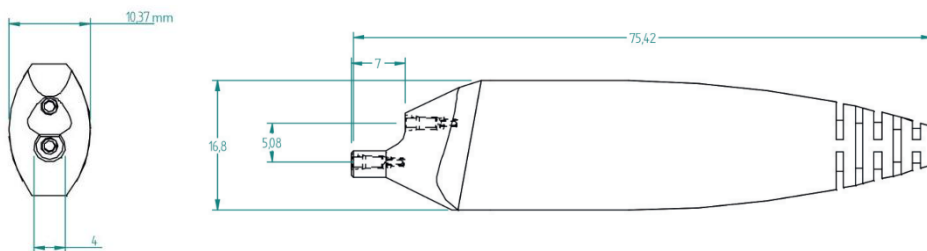
³⁾ Referred to probe reference input.

Mechanical Specifications

Order Number	SONIC4000	SONIC2500	SONIC1500	SONIC1000
Weight (Probe only)	110g			
Output Connector ¹	BNC (male)			
Probe Input Sockets	0.64 mm square/ 0.8 mm round			
Cable Length	1.3 m		1.2 m	

¹ SMA output is available on request.

Probe Dimensions



Environmental Specifications

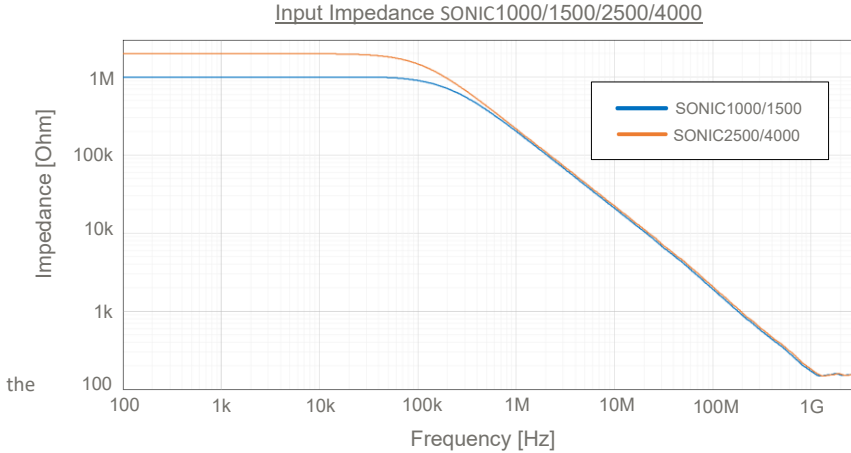
		SONIC4000	SONIC2500	SONIC1500	SONIC1000
Altitude	operating	up to 2000 m			
	non-operating	up to 15000 m			
Temperature Range	operating	0 °C to +45 °C		0 °C to +50 °C	
	non-operating	-40 °C to +71 °C			
Maximum Relative Humidity	operating	80% relative humidity for temperatures up to +31°C, decreasing linearly to 40% at +45°C			
	non-operating	95% relative humidity for temperatures up to +40°C			

Input Impedance referred to Probe Ground



The input impedance of the probe decreases as the frequency of the applied signal increases.

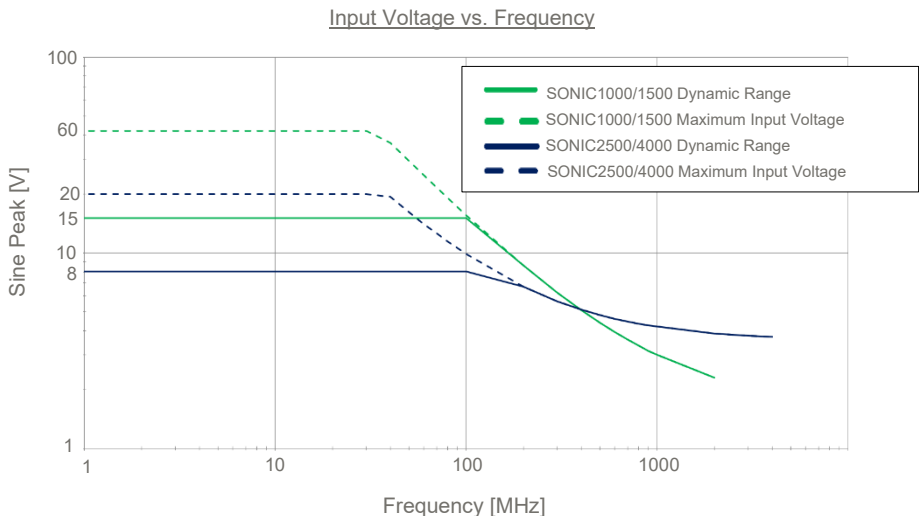
The SONIC2500/4000 high impedance probe tip reference connection allows safe in-circuit browsing of an energized circuit without the possibility for shorting the probe tip reference connection directly to earth ground to prevent damage of the probe.



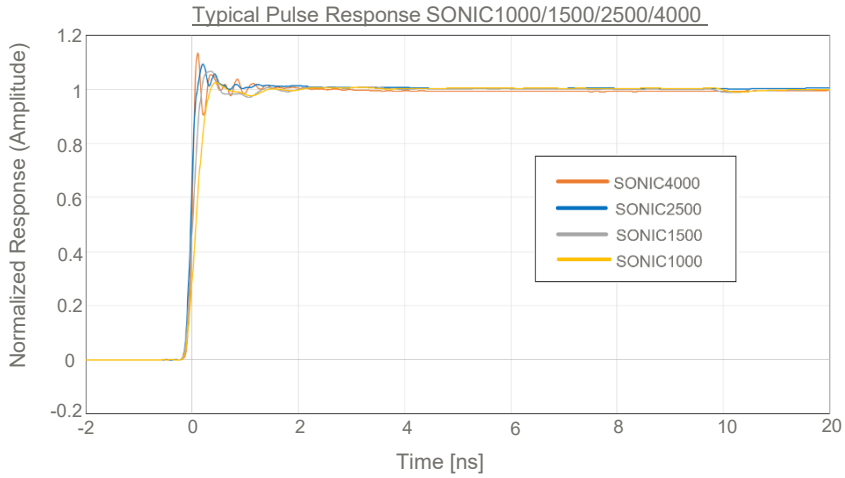
Maximum Input Voltages



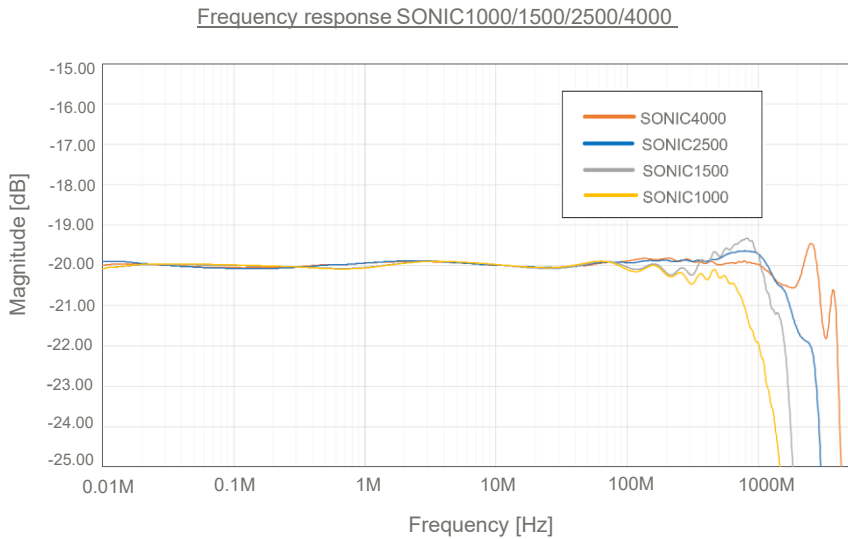
The SONIC active probes are protected against electro-static-discharge voltage (ESD). The maximum amplitude of the applied signal may not exceed the limits of the graph below, to avoid input linearity errors and damage to the probe.



Typical Pulse Response



Typical Frequency Response



Scope of Delivery

See also Ordering Information for more details on the accessories that are included or optional.
If a bundle was ordered, a PS05 wall plug power supply is included too.

Item	Qty	Item	Qty
Probe SONIC Series	1	Ground Lead 90° 10 cm	1
Calibration Certificate	1	Ground Leaf	1
Instruction Manual	1	Z-Ground	1
White Case	1	Pair Picohook™ (black & red)	1
2-Footer (black)	1	PCB Adapter	2
2.54mm Adapter	1	Self-adhesive Cu Pad (2cm x 2cm)	2
Ground Blade	1	Set Coding Rings, 2x4 colors (installed on cable)	1
Ground Lead 7cm	1	Solid Tip	2
Ground Lead 13 cm	1	Spring Tip	1
Ground Lead 90° 5 cm	1	Y-Lead Adapter to 0.8mm sockets	1

Ordering Information

A power supply with remote control capabilities or a battery pack for portable use are required and optional. The standard accessories are listed in Step 3.

Step 1: Select Probe

If a bundle is selected, an high-quality wall plug power supply without remote control capabilities is already included and the probe bundle comes ready to use. Step 2 can be skipped. If remote control is of interest, select the probe only and move to Step 2.

Probe bundles with wall plug power supply:

SONIC4000-BUN1 SONIC4000 bundle, 4GHz single-ended active probe, $\pm 8\text{V}$, max 20V non-destructive input voltage, with universal BNC output, international wall plug power supply PS-05 included, ready to use probe



SONIC2500-BUN1 SONIC2500 bundle, 2.5GHz single-ended active probe, $\pm 8\text{V}$, max 20V non-destructive input voltage, with universal BNC output, international wall plug power supply PS-05 included, ready to use probe

SONIC1500-BUN1 SONIC1500 bundle, 1.5GHz single-ended active probe, $\pm 15\text{V}$, max 60V non-destructive input voltage, with universal BNC output, international wall plug power supply PS-05 included, ready to use probe

SONIC1000-BUN1 SONIC1000 bundle, 1GHz single-ended active probe, $\pm 15\text{V}$, max 60V non-destructive input voltage, with universal BNC output, international wall plug power supply PS-05 included, ready to use probe



Probe ONLY, without wall plug power supply:

SONIC4000 SONIC4000, 4GHz single-ended active probe. Power supply and supply cable to be selected

SONIC2500 SONIC2500, 2.5GHz single-ended active probe. Power supply and supply cable to be selected

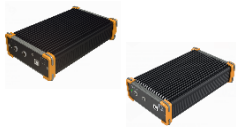
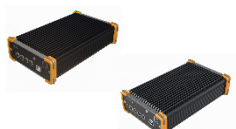
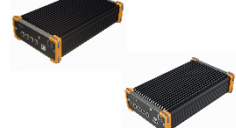



SONIC1500 SONIC1500, 1.5GHz single-ended active probe. Power supply and supply cable to be selected

SONIC1000 SONIC1000, 1GHz single-ended active probe. Power supply and supply cable to be selected

Step 2: Select optional Power Supply

If a bundle was selected, a wall plug power supply is already included, and Step 2 can be skipped.

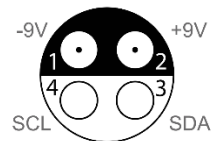
A multi-channel power supply offers offset and remote-control capabilities. If the single probe, without wall plug power supply, was selected, choose a multi-channel power supply and power supply cable.

Order No.	Item	Picture
889-09V-PS2	2ch power supply PS-02 with USB for remote and offset control	
889-09V-PS2-L	2ch power supply PS-02-L with LAN and USB for remote and offset control	
889-09V-PS3	4ch power supply PS-03 with USB for remote and offset control	
889-09V-PS3-L	4ch power supply PS-03-L with LAN and USB for remote and offset control	
889-09V-PS6	8ch power supply PS-06 with USB for remote and offset control	
889-09V-PS6-L	8ch power supply PS-06-L with LAN and USB for remote and offset control	
889-09V-AP01	1ch Battery pack AP-01, no remote or offset control capabilities	
889-09V-PS5	International wall plug power supply PS-05, no remote or offset control capabilities, primary adapters for EU, UK und USA <i>Already included in the bundle</i>	
890-520-900	Power supply cable 0.6m	
890-520-915	Power supply cable 1.5m	



The power supply pin assignment is different from other power supplies.
Use only original PMK power supplies with PMK probes.

Observe Connector Pin-Out for PMK power supply cables:








Step 3: Select optional Accessories

Accessories that are already included with the scope of delivery of a probe are marked with x.

Order No.	Item	Scope of Delivery X = included	Picture
890-502-130	Pair QFP IC-clips 13mm (long) up to 0.5mm (1 pair: red, blue)		
890-502-000	Pair QFP IC-clips (short) up to 0.5mm (1 pair: red, blue)		
899-000-002	Pair SMD Test grabber 0.8mm pin, flex nose (red/black)		
For re-ordering:			
890-100-150	self-adhesive Cu-pads x10 (2 cm x 2 cm)	x (2 pcs)	
890-400-812	Ground blade	x	
890-400-811	Z-ground	x	
890-400-813	Ground leaf	x	
891-010-810	2.54 mm adapter x10	x (1 pc)	
891-025-810	2.54 mm adapter x25		
891-010-814	PCB adapter x10	x (2 pcs)	
891-025-814	PCB adapter x25		
890-800-001	Spring tip x5	x (1 pc)	
890-800-000	Solid tip x5	x (2 pc)	
P25-0 /-2	Pico Hook™ (black, red)	x	
890-720-840	Y-adapter to 0.8mm sockets	x	
890-880-105	2-Footer (black)	x	
n/a	Marker bands 2 x 4 colors (installed on probe cable)	x	
890-400-808	Ground lead 7cm	x	
890-400-809	Ground lead 13cm	x	
890-400-803	Ground lead 90° 5cm	x	
890-400-804	Ground lead 90° 10cm	x	

Step 4: Select optional 3D Positioning System

Select one of PMK's 3D probe positioning systems with the universal probe holder. The arms and probe holders are also compatible with PMK's SKID positioning systems for probes and PCBs, which are also available for temperature ranges from -55°C to +155°C. To review all 3D positioning solutions, visit us at www.pmk.de

Order No.	Item	Picture
893-350-006	Universal 3D Probe Positioner MSU1500 with steel base (893-100-001), arm with span width 200mm (893-200-200), universal probe holder (893-090-000)	
893-350-011	Universal 3D Probe Positioner with magnet foot (893-100-004), arm with span width 200mm (893-200-200), universal probe holder (893-090-000)	
893-500-START	SKID-S Starter Kit: 3U Board Tester (160 x 160mm) including SKID vertical adapter kit (893-291-501), universal probe holder (893-090-000), PMK probe holder 5-12mm (893-050-000), arm with span width 130 mm (893-200-130) and with 200 mm (893-200-200)	
893-600-START	SKID-M Starter Kit: 6U Board Tester (240 x 160mm) including SKID vertical adapter kit (893-291-501), universal probe holder (893-090-000), PMK probe holder 5-12mm (893-050-000), arm with span width 130 mm (893-200-130) and with 200 mm (893-200-200)	
893-700-START	SKID-M Starter Kit: Board Tester (340 x 300mm) including SKID vertical adapter kit (893-291-501), universal probe holder (893-090-000), PMK probe holder 5-12mm (893-050-000), arm with span width 130 mm (893-200-130) and with 200 mm (893-200-200)	

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Specifications are subject to change without notice.