

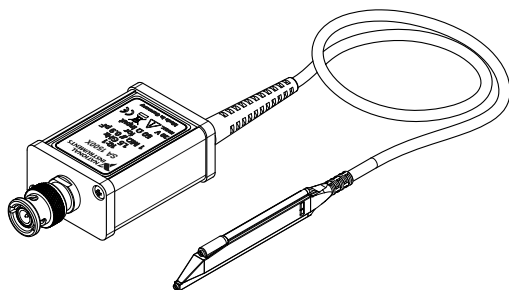
## DEVICE SPECIFICATIONS

# SA1500X

## High Impedance Active Probe

This document lists specifications for the SA1500X active probe, which can contact adjacent square pins to 2.54 mm pitch simultaneously. The housing is T-shaped which allows many probes to be positioned next to each other in a chain, allowing for many measurements at the same time. The SA1500X is system-independent. The probe's standard BNC connector can be plugged into any measuring instrument with a 50  $\Omega$  input. The SA1500X is suitable for measurements in all frequency ranges.

**Figure 1.** SA1500X



## Operating Basics

When using this device, ensure that the measuring instrument is set to 50  $\Omega$  input coupling and the SA1500X is connected to the power supply.



**Caution** Do not bend or pull the probe cable. Avoid mechanical shock to the device to ensure accurate performance and protection.

## Cautions

To avoid personal injury and to prevent fire or damage to the SA1500X, review and comply with the following information.



**Caution** The protection provided by the SA1500X can be impaired if it is used in a manner not described in this document.



**Caution** Connect the probe ground lead to earth ground. Always make sure the probe and the measurement instrument are grounded properly.



**Caution** Connect the probe output to the measurement instrument and connect the ground lead to earth ground before connecting the probe to the circuit under test. Disconnect the probe input and the probe ground lead from the circuit under test before disconnecting the probe from the measurement instrument.



**Caution** Do not exceed the maximum ratings of the probe. Comply with the voltage versus frequency derating curve.



**Caution** Avoid open circuitry. Do not touch connections or components when power is present.



**Caution** Do not operate the probe with suspected failures.



**Caution** Do not operate the probe in an explosive atmosphere.



**Caution** Due to the nature of open probes, there may be susceptibility to outside interference.

## Cleaning your Device

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To clean the exterior of the probe use a soft cloth moistened with either distilled water or isopropyl alcohol. Allow the probe to dry completely before using.

## Electrical Specification

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Attenuation ratio	10:1, $\pm 0.5\%$ (DC)
Dynamic measuring range	$\pm 8$ V
Bandwidth (Probe only)	1.5 GHz
Maximum rated input voltage	20 V

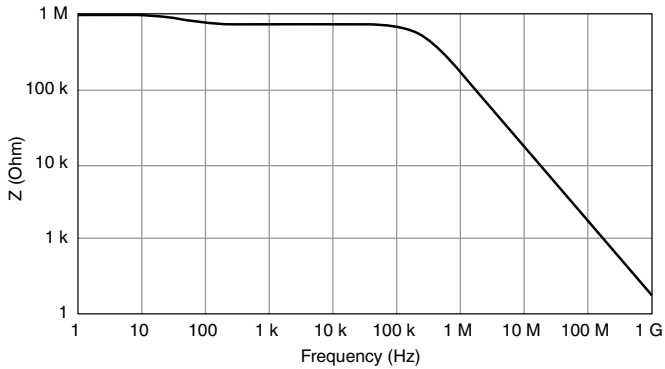
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## Input Impedance



**Note** Input impedance decreases as the frequency of the applied signal increases.

**Figure 2.** SA1500X Typical Input Impedance



## Maximum Input Voltage and Dynamic Measuring Range

The SA1500X is protected against electrostatic discharge voltage (ESD). Applying input-voltages outside the specified limits can result in destruction of the probe's amplifier.

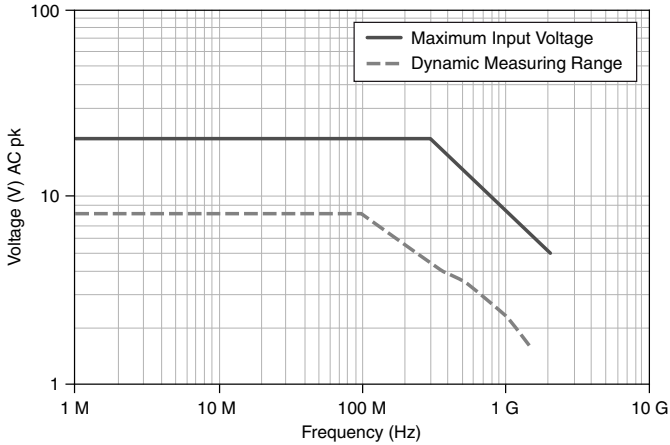


**Caution** The maximum amplitude of the input signal should not exceed the limits stated by the graph below to counter harmonic distortion and avoid input linearity errors. (Dynamic measuring range)



**Caution** The maximum amplitude of the input signal may not exceed the limits stated by the graph below to avoid damage to the probe. (Maximum input voltage)

**Figure 3. SA1500X Input Voltage Versus Frequency**



## Electrical Characteristics

Input resistance (system)	> 1 M $\Omega$ (DC)
Input capacitance (system)	0.9 pF V
Oscilloscope input coupling	50 $\Omega$ AC/DC

## Mechanical Characteristics

Weight (probe only)	96 g
Cable length	1.3 m

## Operating Environment

Maximum altitude	2000 m
Operating temperature range	0 $^{\circ}$ C to 45 $^{\circ}$ C

Maximum relative humidity	80% relative humidity for temperatures up to 31 °C, decreasing linearly to 50% at 45 °C
Pollution degree	2

Indoor use only.

## Storage Environment

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Altitude	up to 15000 m
Temperature range	-40 °C to 71 °C

## Verifying the Kit Contents

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- Calibration certificate
- Ground blade
- Ground lead 6 cm
- Ground lead 12 cm
- Ground lead 90° 5 cm
- Ground lead 90° 10 cm
- Ground lead
- Hook (black)
- Hook (red)
- Instruction manual
- L-in adapter
- Marker bands 4 colors
- PCB adapter
- Power supply
- Probe
- Two self-adhesive cu pads (2 x 2 cm)
- Solid tip
- Spring tip
- Y-lead adapter to 0.8 mm sockets
- Z-ground



**Caution** Use ground lead only for connections to earth ground.



**Caution** The accessories with the probe have been safety tested. Do not use any other accessories than those provided.

# Online Product Certification

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Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

# Environmental Management

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NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *Minimize Our Environmental Impact* web page at [ni.com/environment](http://ni.com/environment). This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

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