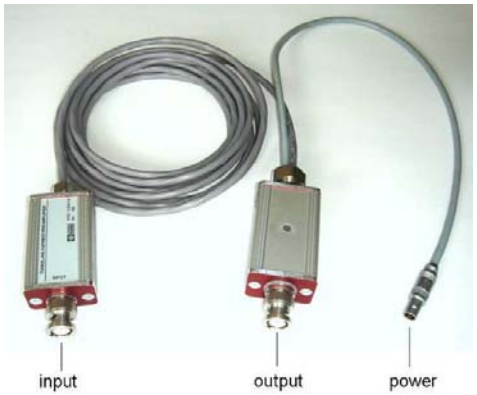
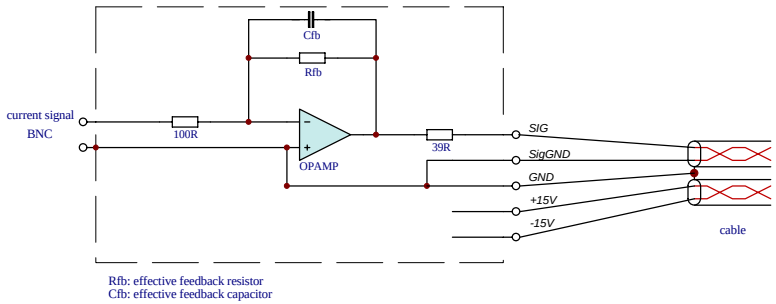
Needle Sensor Preamplifier

NANONIS NSPA-3

The NSPA-3 needle sensor preamplifier is specially designed for the operation of needle sensors (as used in many Omicron machines) in combination with various non-contact techniques. The compact casing can directly be mounted on the experimental setup to keep the distance to the microscope head as small as possible, thus minimizing noise.

The gain of 1 V/µA corresponds to a trans-impedance of 1 MΩ. The bandwidth goes from DC to 1.2 MHz. The amplifier is powered from a stabilized ±15 Vdc source as it is directly available from the Nanonis Oscillation Control Box. Due to noise considerations the input of the preamplifiers is protected by a 100 Ω series resistor. Therefore the amplifier has to be handled with great care to avoid electrostatic discharges and voltage peaks at the input. The analog ground of the power supply is directly connected with the casing of the preamplifier and to the positive input of the operational amplifier and serves as the definition of the virtual ground of the preamplifier's input.





GENERAL

preamp. dimensions	73 x 33 x 20 mm
cable length	3m
operating temperature	+5° to +45° C
compliance	CE

INPUT

connector	BNC
input resistance	ca 300 Ω
max current	10 µA
max voltage	± 12V

OUTPUT

connector	BNC
range	± 10V
output resistance	<40Ω, short circuit safe
analog bandwidth	1.2 MHz (3dB corner frq.)

POWER

connector	4 pin Lemo (FFA.0S.304.CLAC17)
current	2mA typ. (max 40mA)
power supply voltage	+/- 15V dc

Pin 1	*+15V*
Pin 2	*-15V*
Pin 3	*GND*
Pin 4	*GND*

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