

SMM1 MINIATURE PROBE

USER MANUAL



CORPORATE HEADQUARTER

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MAIN CHARACTERISTICS OF THE SMM1 PROBE (WITH CDTE)

This probe consists of a detection head which incorporates one part of the preamplification electronics as well as a CdTe type detector with an active volume between 1 mm³ and 75 mm³.

This probe **MUST BE CONNECTED** with one of Eurorad's preamplifier, model PR307SF or PR16-H (SF).

In the standard version the detector is mounted in a stainless steel housing.

The detector is fully shielded with a Tungsten collimator in order to obtain a good spatial resolution.

This waterproof probe must be placed in a sterile sheet prior to be put in contact with a human body (nuclear medicine applications).



TECHNICAL SPECIFICATIONS

TYPE : SMM1

DETECTOR

Type : Planar CdTe

Volume : $\leq 75\text{mm}^3$ and **5x5x1mm (standard)**

Polarisation voltage: POSITIVE polarisation

ELECTRONICS

It. incorporates the first preamplification stage, i.e.:

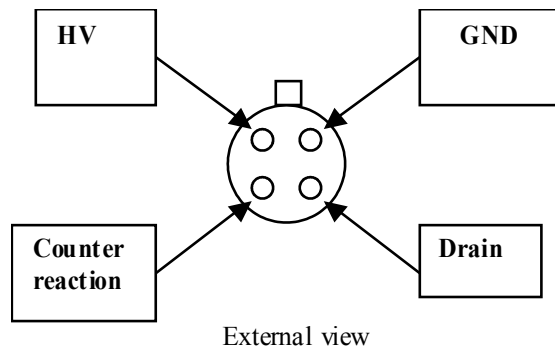
- The entrance FET transistor
- The Feedback circuit (1000Mohm/1pF)
- The charge circuit (100Mohm/1nF)
- The high voltage filtering circuit (1Mohm/1nF)

The SMM1 can be connected with several EURORAD charge sensitive preamplifiers. The electrical characteristics obtained with these preamplifiers are given bellow:

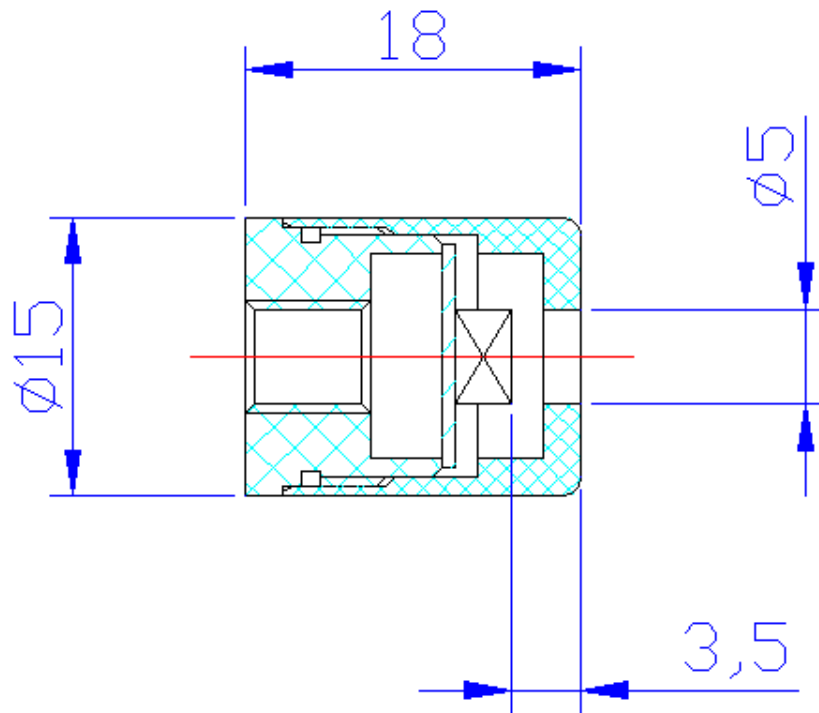
- **With a preamplifier model R307-SF :**
 - Noise : 1.8keV (CdTe, 0pF at 1 μ s)
 - Sensitivity : 36mV/MeV (CdTe) (output negative)
 - Risetime : 30ns (0pF)
 - Output impedance: 50 Ω
 - Consumption with:
 - $V_{cc+} = +12\text{V}$, $I_{cc} = 5\text{ mA}$
 - $V_{cc-} = -12\text{V}$, $I_{cc} = 9\text{mA}$
- **With a preamplifier model PR16-H (SF)**
 - Noise : 1.8keV (CdTe, 0pF at 1 μ s)
 - Sensitivity : 240mV/MeV (CdTe)
 - Polarity (for a Positiv charge) : Positive
 - Risetime : 20ns (0pF)
 - Output impedance: 50 Ω
 - Consumption with:
 - $V_{cc+} = +12\text{V}$, $I_{cc} = 18\text{ mA}$
 - $V_{cc-} = -12\text{V}$, $I_{cc} = 9\text{mA}$

CONNECTOR

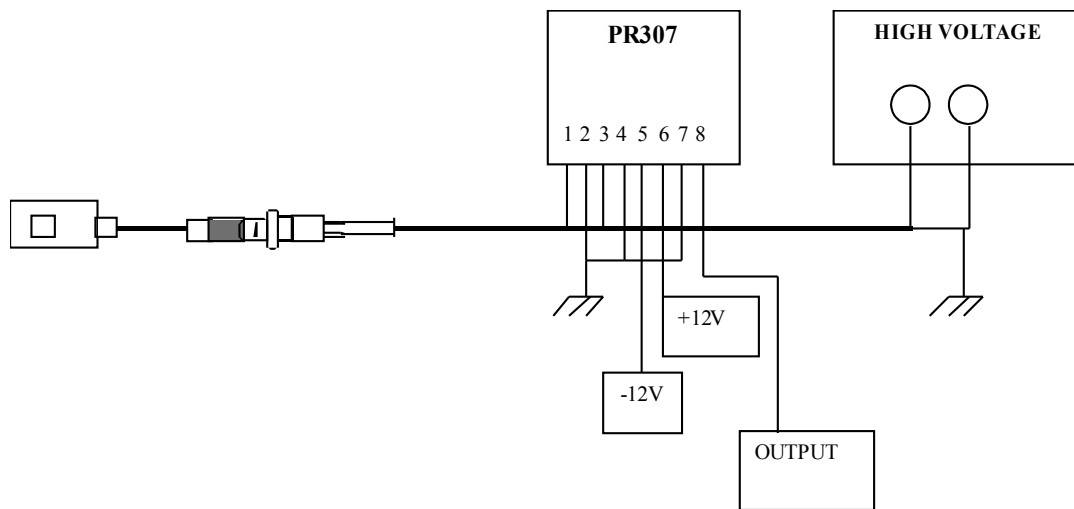
LEMO plug: FGG.0B.304.CLL



MECHANICAL CHARACTERISTICS



Material : **Stainless steel in standard** : Optional Tungsten
Cable : shielded 1m of 4x0.055mm²
Aluminium entrance window of 100 μ m.

CONNECTION DIAGRAMCONNECTION WITH A R307-SF CHIP

The PR307 output can be connected to a NIM spectrometric amplifier, a EUROSPECTRUM EHANCER, or a SH1 module produced by EURORAD.

CONNECTION WITH A PR16-H (SF)

