

# Connector options for HFSD and HFST signal decoupler/terminator

**High voltage input  
(SHV socket)**

The HFSD and HSFT case measure 21 x 47 x 65 mm<sup>3</sup>, prolonged by the connectors



## Signal output options:



Lemo 00-250 socket (standard HFSD)



SMA socket



no output, terminating pot only (HFST)

## Detector side options:



MHV plug (standard)



SHV plug (flange mount)



SHV socket (cable mount)

(without picture) BNC plug (low voltage only!)

# The **RoentDek** HFSD signal decoupler – operational safety

The **RoentDek** HFSD signal decoupler is a passive device to pick up high frequency signals from a biased contact cable, e.g. off a detector device. The contact line to the detector is routed through the **HFSD** via SHV or MHV connectors. Only the AC content on the line is routed to a “signal” output socket.

A typical application of the **HFSD** is signal pickup from single-particle/photon detectors such as micro-channel plate stacks, photomultipliers or secondary electron multipliers in general. A detailed operation manual for the **HFSD** and similar devices is included in the [RoentDek MCP delay-line manual](#).

## Safety:

Being a passive device, the **HFSD** does not emit any EM-noise and does not generate voltage. But it is specified to be connected via the MHV /SHV sockets to a biased line with up to 4 keV (sometimes up to 5 kV) DC load and can thus store up to 0.1 Joule of electrical energy in the internal capacitors.

High voltage may only be applied through the **HFSD** if the case is closed and both high voltage sockets are connected via properly rated and specific high voltage coax cables or to a coax feedthrough with shield on ground potential.

Before removing a high voltage cable from a socket or removing the **HFSD** from a feedthrough connector the external voltage must be set to zero.

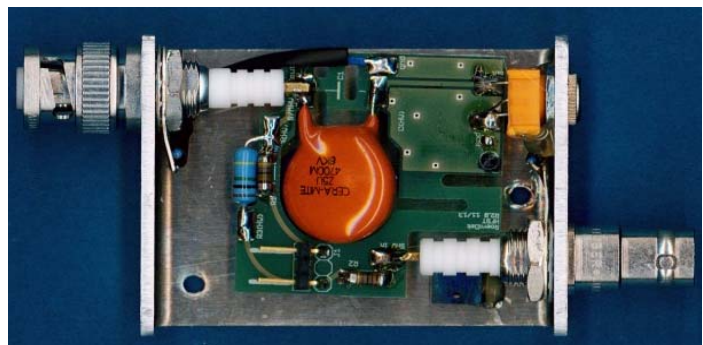
Before opening the case, first the external voltage must be set to 0 and then all connection cables must be disconnected.

For extra safety the case can be connected to ground at all times through a separate cable (not included).

Special spark protection circuits reduce the risk of damage to follow up electronics from excessive signals on the line, e.g. caused by operation failures of the connected detector device. The spark protection circuit also connects the low-voltage side of the internal decoupling capacitor to ground via a resistance of about 400 Ohm for additional operational safety in case of erroneous handling of connection cables.

Older versions of HFSD have a fixed 1 M $\Omega$  series resistor (0.4 W load) between high voltage input and output, newer versions can be switched from default 1 M $\Omega$  to 10 k $\Omega$  (0.4 W load) via an internal jumper.

The **HFST** version of this signal decoupling device has the same safety features and operation restrictions as the **HFSD**, only it connects the low voltage side of the decoupling capacitor via a potentiometer to the case (i.e. to ground).



HFST with case cover removed (HFSD similar):