

Description

The FE-071-HAC is an inline Charge head amplifier operating on the IEPE principle delivering its signal down a single coax which also serves to provide power for the amplifier from the (nominally) 2-6mA source situated in the receiving amplifier. The FE-071-HAC is specifically designed to operate with transducers which at high operating temperature may have reduced source resistance.

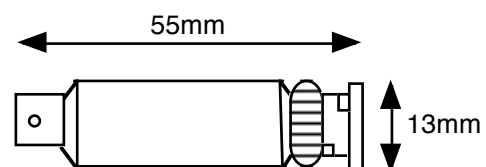
Specification

Input	Sensitivity		1mV/pC, 5mV/pC & 10mV/pC available.
	Source resistance		10k Ω minimum.
	Accuracy		$\pm 0.5\%$ typ. $\pm 1\%$ max.
	Cable		Low noise cable - see text below.
	Connector		BNC socket (Microdot adaptor available).
Output	Supply		standard 4mA IEPE (2 - 6mA).
	Bias Level		13V DC $\pm 1V$.
	Protection		against reverse or over-voltage.
	Range		5V RMS (15V pk-pk) typ.
	Cable		10,000pF maximum (100m coaxial cable).
Connector		BNC plug.	
Frequency response		(1mV/pC)	<0.7Hz to >100kHz -3dB.
		(5mV/pC)	<1Hz to >100kHz -3dB.
		(10mV/pC)	<1.25Hz to >100kHz -3dB.
Harmonic distortion			< 0.05%
Noise*	Referred to O/P	(1mV/pC)	14 μ V RMS 1Hz - 60kHz measurement.
		(5mV/pC)	35 μ V RMS 1Hz - 60kHz measurement.
		(10mV/pC)	70 μ V RMS 1Hz - 60kHz measurement.
	Referred to I/P	(1mV/pC)	0.014pC RMS (0.00014g RMS for a 100pC/g transducer).
		(5 & 10mV/pC)	0.007pC RMS (0.00007g RMS for a 100pC/g transducer).
Physical	Temperature		0°C to 70°C max operating.

General Arrangement

The amplifier is presented as an silver plated brass tube of external dimensions 13mm x 55mm including BNC socket input and BNC plug output.

An optional input BNC to Microdot adaptor is available.



Connection

The input should be connected to the piezoelectric transducer using low noise coaxial or hardline cable (note that the latter may require adapting to the BNC input). The cable must be suitable for charge amplifier application. On cost grounds alone, the input cable length should be minimised, although up to 20m will cause no deterioration in performance. An optional BNC to Microdot input adaptor is available.

The output may be connected using any convenient screened cable up to 100m long, though the use of lower capacity cables will result in better frequency response when cables are long.

Verification

On connection to an IEPE source, the output should assume the specified bias voltage within 30s.

Note 1*: Noise and Frequency response figures typical for a 1n test source.