

7210DIF

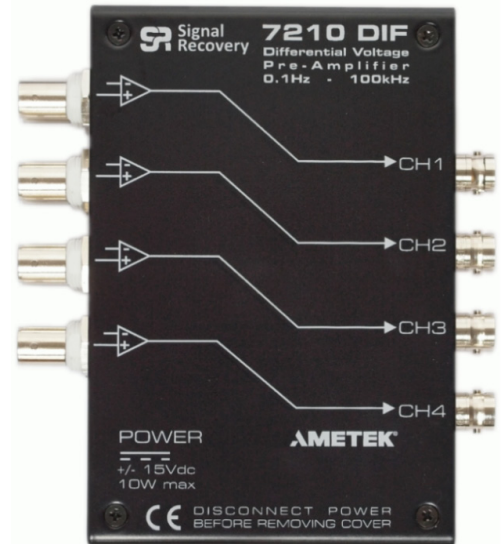
4 Channel Differential Voltage Preamplifier

Features

- True differential inputs
- High Input Impedance
- 0.1 Hz to 100 kHz range
- Gain of x100 with x1, x10 and x1000 available
- Low Noise: $<10 \text{ nV} / \sqrt{\text{Hz}}$ at 1 kHz
- External Power, Battery or Line

Applications

- Acoustic research
- Radio Astronomy
- AC bridge measurements
- Oscilloscope preamplification
- Hall-effect signal amplification

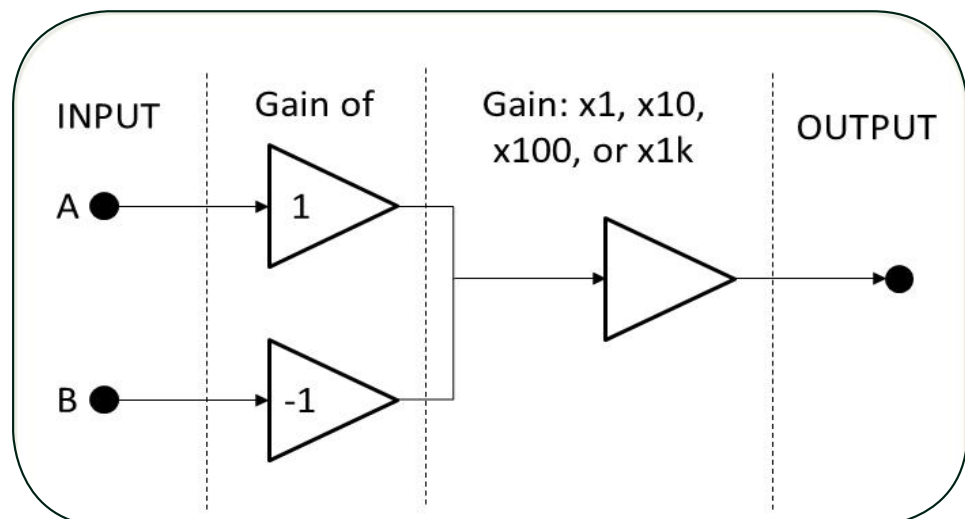


Overview

The Model 7210DIF is a four channel, high input impedance, low-noise, AC-coupled voltage preamplifier which offers a true differential input. It has a frequency response from 0.1 Hz to 100 kHz and gain setting of x100 with x1, x10, and x1000 available. It is a general purpose preamplifier which has the facility to be connected to grounded sources in a manner which breaks ground loops and since it has a true differential input it can be used to measure floating sources, such as the output from an AC bridge, without imposing an asymmetrical load onto the source. It can be powered from an external low voltage supply ($\pm 15 \text{ V}$) or from the model PS0110-MD remote line power supply. This preamplifier can also be powered from most of our range of lock-in amplifiers.

Flow Diagram

The simplified signal path for each channel can be seen in the diagram below:



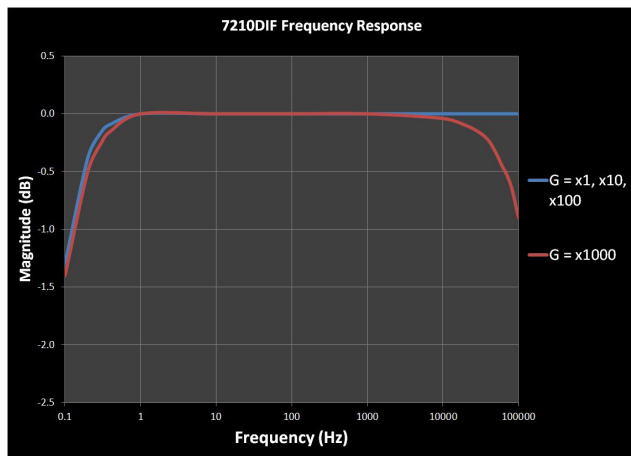
Specifications

Electrical	
Gain Settings	x1, x10, x100, and x1000
Passband Gain Accuracy	0.1% plus 100 ppm/°C
Frequency Range:	
G = x1	0.1 Hz – 1 MHz
G = x10	0.1 Hz – 1 MHz
G = x100	0.1 Hz – 1 MHz
G = x1000	0.1 Hz – 0.1 MHz
CMRR (@1 kHz)	100 dB at G = x1000
Total Input Voltage Noise F = 1 kHz RS = 1 kΩ G = ∞100	6.9 nV/√Hz typical (see table below)
Input Impedance	1 MΩ
Minimum load	1 kΩ
Abs. Max Input Voltage	± 28 V pk
Max Output Voltage	± 9 V pk

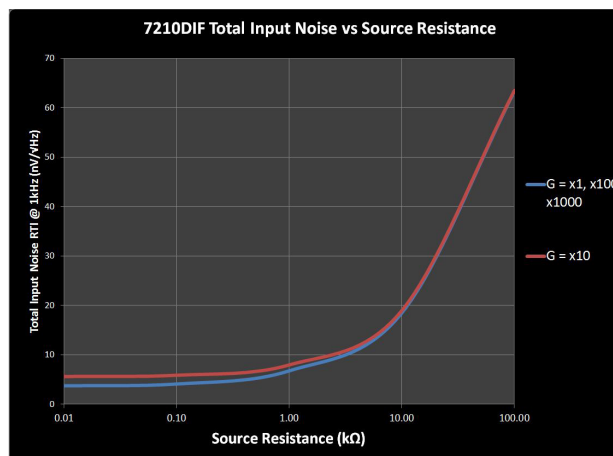
General	
Dimensions L x W x H	133.0 mm x 122.0 mm x 39.5 mm
Weight (7210DIF only):	400 g
DC Input (7210DIF):	
Voltage	±15 ± 0.5 V DC
Input Power	10 W max
AC Input (PS0110-MD):	
Line Voltage	100 – 240 V AC, 50/60 Hz
Power	42 W max
Safety complies with	BS EN 61010-1:2010
EMC complies with	BS EN 61326-1:2013
RoHS compliant	Yes
Environmental	
Location	Indoor use only
Operating Temperature	5° to 40°C

Typical Noise Specifications (@1 kHz)

Series Resistance	Gain			
	x1	x10	x100	x1000
10 Ω	3.72 nV/√Hz	5.61 nV/√Hz	3.92 nV/√Hz	3.74 nV/√Hz
100 Ω	4.09 nV/√Hz	5.86 nV/√Hz	4.28 nV/√Hz	4.10 nV/√Hz
1 kΩ	6.75 nV/√Hz	7.95 nV/√Hz	6.87 nV/√Hz	6.76 nV/√Hz
10 kΩ	18.48 nV/√Hz	18.95 nV/√Hz	18.52 nV/√Hz	18.48 nV/√Hz
100 kΩ	63.35 nV/√Hz	63.49 nV/√Hz	63.36 nV/√Hz	63.35 nV/√Hz



Frequency Response per Gain Level



Total Input Noise vs Source Impedance

Order Details

7210DIF-P One 4 channel preamplifier module with external power supply, and User Manual

7210DIF/86 One 4 channel preamplifier module with power cable for use with 7210 Lock-in Amplifier, one pass-through power cable, four BNC adapter F-to-M, and User Manual



www.signalrecovery.com info@signalrecovery.com

© Copyright 2015 AMETEK, Inc. All Rights Reserved

USA

Tel: (865) 425-1289

Fax: (865) 481-2410

Europe

Tel: +44 (0)1252 556800

Fax: +44 (0)1252 556899

Please see our website for a complete list of our global offices and authorized agents