5108A PIEZOTRON® LOW IMPEDANCE COUPLER

The Model 5108A coupler is a small, easy-to-operate instrument for use with low impedance Piezotron sensors with build-in electronics. The primary function of this passive coupler is to serve as an inter-connecting device, simultaneously providing conditioned power to the low impedance sensor and a measured signal to recording equipment.

Power is derived externally from a battery or inexpensive, unregulated line powered supply. Internal protection is provided to prevent damage resulting from an improperly connected (reverse polarity) power source.

The 5108A is AC coupled, thereby eliminating the sensor's bias voltage from the measured signal. Its small size and compact shape allows easy, direct attachment to the input connector of an oscilloscope. This unit is CE compliant.

- Simple to operate
- AC coupled
- Reverse polarity protection
- Conforming to CE

Technical Data	Unit	5108A
Input Characteristics		
Sensor Current Supply	mA	4
Sensor Signal Voltage	Vpp	20
Transfer Characteristics		
Gain		1
Frequency Response min.	Hz	0.02 to [1]
(–3dB with 1 meg load)		
Output Characteristics		
Coupling Capacitor	µF	47
Full Scale Signal	V_{pp}	20
Current max.		see note 2
Environmental		
Temperature Range Operating	°F	32…122
	°C	0…50
Storage	°F	–40…185
	°C	–40…85
Vibration 5 to 2000Hz	g	±10
Shock 1ms duration	g_{pk}	100
Power		
Supply Voltage	VDC	22…30
Physical		
Size including conn. (L x H x W)	in	2.25 x 0.87 x 0.87
	mm	57,2 x 22,2 x 22,2
Weight	g	65
Connectors		
Input	type	BNC neg.
Output	type	BNC pos.
Power	type	banana jacks polarity (+red, –black)

1. See formula on reverse side
2. 1mA less than supplied by coupling

1 g = 9.80665 m/s^2, 1 inch = 25.4 mm, 1 gram = 0.03527 oz

Referring to Frequency Response specification on page 1.

$$f_{max} = [0.32 \text{ (bias current } -1mA)] \Big/ [(C_C + 0.002 + C_{in}) (Vo)]$$ where:

f_{max} = maximum undistorted sine wave frequency, in kHz,
                 above which slew rate limiting distorts amplitude and waveform
bias current = operating current supplied by coupler, for the 5108A, bias current = 4mA
C_C = cable capacitance in µF, typically 30 pF/ft (100 pF/m)
C_{in} = Input capacitance of oscilloscope or recording instrument,
                 typically 20 pF for an oscilloscope
V_o = signal amplitude, in V_{pp}

With a 5 V_{pp} signal and a 20 pf instrument, and 100 ft (30 m) of cable, f_{max} = 38 kHz.
With a 5 V_{pp} signal and a 20 pf instrument, and 6 ft (2 m) of cable, f_{max} = 87 kHz.

Ordering Information
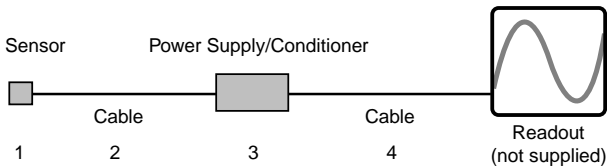
Specify:

1 - sensor   specify

2 - 1761B…   cable, 10-32 pos. to BNC pos., specify length

3 - 5108A   coupler

4 - 1603B…   output extension cable, BNC neg. to BNC pos.,
                     specify length in meters