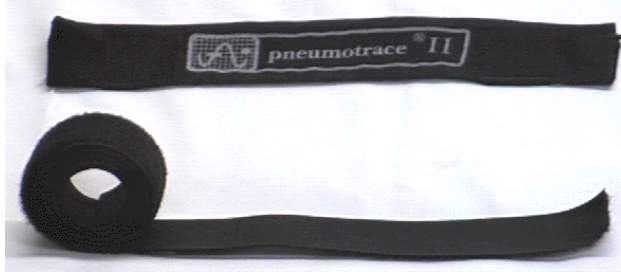


MODEL 1132 PIEZOELECTRIC  
RESPIRATION TRANSDUCER



UFI  
545 Main Street, Suite C-2  
Morro Bay, CA 93442

## **Introduction**

The Model 1132 PneumoTrace® is a solid-state transducer that measures changes in chest or abdominal circumference due to respiration. A piezoelectric device, the Model 1132 responds linearly to changes in transducer elongation, generating a positive voltage as length increases.

The Model 1132 is self exciting -- no external excitation voltage need be supplied. As a result, the output may be connected to the single-ended input of a bioamplifier, polygraph or chart recorder.

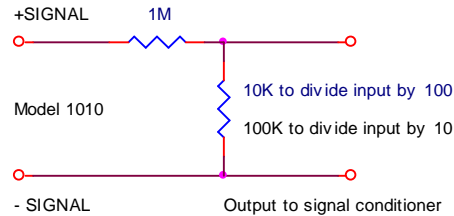
Designed to work into a 1 megohm input impedance, Model 1132 nominal output ranges 20 and 400 mV during respiration. When output attenuation is required, the simple voltage divider circuit discussed below may be used.

## **Cautions**

- The Model 1132 can produce output pulses of several volts during handling and placement. If connected equipment cannot handle such inputs, Model 1132 should be disconnected from downstream equipment until it has been attached to subject.

## Connection considerations

- The Model 1132 requires that downstream signal conditioners have an input impedance of at least 100 K $\Omega$  and a frequency response extending below 1 Hz. A charge amplifier connected between Model 1132 and signal conditioner will extend low response.
- Signals of just 4-5 mV saturate some amplifiers. If Model 1132 does this, a simple voltage divider (see below) can be inserted between transducer and instrument input.



## Attaching the Model 1132

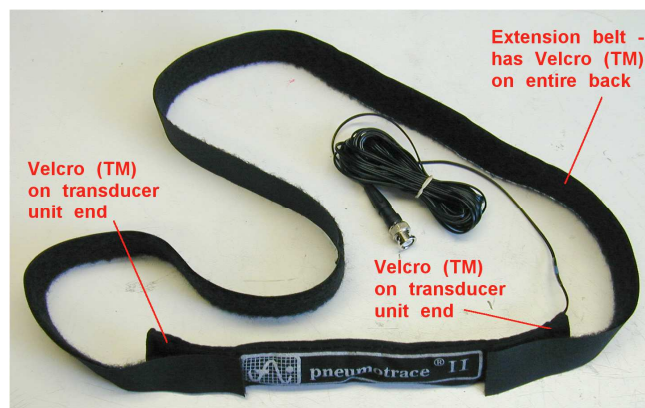
Proper placement on the subject, proper sizing and proper tensioning are all vital if best results are to be obtained from the Model 1132.

**Placement on subject:**

- Wrap Model 1132 PneumoTrace® around body at level of maximum respiratory expansion. Erect and supine positions will require different locations for best signal.
- When Model 1132 is wrapped around chest over left ventricle of heart, cardiac pulses may be apparent during pauses between inspiration and expiration.

**Sizing the elastic belt:**

- Model 1132 transducer is sewn into an elastic belt about 23cm (9 inches) long.
- Fasten extender belt to one end of transducer package using provided VELCRO™ closures.
- Wrap belt around body circumference, 30 cm to over 100cm (12" to 40"), then fasten belt to other end of transducer package with remaining VELCRO™ closures.
- Additional extenders may be purchased from UFI, or you can buy VELCRO™ strips from a sewing supply store.
- Model 1132 users have even measured horse respiration with the aid of extenders.



**Tension adjustment:**

- Correct tension adjustment of Model 1132 is critical to successful operation. PneumoTrace® must be wrapped snugly to maximize the sensitivity of the system.
- Stretch belt around subject, then ask him or her to inhale and hold breath. Ensure that belt is nearly taut, then fasten VELCRO™ closure.
- The Model 1132 will now record respiration with maximum sensitivity.



**Cable length:**

- Cables between the Model 1132 and the recording instrument of up to 16m (60 feet) have been tested with no degradation of signal quality.
- We expect this distance could be extended to a couple hundred meters (several hundred feet) without problems..

**Small animals:**

- A smaller version of the PneumoTrace® is available to record small-animal respiration.

## Specifications

- Signal output                      Varies with length:  
typical respiration  
yields 20 - 200 mV  
Into 1 M $\Omega$  input
- Size  
high                                      38mm wide x 3mm  
thick x 230mm long  
(1.5" x 0.125" x 9")
- Cable length                        1.8m (6 feet) standard;  
may be as long as at  
least 15m (50 feet)

## Warranty and repair

All UFI instruments are warranted against defects in materials and workmanship to the original purchaser for a period of one year from the date of original purchase. This warranty is void if our inspection shows the equipment has been tampered with; or installed at variance with factory-designated procedures; or has been subjected to negligence, misuse, or accident beyond normal usage; or has had the serial number altered, defaced, or removed.

All questions regarding the warranty should be directed to:  
Customer Service Department, UFI  
545 Main Street, Suite C-2  
Morro Bay, CA 93442  
Email: [ufi@ufiservingscience.com](mailto:ufi@ufiservingscience.com)

When communicating with UFI concerning your equipment, please include the model and serial numbers.

No third party, including any dealer or agent, is authorized to assume any liability for UFI.

UFI instruments and transducers are subject to continuous improvement. We reserve the right to modify any design or specification without notice and without incurring any obligation.

**ALL UFI TRANSDUCERS AND ELECTRODES ARE COVERED BY OUR EXCLUSIVE "LIFELINE® WARRANTY" AS OUTLINED BELOW**

If your UFI transducer, electrode, or electrode tester ceases to operate--regardless whether the cause is accidental, intentional, or whatever---**return it to us**. We will repair it or replace it with a new one for a minimal handling charge, as listed below:

Model 1132, 1132C	\$25.00
Model 1020, 1020EC, 1020FC, 1110	\$25.00
Model 1030, 1040, 1070, 1081FT	\$50.00
Model 1081 & 1081 SNP	\$11.00
Model 1089 MK II & MK III	\$65.00
Model 1130, 1131, 1132	\$35.00

Prices subject to change

4-19-12