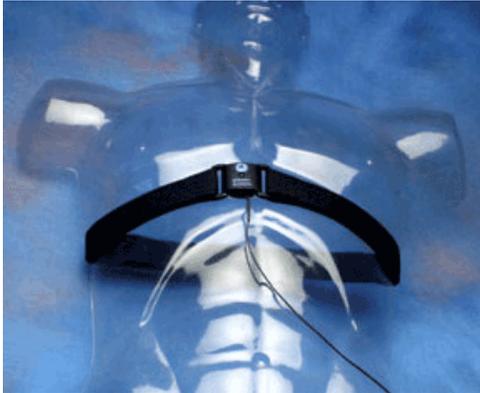


TSD201 – RESPIRATION TRANSDUCER



Sample Data for Subject at Rest

The TSD201 is a strain gauge transducer designed to measure respiratory-induced changes in thoracic or abdominal circumference, and can therefore be used to record respiratory effort. The TSD201 is essentially a resistive transducer and responds in a linear fashion to changes in elongation through its length, with resistance increasing as length increases.

The transducer is ideal for a variety of applications because it presents minimal resistance to movement and is extremely unobtrusive. Due to its unique construction, the TSD201 can measure extremely slow respiration patterns with no loss in signal amplitude while maintaining excellent linearity and minimal hysteresis.

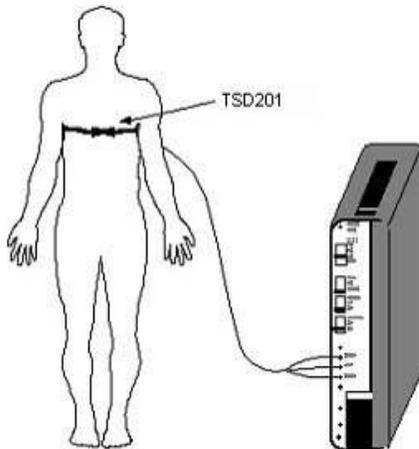
The TSD201 plugs directly into the RSP100C amplifier module. It includes a fully adjustable nylon strap to accommodate a large range of circumferences (9 cm to 130 cm). To attach the nylon belt to the respiration transducer, thread the nylon strap through the corresponding slots so the strap clamps into place when tightened. Place the transducer around the body at the level of maximum respiratory expansion. This location will vary from the erect to supine positions (generally about 5 cm below the armpits).

Correct tension adjustment of the respiration transducer is important. For best sensitivity, the transducer must be just slightly tight at the point of minimum circumference (maximum expiration). To obtain proper tension, stretch the belt around the body and have the subject exhale. At maximum expiration, adjust the nylon strap so there is slight tension to hold the strap around the chest. For proper operation, there must always be at least a small amount of tension on the transducer.

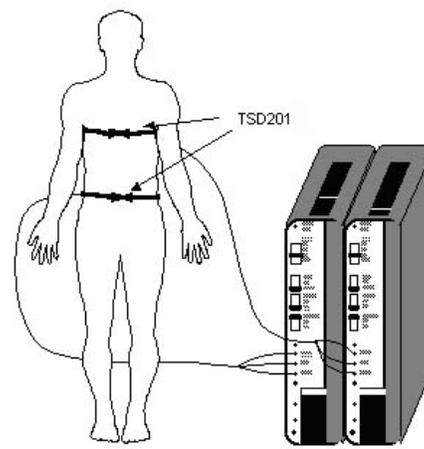
The transducer has three 1.5 mm Touchproof connectors to connect to the amplifier. Insert the two colored lead transducer pin plugs into the two RSP100C inputs labeled XDCR. Either color lead can be connected to either XDCR input. Insert the single black transducer lead into the GND input of the RSP100C. The respiration transducer is ready for measurement. Trace conductive parts (metallic parts) do not make contact to the subject.

For MRI applications, see the TSD221-MRI Respiration Transducer.

PLACEMENT AND CONNECTIONS



using one TSD201 respiration transducer



using two TSD201 respiration transducers

Placement and Connections for Thoracic and Abdominal Respiratory Effort Measurement

TSD201 CALIBRATION

The TSD201 does not require calibration.

TSD201 SPECIFICATIONS

True DC Response:	Yes
Variable Resistance Output:	5-125 K Ω Conductance of the gauge is linear with applied stretch to belt. As belt length increases, voltage output (reflected at amplifier output increases; as gauge conductance increases and gauge resistance decreases.)
Circumference Range:	15 cm x 150 cm (can be increased with a longer strap)
Attachment:	Velcro® strap (adjustable length)
Sterilizable:	Yes (contact BIOPAC for details)
Sensor Weight:	18 g
Sensor Dimensions:	66 mm (long), 40 mm (wide), 15 mm (thick)
Cable Length:	3 meters
Interface:	RSP100C
TEL100C compatibility:	SS5B
Frequency Response:	DC-500 Hz
Operating Humidity Range:	0-95% non-condensing
Operating Temperature Range:	-20° C to +80° C

Sensitivity: Monotonic analog output. Sufficiently sensitive to detect heart motion in thoracic cavity, in addition to thoracic/abdominal expansion and contraction.