

TSD200-MRI PHOTOPLETHYSMOGRAM TRANSDUCER



The TSD200-MRI photoplethysmogram (PPG) transducer operates with the PPG100C-MRI to record the blood volume pulse waveform via optical (photoplethysmogram) methods. The TSD200-MRI consists of a matched infrared emitter and photo diode detector, which transmits changes in infrared reflectance resulting from varying blood flow. Blood is highly reflective of near infrared light wavelengths, due to the heme subunit of hemoglobin. When the PPG transducer is placed on the skin, in proximity to capillaries, the reflectance of the infrared light from the emitter to the detector will change in accordance to capillary blood volume. The PPG waveform peaks when capillary blood volume is maximized.

The transducer optics are designed to sense diffuse surfaces, including the skin surfaces of finger or toe. The transducer is sensitive to Blood Volume Pulse (BVP) via photo-plethysmographic methods.

The Diode and Phototransistor are mounted side by side on parallel axis in a black polyurethane housing. The Phototransistor is encased in a dark epoxy package which filters out visible ambient light. The transducer has a shielded 3-meter cable.

The ergonomic housing design improves contact with the subject and helps reduce motion artifact. Trace conductive (metal) parts of transducer do not make contact to the subject.

The TSD200-MRI only operates with the PPG100C-MRI amplifier.

MRI Use: MR Conditional to 7T

Note: Conductive parts of transducer are electrically and thermally isolated from subject.

Components: Polyvinyl chloride (PVC) Plastic, Polymer thick film device (rigid substrate, printed semiconductor), Copper clad fiberglass lamination (PCB material), Tinned copper wire, Silicone elastomer

CONNECTIONS

For MRI applications: Use the MECMRI-TRANS Cable/Filter to connect the TSD200-MRI to the PPG100C-MRI. See [BIOPAC Application Notes](#) regarding the proper installation of MECMRI cables for recording in an MRI environment.

For non-MRI applications: Connect the TSD200-MRI directly to the PPG100C-MRI.

TSD200-MRI Lead PPG100C-MRI

Red connector VIN++/VSUP (May also be black connector with red shrink wrap)

Black connector GND

White connector VIN-/INPUT (May also be black connector with blue shrink wrap)

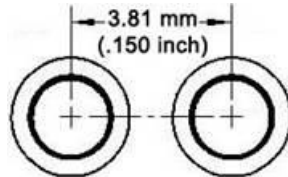
TSD200-MRI SPECIFICATIONS

Emitter/Detector Wavelength: 860 nm ± 60 nm
Optical Low Pass Filter Cutoff Wavelength: 800 nm

Note

The operational range of the emitter and detector fall within the wavelength range of 800 nm to 920 nm. The filter is placed over the receiver; the filter of 800 nm is an optical lowpass, so wavelengths longer than 800 nm will pass thru.

Emitter/Detector Spacing: 3.81 mm (.150 inch) - center to center



Nominal Output: 20 mV (peak-peak)
Power: 6 VDC Excitation @ 5 mA
Sterilizable: Yes (Contact BIOPAC for details)
Weight: 4.5 g
Dimensions (L x W x H): 16 mm x 17 mm x 8 mm
Cable: 3 m, shielded
Interface: PPG100C-MRI