

MODEL 1020 INFRARED PULSE PLETHYSMOGRAPH



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Introduction

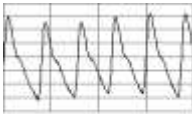
The Model 1020 infrared plethysmograph monitors pulsatile blood flow changes in fingers, toes, ear, forehead, and other locations. You attach the Model 1020 with the supplied Velcro™ strap or with electrode-type adhesive collars.

The Model 1020 will record through the finger nail, and in the direct coupled mode, it can even measure blood flow changes due to blushing! Matched optics reduce the effects of ambient light and subject motion to improve signal output.

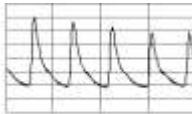
Applications for the Model 1020

To monitor finger pulse with standard model:

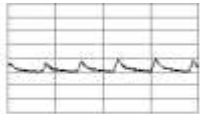
- Attach Model 1020 firmly but not tightly to the end of a finger with supplied Velcro™ strap;
- Loosen strap if it feels tight to subject, or if finger becomes pale or begins turning blue.
- Touch subject's fingers to your cheek. If they feel cold the vasculature is probably constricted and output from Model 1020 transducer will be very low. Loosen the Velcro™ strip to restore an adequate signal as shown below.



Properly applied



Slightly tight



Much too tight

To measure pulse in other areas, standard model:

- Use longer strip of Velcro™ or lightly wrap an elastic bandage around Model 1020 and the body part.
- Model 1020 may also be attached with Model 1080B or other double-sided adhesive disc.
- The forehead directly over center of eyebrow, is an excellent place to sense pulse:



To monitor pulse with Model 1020FC:

- clip to finger as shown below, then move around to obtain best signal.



[replace with better picture]

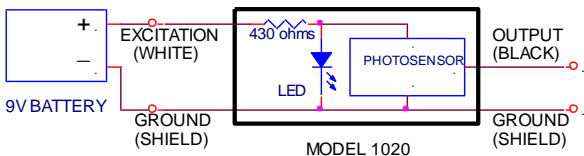
To monitor pulse with Model 1020EC:

- clip to ear lobe as shown below, then move around to obtain best signal.



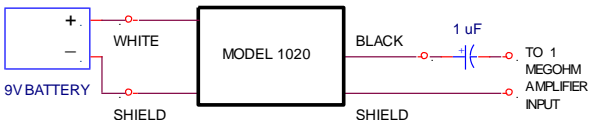
Application circuits

Basic power and output wiring:

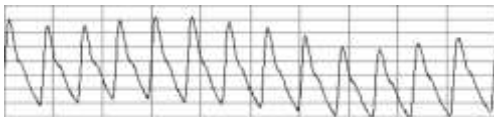


To monitor pulse:

- add a 1 microfarad ($1 \mu\text{F}$) capacitor in series with Model 1020 black output lead, as shown below:

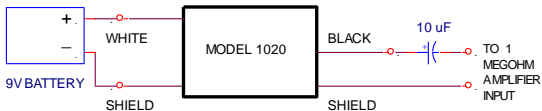


- The pulse "rides" on slowly varying DC level:

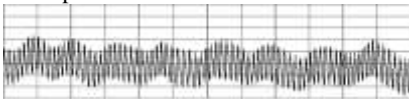


To monitor only *changes* in DC level:

- add a 10 microfarad ($10\ \mu\text{F}$) capacitor in series with Model 1020 black output lead, as shown below:

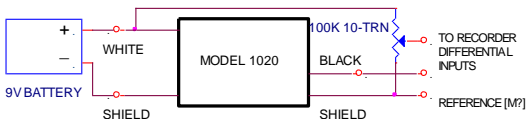


- One minute trace shows how pulsatile signal varies with respiration:

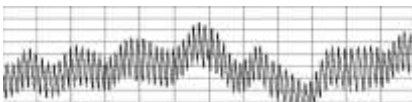


To monitor absolute DC level:

- add a 100K pot as shown below and connect circuit output to recorder differential input:



- One minute trace shows how pulsatile signal varies with respiration:



Specifications

Signal output	5-50 mV typical when applied to finger pulse of resting subject
Output impedance	1 K Ω nominal
Excitation	20 mA at 6-9 VDC, nominal
Emitter/Detector Wavelength	950 nM
Size	15mm x 15mm x 6mm (0.6" x 0.6" x 0.25")
Weight	About 28g (1 ounce)
Cable length	1.8m (6 feet) nominal; others by special order

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, installed at variance with factory-designated procedures, has been subjected to negligence, misuse, or accident beyond normal usage, or has had the serial number altered, defaced, or removed.

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.

Non-warranty repairs of transducers are performed at a fixed price. Contact us or visit our website at www.ufiservingscience.com/warranty for current pricing.

All questions regarding the warranty should be directed to:

UFI
Customer Service Department
545 Main Street, Suite C-2
Morro Bay, CA 93442
805-772-1203
Email: mail@ufiservingscience.com

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