

INSTRUCTION MANUAL

Warranty

WPI (World Precision Instruments) warrants to the original purchaser that this equipment, including its components and parts, shall be free from defects in material and workmanship for a period of 90 days from the date of receipt. WPI's obligation under this warranty shall be limited to repair or replacement, at WPI's option, of the equipment or defective components or parts upon receipt thereof f.o.b. WPI, Sarasota, Florida U.S.A. Return of a repaired instrument shall be f.o.b. Sarasota.

The above warranty is contingent upon normal usage and does not cover products which have been modified without WPI's approval or which have been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. The above warranty will not apply if adjustment, repair or parts replacement is required because of accident, neglect, misuse, failure of electric power, air conditioning, humidity control, or causes other than normal and ordinary usage.

To the extent that any of its equipment is furnished by a manufacturer other than WPI, the foregoing warranty shall be applicable only to the extent of the warranty furnished by such other manufacturer. This warranty will not apply to appearance terms, such as knobs, handles, dials or the like.

WPI makes no warranty of any kind, express or implied or statutory, including without limitation any warranties of merchantability and/or fitness for a particular purpose. WPI shall not be liable for any damages, whether direct, indirect, special or consequential arising from a failure of this product to operate in the manner desired by the user. WPI shall not be liable for any damage to data or property that may be caused directly or indirectly by use of this product.

Claims and Returns

- Inspect all shipments upon receipt. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed loss or damage should be reported at once to the carrier and an inspection requested. All claims for shortage or damage must be made within 10 days after receipt of shipment. Claims for lost shipments must be made within 30 days of invoice or other notification of shipment.

Please save damaged or pilfered cartons until claim settles. In some instances, photographic documentation may be required. Some items are time sensitive; WPI assumes no extended warranty or any liability for use beyond the date specified on the container.

- WPI cannot be held responsible for items damaged in shipment en route to us. Please enclose merchandise in its original shipping container to avoid damage from handling. We recommend that you insure merchandise when shipping. The customer is responsible for paying shipping expenses including adequate insurance on all items returned.

- Do not return any goods to WPI without obtaining prior approval and instructions (RMA#) from our returns department. Goods returned unauthorized or by collect freight may be refused. The RMA# must be clearly displayed on the outside of the box, or the package will not be accepted. Please contact the RMA department for a request form.

- Goods returned for repair must be reasonably clean and free of hazardous materials.

- A handling fee is charged for goods returned for exchange or credit. This fee may add up to 25% of the sale price depending on the condition of the item. Goods ordered in error are also subject to the handling fee.

- Equipment which was built as a special order cannot be returned.

- Always refer to the RMA# when contacting WPI to obtain a status of your returned item.

- For any other issues regarding a claim or return, please contact the RMA department

Warning: This equipment is not designed or intended for use on humans.

WORLD PRECISION INSTRUMENTS

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BLPR2

Blood Pressure Transducer

Serial No. _____



www.wpiinc.com



OPERATION AND USE

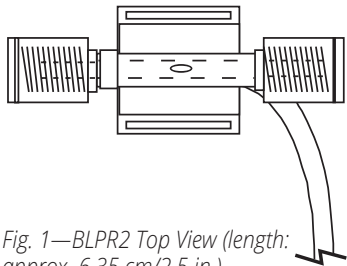


Fig. 1—BLPR2 Top View (length: approx. 6.35 cm/2.5 in.)

Model BLPR2 can be used for the direct measurement of arterial and venous pressure in animal blood vessels. Supplied sterile and date-coded, BLPR2 is accurate, linear and stable with temperature. This device should be sterilized cold with Cidex or a similar bactericide. Avoid blood entry into the transducer housing as coagulated blood may be difficult to remove. Use an intermediate fluid such as isotonic sterile saline to fill the transducer chamber and catheter or needle.

Model BLPR2 is equipped with a twelve-foot cable and connector compatible with WPI's four-channel signal conditioning unit, **TBM-4M** Transbridge, **Bridge8**, **LabTrax-4/24T** and the single-channel

BP-1 blood pressure monitor. Should the user wish to connect this transducer to any other instrument, the connector pin configuration is shown below.

To facilitate set-up and operation, a 4-way stopcock is included to allow easy filling, flushing, and zeroing of the transducer. Typically, the stopcock is located between the transducer and the animal catheter where it can be used to quickly zero, flush, or de-bubble the transducer. To fill the transducer, use a suitable syringe or infusion bag and, typically, a standard saline solution that you slowly inject or allow to drain into the transducer and catheter via the transducer's rear (cable-side) connection. Zeroing, flushing, and air removal can in turn be accomplished by manipulating the 4-way stopcock.

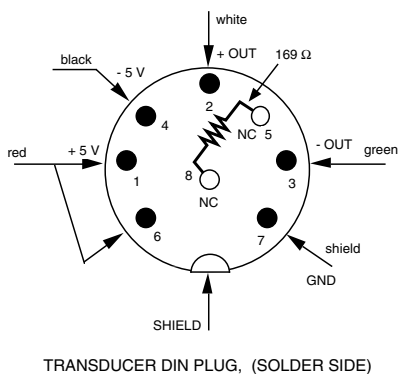
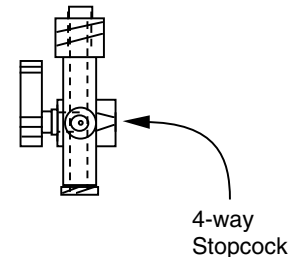


Fig. 2—BLPR2 connections

Fast flushing: if desired, a suitable flushing solution can be introduced into the transducer through the rear connection via either a syringe or solution bag. To flush the transducer, the stopcock should be positioned to allow the flushing solution to pass through the transducer body and out via the side vent on the stopcock.

To avoid flushing air bubbles or clots contained within the 4-way stopcock and cannula back into the animal, make sure that the catheter/monitoring line is completely filled with liquid and allow a small quantity of blood to flow back through the cannula before opening the catheter or monitor line connection through to the transducer via the stopcock.

NOTE: Replacement transducers (WPI part # 503067) and cables (WPI part # BPCABLE2) are available separately.



CAUTION: BLPR2 IS NOT INTENDED FOR HUMAN BLOOD PRESSURE MEASUREMENT. THIS DEVICE IS INTENDED FOR ANIMAL RESEARCH ONLY.

SPECIFICATIONS

Operating Pressure Range

Sensitivity

Non-Linearity and Hysteresis

-50 to +300 mmHg

5 μ V/V/mmHg, $\pm 2\%$ (typically $< \pm 1\%$)

$\pm 1\%$ of reading or ± 1 mmHg, whichever is greater in the range of -50 to 200 mmHg. Above 200 mmHg the combined linearity and sensitivity error must be less than $\pm 3\%$

Sensitivity Thermal Effect

Zero Thermal Effect

Zero Drift With Time

$\pm 0.1\%$ /degree C

$\pm 0.3\%$ mmHg/degree C

± 1.0 mmHg/8 hours after 10 min. warm-up to operating temperature

Leakage Current

Unbalance

Overpressure Protection

Operating Temperature

Excitation Voltage & Frequency

Asymmetry

Operating Life

Defibrillation Withstand

Natural Frequency

Phase Shift

Output Impedance

Input Impedance

$< 2 \mu$ A @ 115 VAC RMS at 60 Hz

± 75 mmHg

-400 to +4000 mmHg

15° to 40° C

2 to 10 V DC or VAC RMS, up to 5kHz

$< 1\%$

> 500 hours

5 discharges/5 minutes of 360 joules into 50 ohm load

> 200 Hz in saline

< 5 degrees at 5 kHz

270 to 400 Ohms

270 to 400 Ohms

ORDERING INFORMATION

BLPR2

BPCABLE2

14036-15

503007

KZ1101

Cable Transducer

WPI 8-pin DIN to 4-pin

Stopcock, package of 15

BLPR2 Transducer without cable

Microcannula, 3-in.