Isometric muscle contraction is defined as force with zero motion. Harvard Apparatus Isometric Transducers achieve this condition by means of thin-filmed, bonded strain gauges and substantial beams. The strain gauge has four-wire closed Wheatstone bridges for long term stability and sensitivity. The stiffness of the transducer and stem prevents unwanted displacement.

To operate, these Isometric Transducers require power from the amplifier/signal conditioner to which they are connected. They are available in five force ranges and are supplied with an amplifier/signal conditioner specific, 1.8 m (6 ft) Cable. These Cables are also available separately allowing the Transducer to be connected to a different amplifier/signal conditioner simply by switching the Cable.

### Harvard Apparatus Isometric Transducers

- Strain gauge type
- Available in five force ranges

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### Harvard Apparatus Isometric Transducers

- Strain gauge type
- Available in five force ranges

### Harvard Apparatus Battery-Powered Isotonic Transducer

This Battery-Powered Isotonic Transducer has an output shaft located in precision bearings, which carries a lever 90 mm (3.5 in) long. This lever is notched on its top surface and pierced with eight holes on either side of the lever point on a 5 mm pitch from the fulcrum. These piercings are for attachment of the preparation.

A graduated optical density vane (a light wedge), is also mounted on this shaft and moves between a miniature lamp and a silicon phototransistor which are housed in the light-proof casing.

The output of the photo transistor is linear over approximately 50° of movement of the lever. A balance control is provided on the front of the instrument to zero the output at a convenient level. A long lasting mercury battery is supplied. Output is from a pair of 4 mm sockets on the front panel.

### Specifications

- **Dimensions:**
  - Case, H x W x D: 50 x 100 x 25 mm (2 x 4 x 1 in)
  - Mounting Rod, OD x L: 6.5 x 60 mm (1/4 x 2-1/4 in)

### Catalog No. $ Product

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<tr>
<th>Catalog No.</th>
<th>Product</th>
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<tr>
<td>BS4 50-6378</td>
<td>Battery-Powered Isotonic Transducer</td>
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<tr>
<td>BS4 50-9257</td>
<td>4 mm plugs to BNC Cable; for use with Modular Universal Oscillograph, see page 166, and Student Oscillograph, see page 168</td>
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<tr>
<td>BS4 50-6364</td>
<td>Adapter Cable, 4 mm plugs to 14-Pin DIN connector; for use with Gould 6600 Series Amplifiers</td>
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### Output

- **Specifications**
- **Output:** 50 mV/ angular degree rotation
- **Angle of Rotation:** ±25° above and below horizontal axis
- **Excitation Voltage:** -12, 0, +12 VDC
- **Breakaway Torque:** 0.05 g/cm
- **Dimensions:**
  - Housing, H x W x D: 45 x 35 x 45 mm (1.75 x 1.5 x 1.75 in)
  - Mounting Rod, OD x L: 6.5 x 60 mm (0.25 x 2.5 in)

### Harvard Apparatus now owns Hugo Sachs Elektronik.

The HSE isolated organ baths set the industry standard. They can be found in the Isolated Organ and Tissue Section K in this Bioscience Catalog.