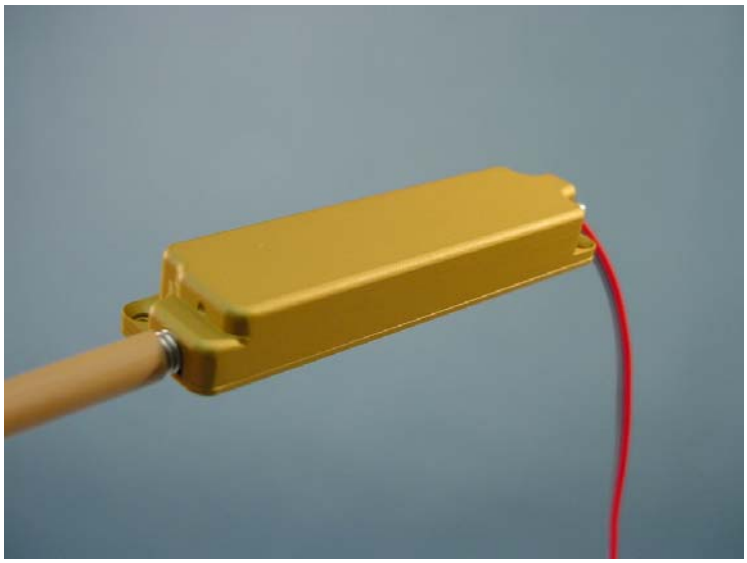
LTI Linear Transducer

- **Provides positional control of prosthetic devices**
- **Adjustable length of travel**
- **Adjustable resistance tension**
- **Light-weight, low-profile**
- **Universal, can be used with various prosthetic systems**
- **Supplied with Bowden cable**
- **Convenient surface mount**



The **BE235** Linear Transducer is designed to be used with the Boston Digital™ Arm System, allowing the user to regulate the position of the elbow by making a body movement that pulls on the transducer cord. The position of the transducer cord determines the position of the prosthesis. If the user pulls the cord ½" (full excursion), the prosthesis fully flexes. A smaller movement of the cord produces a smaller movement of the prosthesis. This motion of the prosthesis, tracking the motion of the transducer, is called "servo control". When used to control the Boston Digital Arm, the transducer's position relates directly to the position of the elbow (degree of flexion) – a fully-pulled transducer cord equals a fully flexed elbow. When the transducer is released, the elbow automatically extends. The user's capabilities determine what body movement is best used to actuate the Linear Transducer.

Using a Linear Transducer to control the elbow and some other input sensor (i.e. myoelectrodes or Touch Pads) enables the user to simultaneously control two prosthetic devices (i.e. elbow & hand). Not only is this more efficient, but it is also more natural. New reimbursement codes have been added to provide greater reimbursement for this simultaneous control feature

The Linear Transducer consists of a linear potentiometer in a small case with an attached 8" (200mm) Bowden sheath. A Spectra™ cord (about 16" or 400 mm) exits the sheath and is supplied with a loop strap for attaching to the harness. Pulling the cord changes the resistance of the potentiometer, thus changing the speed and position of the prosthetic device. As originally set-up, the Spectra cord moves a total of ½ inch (13 mm). Depending on where you place a knot in the cord when setting up the transducer, the cord can be set to travel ½ inch or 1 inch (13 or 25 mm). The potentiometer has a small return spring which is supplemented by a secondary, adjustable spring for matching the resistance to the needs of the user.

The actual location of the Transducer is less important than the location of the end of the Bowden cable. Typically, a point near the end of the sheath is fixed to a point on the posterior wing of a transhumeral socket. The other action point is the attachment of the cord running through the Bowden sheath, often on the contralateral side of the posterior harness. Forward motion of one or both shoulders (protraction) takes the slack out of the cord and then moves the transducer mechanism. The Transducer can be surface mounted or concealed between the inner and outer sockets.

7/6/2011

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