

Transducer coupling to pen recorder

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Electronic transducers coupled to expensive recording polygraphs with interchangeable signal conditioning modules are often used to measure physiological parameters. A low cost Transducer Coupler Unit has been developed which is simple to use and avoids the need for interchanging of modules. The circuit is illustrated in Figure 1. It enables the coupling of any type of transducer used in physiological research to a standard pen recorder which does not have built-in signal conditioning facilities. The Coupler can be made as a multi-channel unit. Each channel has a

variable 0–20V DC stabilized power supply, adjustable with a potentiometer to suit the excitation voltage requirement of the transducer. A two-way input selector switch is provided for either *bridge* or *direct* coupling of transducers to the pen recorder. When used in *bridge* position, a multi-turn duodial for zero balancing, to permit the coupling of any transducer with combined bridge resistance between 50–1500 ohms. There is also a three-position switch for filtering out unwanted signals and a reverse polarity switch to record signals in either direction of the pen recorder chart. The Coupler is already in use in the Department of Pharmacology, at the Royal College of Surgeons in conjunction with blood pressure transducers, isometric strain gauge type and rotary capacitive reactance smooth muscle transducers.

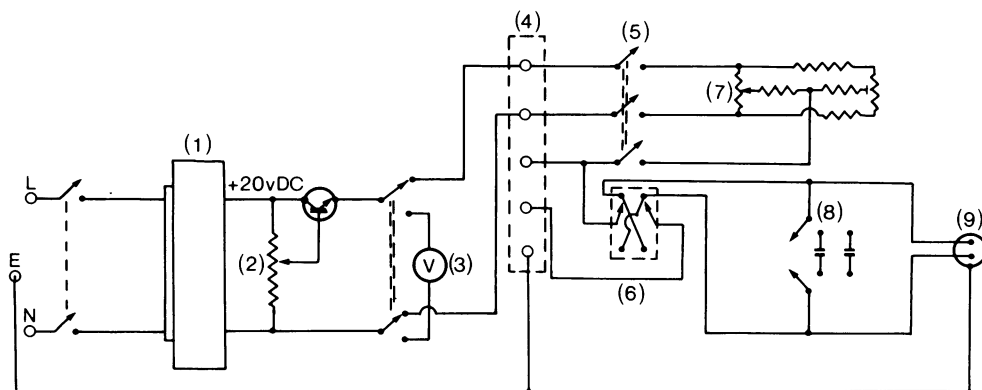


Figure 1 1. Power unit. 2. Adjustable excitation voltage control. 3. Voltmeter. 4. Transducer input socket. 5. Input selector switch. 6. Reverse polarity switch. 7. Balance bridge control. 8. Filter switch. 9. Output socket.

Measurement of the area under a curve (Planimeter)

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A low cost Biological Planimeter has been developed for use with mechanical digital counters. The DC output voltage of detectors used in laboratory ex-

periments is converted into digital units proportional to the area under a curve of a pen recorder tracing. Examples of such tracings are those produced in gas chromatography and in various bioassays such as contractions of isolated tissues.

The circuit of the unit which is a modified integrator (Lockett, Carboni & Wilkins, 1976) is shown in Figure 1. It can be connected in parallel with a pen recorder and operates on 0–1 V DC positive, which is amplified to drive a totalizing counter with 60 pulses/second. There are only two controls. The first is the offset which is set to zero baseline of the recording, so that immediately the signal voltage at the input to the unit exceeds the offset point, the counting