

Electronic Detection Circuit for a Stripline Beam Position Monitor, A.H. KEMPER, E.J. RIDDERHOF, W.H.C. THEUWS, C.J. TIMMERMANS, Eindhoven Univ. of Techn., Cyclotron Lab., P.O. Box 513, 5600MB Eindhoven, The Netherlands - The 10-75 MeV Eindhoven racetrack microtron will be equipped with 30 stripline beam position monitors. In order to fulfil the microtron's closed orbit condition the positions of the typical 5 mA electron beam are to be measured within 0.3 mm. A low-cost, easy adjustable electronic detection circuit, consisting of simple electronic components, has been designed to measure the stripline signal's amplitude. Two microwave detectors, which are matched to the characteristic impedance of the stripline, will detect the power of the stripline signal. After passing a pre-amplifier with balanced outputs these two signals are transported over a 10 m shielded twisted-pair cable. An instrumentation amplifier will be used to condition the signal to be measured by an AD-converter. The use of a balanced system ensures maximum suppression of EMC-disturbance of the output signal. The lower detection limit is estimated to be in the order of 1 mA.