

SSRL Beam Position Monitor Detection Electronics*, R. HETTEL, R. ORTIZ, J. SEBEK, J. WACHTER - As part of its project to improve the stability of photon beams at its SPEAR storage ring, SSRL is commissioning a new beam position monitor system. The narrow band system mixes down the second harmonic of the SPEAR RF (717.08 MHz) to an IF of 6.4025 MHz, the fifth revolution harmonic ($5 f_{\text{rev}}$) where it is digitized at $16 f_{\text{rev}}$ and filtered to provide position information on a turn by turn basis. A microcontroller programs the signal bandwidth for different processing applications: a narrow bandwidth for maximal accuracy of beam position, and a wide bandwidth for single turn phase and amplitude information. While processing data for the orbit feedback system, the processor multiplexes the signals from various monitor buttons and outputs the data to the rest of the orbit feedback system in real time. For machine studies of single turn orbit behaviour, the turn by turn information is stored in DRAM for later off-line processing. Design criteria and performance results are presented.

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