

**APPARATUS FOR DIGITIZING AC SIGNALS OF UNKNOWN OR
OR CHANGING FREQUENCY**-----**ABSTRACT OF THE DISCLOSURE**

5 The frequency and sampling interval for synchronous sampling of an ac
signal of unknown or varying frequency are accurately determined within one cycle by
apparatus including an input circuit (41) which generates a single input pulse for each
cycle of the ac signal. The count of clock pulses maintained by a free running counter
(55) is recorded at each input pulse. The frequency of the ac signal is determined from
the period of the ac signal calculated from the difference in the count stored at
consecutive input pulses. This difference in the count is divided by the desired
sampling rate to generate the sampling interval which is repetitively added to the
10 current running count to generate an interrupt count. A sampling interrupt utilized by
an analog to digital converter (25) to digitize the ac signal is generated when the
running count equals the interrupt count. The same sampling interval is used for each
phase of a multiphase signal; however, a separate sampling interval is established for
each ac signal in a