Ripple Measurement Card - E2010 Series

- ETHERNET BASED CONTROLLER
- CONTROLS ALL TEST SYSTEM RESOURCES OVER A SINGLE BUS
- INTEGRATED WEB SEVER
- REMOTE SYSTEM CONTROL

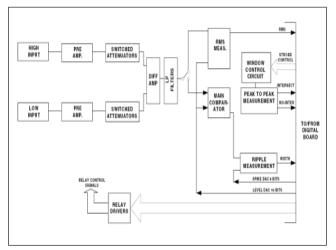
The basic function of the Ripple/Noise card is to measure the output ripple and noise from Power Supplies. This is available as an RE2010 module which is for a 6U high rack or as a 1U standalone Ethernet Instrument.

FEATURES

- Ethernet control
- RMS value of noise
- Peak to peak value of noise
- The underlying peak-to-peak ripple voltage (while rejecting switching spikes less than a specified width).

The Ripple/Noise card consists of an Analog Board and a Digital Board.

The Pre-Amp section provides 50 ohm input impedance. The Pre-Amp section includes a selectable low frequency high pass filter with the bandwidth programmable to either 20Hz or 2kHz. This allows line frequency components to be eliminated from measurement if so desired. This filter also removes the DC component from the input signal. The Pre-Amp section incorporates input protection diodes, which protect the following stages from the surge of current, which occurs when a large DC Voltage is applied to the input of the unit.



Ripple Measurement Block Diagram



Ripple Measurement Card

The differential amplifier section provides a single-ended output to the measurement sections. The differential amplifier also provides a good common mode rejection ratio. To measure Ripple or Noise within a reduced frequency range, a command is used to switch in one of a number of low pass filters. The signal at the output of the L.P. Filters section is passed to the measurement circuits. All the measurements are based on a successive approximation technique using the Level signal from the Digital Board. The window control circuit which allows the peak to peak measurement section to distinguish between periodic and random deviations. A major feature of the Digital Board is that through the use of opto-couplers the measurement section is isolated from the controlling computer and is thus floating. The measurement technique used involves checking the status of a number of signals which are read back from the Analog Board and are passed, in serial format, to the system control bus.

Technical Specifications

Ripple Measurement Card

Mode	Range 1	Range 2	Range 3	Range 4
Full Scale Range				
Ripple/Peak-Peak	2.0V	500mV	50mV	20mV
RMS	0.707V	177mV	17.7mV	7.07mV
Resolution				
Ripple/Peak-Peak	20mV	2mV	0.2mV	0.08mV
RMS	6mV	0.6mV	60uV	24uV
Accuracy				
Ripple/Peak-Peak	5% +/-60mV	5% +/-6mV	5% +/-0.6mV	5% +/-0.24mV
RMS	5% +/-20mV	5% +/-2mV	5% +/-0.2mV	5% +/-0.08mV
Bandwidth	The Ripple/Noise card can measure Ripple on power supplies with switching frequencies up to 50MHz. In Peak-to-Peak mode switching spikes as narrow as 10ns can be detected.			
R.M.S.Mode:	40Hz - 300kHz (16% Full Scale to Full Scale) 40Hz - 50kHz (below 16% Full Scale)			
All Modes:	Lower Bandwidth selectable at 2kHz providing 30dB rejection at 50/60Hz line frequency. May be used to elin nate hum components from reading. Upper bandwidth can be limited to 100kHz, 1MHz or 10MHz.			
Input Ratings				
Max. Voltage (AC + DC)	50V			
Impedance:	50 Ohm AC Coupled			
Common Mode Rejection Ratio	50 dB			
Spike Width Range:	20% to 1% of Switching Period 10ns Minimum.			

Safety

Meets the safety requirements laid down in the following standard: IEC 1010

Ordering Information

Part Number	721-0002 (for a 6U Rack)	
	722-0002 (for a 1U Assembly)	
Description	E2010 Ripple Measurement Card	



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