

MODEL 339

HI-REL

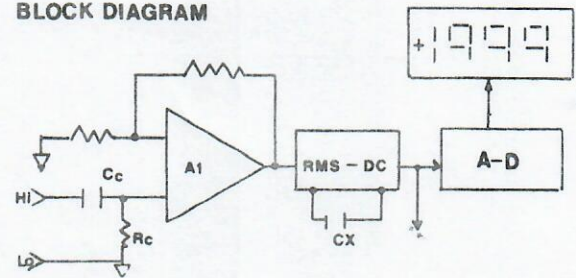
3 1/2 DIGIT TRUE RMS DPM



FEATURES

- DC to 50 KHz
- Sine, Square, Triangular, Gaussian, Pulsed, SCR's
- Measures AC Ripple
- Auto Zero
- Fast Response
- Analog Conditioned Output
- Bright 1/2" LED

BLOCK DIAGRAM



DESCRIPTION

The 339 performs accurate measurements of AC Signals by utilizing a computing technique to arrive at the actual RMS Value of the AC Signal; consequently, its accuracy does not depend on input waveforms. Sine waves, triangle square, pulsed, gaussian and even SCR chopped Sine Waves with high crest factors are measured with high accuracy over a wide frequency range.

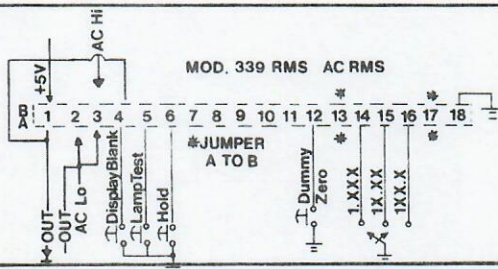
The input is DC Coupled; however, by adding an external capacitor in series with the "Hi" Input, it can measure AC Signals riding on a constant DC Voltage, as in measuring ripple of DC Power Supplies. Frequency response from 45 Hz to 50 KHz is internally possible; however, when signals below 45 Hz must be measured, an external capacitor must be connected per Table 1 and connecting label. An external capacitor and resistor must be connected per Table 2 to AC Couple the Series 339 when measuring AC Signals riding on DC Voltages.

TERMINAL DESCRIPTION

Just as other Series 300 Instruments, the 339 uses the 300 Main Frame; consequently, all its features are available plus the ability to measure AC Signals. (See page 16).

1B (Top) + 5Vdc Input; 18B, Digital Ground (5V Return) 3B, AC Input High, 4B DC Analog Output, connect to 1A (+ Input). This external connection allows the 339 to be used for Pure AC or pure DC Measurements, but signal at Pin 1A should not exceed 2Vdc regardless of the range of the instrument. This Pin is also the Analog Conditioned Input to the A-D Main Frame. 2A, - Signal Input (connected internally to 18B). **Do not** allow power currents to flow on this line or **Offsets** (Ground Loops) **will occur**.

4A, Display Blank; 5A, Lamp Test; 6A, Display Hold (optional); 13A, -12Vdc out connect to 13B; 14A, 1XX.X D.P.; 15A, 1X.XX D.P.; 16A, 1.XXX D.P. (connect to 18B to light up); 17A, +12Vdc out connect to 17B; 18A, Sign out (Low for +, High for -).



Caution: Low side of AC line is connected to Digital Common Internally, when internal power supply is used it will provide isolation from AC main to 1200VAC. **Otherwise the AC signal must be common to the Meter's Common or the Meter's Power Supply (if external) must be floating.**

Table 1

Low Frequency Response vs. External Capacitor(Cx)

FREQUENCY	CAPACITOR VALUE	SETTLING TIME
30 to 45 Hz	4.7uf/10V Electrolytic	1 second
20 to 30 Hz	15uF/10V Electrolytic	2 seconds
10 to 20 Hz	68uF/10V Electrolytic	8 seconds

SPECIFICATIONS

Specifications vs. Input Type

Wave Form	Accuracy
Sinewave	±0.2%
Square (Symmetrical)	±0.5%
Triangular	±0.4%
Gaussian Noise	±0.5%
Pulsed (10% Duty Cycle)	±0.9%
Scr'd (90° Firing)	±0.9%

Specifications vs. Input Range (Sine wave) ± 1 Digit

Range	200mV	2V	20V	200V	1000V
Normal Mode Rejection	100db	90dB	80dB	60dB	40dB
Crest Factor (100% FS)	8	7	7	7	7
Frequency Response	DC to 50 KHz for all				
Input Bias	50nA	50nA	0	0	0
Input Impedance	100M	100M	10M	10M	10M
Power Consumption	5Vdc @ 330mA				

Table 2
AC Coupling

Input Range	Rc	Cc
200mV	100K	0.33uF
2V	100K	0.33uF
20V	None	0.33uF
200V	None	0.33uF
1000V	None	3300PF

ORDERING INFORMATION

MODEL 339 X X X

F.S. Input Input Impedance

0	±20.00mV	1000 Megohms
1	±200mV	1000 Megohms
2	±2.000V	1000 Megohms
3	±20.00V	10 Megohms
4	±200.0V	10 Megohms
5	±1000V	10 Megohms
6	±200.0uA	1000 Ohms
7	±2.000mA	100 Ohms
8	±20.00mA	10 Ohms
9	±200.0mA	1 Ohm
9	±50mV	1000 Megohms

Power

0	5Vdc Req'd
1	115/230 Vac
*2	Ext. Open Frame
*3	Ext. Power Pack

Display

0	Standard
1	Dummy Zero

* This range not available with built-in Power Supply, see page 45 for External P.S.

Note: 50mV range is factory scale to read 1000 counts at 50mV for standard current shunts. Other scalings available.

Note: Connectors are included with instrument.