INFRATEK 107A SINGLE- AND THREE PHASE POWER ANALYZERS

The **MODEL 107A HIGH SPEED POWER ANALYZER** is a very advanced measurement tool designed to offer the scientist, engineer, or technician more electrical and mechanical signal information than is normally found in one single instrument.

FEATURES AT A GLANCE

- **Main Features**
  - DC-300 kHz, 100 mA-50A, 1 V-1000 V
  - Suitable for frequency inverter drivers
  - Line-to-line voltage, torque, slip, efficiency
  - Harmonics 1-63, IEC1000-3-2
  - High speed data logging for dynamic processes
  - High speed dynamic torque measurement
  - Advanced operating software under Windows
  - Accuracy grades 0.05, 0.1, 0.3 % (low cost)
  - Determines torque without using transducers
- **Display**
  - User display configuration and start-up
  - Displays phase- and sum values, 3 phase values
  - Numeric fields combined with graphics
- **Processing Power**
  - Acquires all data in 3 phase system simultaneously
  - Measures and computes 1000 values on-line
  - High speed data transfer to personal computer
- **Interface, Inputs/ Outputs**
  - RS-232
  - Ten high speed analog inputs/frequency
  - Ten analog outputs
  - Operating software under Windows 95, 98, NT

HIGH PERFORMANCE, EASY TO USE

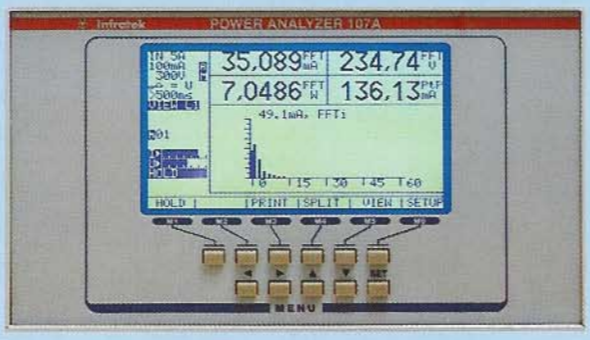
The **Infratek Model 107A Power Analyzers** are multipurpose instruments designed for laboratory and field use, for production testing and quality control. High accuracy, wide frequency range, and high common mode rejection are prerequisites for precision measurements on inverters, light ballasts, and ultrasonic transducers. The **107A** measurement capabilities and simplicity of use are unmatched.

Six menu soft keys M1 through M6 and five cursor soft keys control the instrument. The operating procedure, to configure the display and the interface, to store instrument settings, to set the scaling factors, to select the operating mode, to select the input, the ranges, and many more features is self explanatory. You can save your personal instrument settings and have the unit start-up with your personal configuration at power-on.

Efficient data processing permits simultaneous measurements on all three phases of a three phase system and yields comprehensive signal information including rms and power values, harmonics, phase angles, and where applicable mechanical power output, torque, efficiency, and slip.

A programmable **data logging** function permits to transfer of up to 500 rms and power values per second to a personal computer. Using the Infratek operating software plots of power versus time or speed, or current versus time or frequency are easily generated.

The 107A Power Analyzers determines electrical motor torque applied to its load. No torque transducers are needed. Induction motors and dc motors require a speed transducer, synchronous motors do not. A special operating mode for **dynamic torque measurement** in the air gap of a generator or motor provides plots of torque versus speed, frequency, or time and helps to detect undesirable peaks.



SPECIFICATIONS

Voltage	7 ranges: 1 V, 3 V, 10 V, 30 V, 100 V, 300 V, 1000 V		
	Frequency range: DC-300 kHz	Coupling: AC/AC+DC	1 Hz-300 kHz / DC-300 kHz
	Crest Factor 3:1 at 50 % full scale	Common Mode 50 Hz/100 kHz	140 dB/80 dB
	Built-in star point network 500 kΩ	Maximum Input: Hi to Lo/Lo to case	1000 V/600 V
	Accuracy 23° ±3 °K; rms, rdg=reading 1 Hz-1 kHz ±k(0.05 % rdg ±0.07 % range) 1 kHz-10 kHz ±k(0.2 % rdg ±0.2 % range) 10 kHz-80 kHz ±k(0.04 %/ kHz rdg + 0.3 % range) 80 kHz-300 kHz ±(0.04 %/ kHz rdg + 0.3 % range), typical		Accuracy Grades: k=1, k=2, k=6
Current	10 ranges: 100 mA, 300 mA, 1, 3, 10 A; 1, 3, 10, 30, 100 A.		Clamp: 1 A-1000 A
	Frequency range DC-300 kHz	Coupling: AC, AC+DC	1 Hz-300 kHz / DC-300 kHz
	Crest Factor 3:1 at 50 % full scale	Common Mode 50 Hz/100 kHz	160 dB/115 dB
	3 A input: 3 A cont./10 A 5 s; 50 A input: 40 A cont./50 A 20 s.		RI=30 mΩ/3 mΩ
	Accuracy 23° ±3 °K; rms, rdg=reading, rng=range 50 A/Clamp Input / 3 A Input 1 Hz-500 Hz ±k(0.07 % rdg + 0.07 % rng) / ±k(0.07 % rdg + 0.07 % rng) 500 Hz-2 kHz ±k(0.5 % rdg + 0.5 % rng) / ±k(0.8 % rdg + 0.8 % rng) 2 kHz-10 kHz ±k(0.8 % rdg + 0.8 % rng) / ±k(2 % rdg + 1 % rng)* 10 kHz-100 kHz ±(0.1 %/ kHzrdg + 0.8 % rng)* / ±(0.1 %/ kHzrdg + 2 % rng)* Lowest range multiply percentage figures by 2. *typical		Accuracy Grades k=1, k=2, k=6
Power	70 ranges corresponding to the products of voltage ranges times current ranges.		DC-300 kHz
	Accuracy 23° ±3 °K; 50 A/Clamp Input, 3 A Input 1 Hz-1 kHz Add accuracy percentage figures of current and voltage input 1 kHz-100 kHz Add accuracy percentage figures of current and voltage input, add ±1 % (1-PF)/ kHz of range		PF = 0 to ±1
Computed Values	Reactive Power: Var = $\pm(VA^2-W^2)^{1/2}$; Apparent Power: VA=ArmsVrms; Power Factor: PF=W/VA; Crest Factor: CF=Ap/Arms, Vp/Vrms; Maximum: Ap, Vp; Minimum: -Ap, -Vp; PtP: Maximum - Minimum; Impedance: Z=Vrms/Arms φ; Total harm.Dist., THD1=$(Irms^2-Ifund^2)^{1/2}$/Irms, THD2=$(I_2^2 + I_3^2 + \ldots I_n^2)^{1/2}$/Irms.		Add accuracy percentage figures of values involved in computation.
Mechanical Values	Total Input Power, Nm/s; Output Power to load, Nm/s; Torque at axis of rotating machine, Nm; Speed, rpm (for induction- and dc machines an external frequency input via analog input 0 is required); Efficiency: Eta = Output Power / Input Power; Slip:Slip = (fi – fo)/fi;		Motor version including analog input, RS-232, and Windows software.
Dynamic Torque	Dynamic torque in air gap of rotating machines versus time or speed; moment of inertia of rotor.		
Harmonic Analysis	Frequency range of fundamental 4 Hz-50 kHz		Harmonic 1-63
	Accuracy: harmonic current and voltage, same as rms current and rms voltage		
	Computed Values: harmonic power; harmonic phase angle (power factor); harmonic impedance.		Add accuracy percentage figures of values involved in computation.
Frequency	2 Hz-100 kHz; A; V, or external triggered: ±0.1 %		
Integrator	Energy, Accuracy Wh, Vah: Basic accuracy of integrated quantity		
Data Logging	Output values, speed, and duration is programmable; maximum speed: 10 values from a 3-phase system in 20 ms.		Range of signal frequency 5 Hz to 1 kHz
Current Harmonics IEC1000-3-2	Current harmonics in a 3-phase system are determined according to IEC1000-3-2		
Display **Power** **Dielectric Strength** **Dimensions**	Display: Blue liquid crystal graphic display with FL backlight Power: AC, 50-60 Hz; Fuse; Power Dielectric Strength: Current inputs to case; Voltage inputs to case; Line input to case Dimensions: H x W x D		64x120mm; 128x240 pixels 115/230 V; 0.2 AF/15 VA 3 kV; 2 kV; 3 kV 50 Hz/1 min 150x235x320mm; 4kg
Options	RS-232 Interface 10 High speed analog inputs (1 frequency, 9 dc voltage) 10 Analog outputs Windows operating software 95, 98, NT		fx, ±5V ±5V

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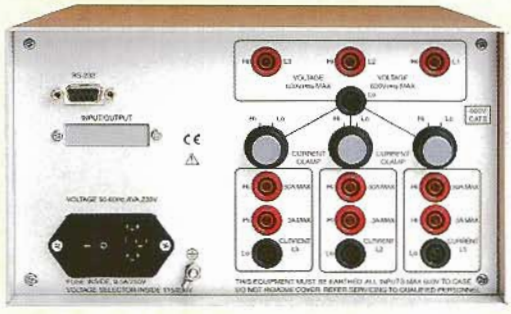

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