

### Measurements

- ❑ Gain phase analyzer with dual analysis channels and tracking generator
- ❑ Phase angle voltmeter (PAV)
- ❑ Complex impedance / LCR analysis including Z, Q, D, Resr terms with frequency sweep capability
- ❑ Wideband power analysis
- ❑ Dual channel high speed wideband true rms voltmeters
- ❑ Selective level and harmonic measurement capability
- ❑ Voltage and current waveform display

### Features

- ❑ Bright multifunctional graphical display with zoom capability
- ❑ Isolated floating inputs DC- 2MHz
- ❑ Rejection of noise and harmonics
- ❑ On board signal generator
- ❑ 50 $\mu$ V to 500V range
- ❑ Range of wideband current shunts
- ❑ Alarm on any measurement
- ❑ RS232 and printer port, IEEE-488 option

The GP102 Analyzer allows detailed measurement of amplitude, in-phase and quadrature components, gain and phase angle along with complex impedance parameters like L, C, Resr, Z, angle, Q, D and pf with the ability to sweep any measurement against frequency, ideal for power electronics and positional control applications.

Particularly suited to situations where the measured signal is not referenced to ground or even buried in noise and distortion, like the characterization of closed loop feedback systems in power supplies or plotting filter responses.

Often doing the job of several instruments, the GP102 offers a wide range of phase sensitive measurements associated with Frequency Response/Transfer Function Analysis, Positional Control and Wideband Power Measurement.

Using DSP techniques for fast measurement speed and graphical displays, allows results to be viewed in swept graphical, table or listing formats. Zoom capability allows selected measurements to be magnified and displayed as large clear values.



Available in 19" 2u rack or upright formats.



### Typical applications

- ❑ Testing of psu closed loop feedback loops
- ❑ Characterization of active and passive filters
- ❑ Electro luminescent lamps
- ❑ Synchro, resolver, RVDT and LVDT test
- ❑ Wound component / transformer testing
- ❑ Testing ISDN, ADSL, HDSL transformers
- ❑ Power analysis of HF ballasts and ferrites
- ❑ Electrochemistry impedance plots

## CH1 & CH2 Voltmeters

|                    |   |
|--------------------|---|
| Channels / display | 2 isolated / 5 digits   |
| Measurement        | Rms, ac, dc, peak, cf, surge  |
| Frequency          | Dc to 2MHz $\pm 0.1\%$ accuracy   |
| Coupling           | Ac or ac+dc   |
| Max input          | $\pm 500V$ peak<br>$\pm 500V$ peak from earth   |
| Input ranges       | 500V, 300V, 100V, 30V, 10V,<br>3V, 1V, 300mV, 100mV, 30mV,<br>10mV                          |
| Ranging control    | Full auto, up only and manual   |
| Input impedance    | 1M // 30pF (excl. Leads)  |
| Accuracy (ac)      | 0.1% range < 1kHz<br>0.3% range < 10kHz<br>1% range < 50kHz<br>+ 0.004% rdg per kHz to 2MHz |
| All + 0.4mV        |   |
| Accuracy (dc)      | 0.2% range + 2mV  |
| CMRR               | >55dB @ 10V 1MHz<br>>110dB @ 100V 1kHz  |
| Time constant      | 0.2s, 1.5s or 12s   |

## Phase meter

|                |   |
|----------------|---|
| Frequency      | 10mHz to 2MHz*  |
| Technique      | DFT analysis  |
| Phase accuracy | 0.02° < 100Hz, 0.05° < 1kHz<br>0.25° < 10kHz + 0.005° per kHz |

## Gain phase analyzer

|                 |   |
|-----------------|---|
| Frequency range | 10mHz to 2MHz*  |
| Measurements    | Gain, ratio, angle, fundamental<br>magnitude, Bode Plot sweep |
| Accuracy        | $\pm 0.02$ db   |

## L C R meter

|                   |   |
|-------------------|---|
| Frequency range   | 10mHz to 2MHz*  |
| Technique         | DFT analysis  |
| Measurements      | L, C, R (ac), R (dc), Z, Q, tan $\delta$ , $\phi$ ,<br>series or parallel |
| Ranges            | 10pF to 1F  |
| (Active LCR head) | 100nH to 1000H<br>10m $\Omega$ to 100M $\Omega$                           |
| Accuracy          | 0.3% < 1kHz, 0.75% < 10kHz<br>2.5% < 50kHz, 12.5% < 1MHz                  |

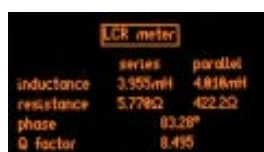
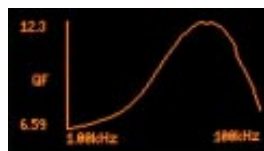
## Transformer analyser

|                                    |                                     |
|------------------------------------|-------------------------------------|
| Inductance L                       | 100nH to 1000H<br>Series / Parallel |
| Quality factor Q                   | 0.001 to 2000                       |
| Leakage inductance                 | 100nH to 1000H                      |
| Inductance match                   | 1:5000 to 5000:1                    |
| Turns ratio (voltage)              | 1:70000 to 70000:1                  |
| Turns ratio (Inductance)           | 1:2000 to 2000:1                    |
| Winding polarity / phasing         | Pass/fail or +/- indication         |
| Dc R & winding continuity          | 20m $\Omega$ to 100k $\Omega$       |
| Inter winding phase angle          | 0° to 360° or $\pm 180^\circ$       |
| Impedance test                     | 10m $\Omega$ to 100M $\Omega$       |
| Insertion / return loss            | -100dB to +100dB                    |
| Frequency response                 | 10Hz to 2MHz                        |
| Longitudinal balance               | 0dB to 100dB                        |
| Inter winding capacitance          | 10pF to 1F                          |
| Inter winding capacitance<br>match | 1:5000 to 5000:1                    |
| Distortion THD                     | 0.01% to 100%                       |

Specifications based  
+23°C  $\pm 5^\circ$ C

\*20mHz to 1MHz if not using  
generator

Whilst every effort has been taken to ensure the specifications are correct,  
Powertek reserves the right to change any specification without notice.  
1 year warranty.



## Signal generator

|                          |  |
|--------------------------|--|
| Waveforms                | sine, triangle, square,<br>sawtooth, dc only                     |
| Frequency                | 10mHz to 2.4MHz (sine)<br>10mHz to 1MHz (other)                  |
| Accuracy                 | Frequency $\pm 0.05\%$<br>Amplitude $\pm 5\%$ (to 100kHz)        |
| Output voltage<br>Offset | $\pm 10mV$ to $\pm 10V$ peak into 50 $\Omega$<br>0V to $\pm 10V$ |

## Pulse generator

|                    |                                |
|--------------------|--------------------------------|
| Frequency          | 10mHz to 2.4MHz                |
| Pulse width        | 200ns to 10s (50ns resolution) |
| Rise and fall time | Selectable 50ns (5V) to 1s     |

## Phase Angle Voltmeter PAV (vector voltmeter)

|             |   |
|-------------|---|
| Measurement | Total rms, in-phase and<br>quadrature components,<br>phase angle, fundamental<br>magnitude, ratio, null meter |
| Range       | 10mHz to 1MHz   |
| Accuracy    | See volt/phase meter specs  |

## Low frequency DSO / waveform display

|             |                         |
|-------------|-------------------------|
| Channels    | 2                       |
| Timebase    | 20us to 5s per division |
| Roll mode   | Timebase $\geq 1s/div$  |
| Pretrigger  | None, 25%, 50%, 75%     |
| Sample rate | 800k sample/sec         |

## Power meter

|                  |   |
|------------------|---|
| Measurements     | W, VA, power factor, V, A<br>total, fundamental, integrator |
| Current accuracy | As voltage + 0.1% reading                                   |
| Watts accuracy   | 0.2% rng + 0.2% rdg, f < 1kHz<br>(power factor<br>> 0.7)    |
|                  | 1% rng + 0.5% rdg, f < 50kHz<br>2% rng + 5% rdg, f < 1MHz   |

## Selective level meter

|                    |                        |
|--------------------|------------------------|
| Frequency range    | 10Hz to 2MHz           |
| Scan               | single, dual, or sweep |
| Selectivity (-3dB) | 3Hz, 24Hz, or 100Hz    |

## General

|              |  |
|--------------|--|
| Display      | 160 x 80 dot graphic<br>electroluminescent                     |
| Size         | 30 x 15 x 25 cm approx.  |
| Temp. range  | 0° to 40°C   |
| Weight       | Approx. 5kg  |
| Power supply | 230 V rms $\pm 10\%$ 50Hz or<br>110V $\pm 10\%$ 60Hz 30VA max. |

## Ordering information

|           |   |
|-----------|---|
| GP102     | Upright unit  |
| GP102R    | Rack mount version, 2U high,<br>specify front or rear connections |
| GP102-IO  | Upright unit, interface only, no front panel                      |
| GP102R-IO | Rack mount version, interface only,<br>no front panel             |

Included: input probes, BNC output cable, RS232, RS232  
cable, power cord, manual, cal cert. and C of C.

PC software drivers and spreadsheet macros available on  
request

- Option IEEE IEEE-488 interface
- Option 01-A Active LCR Test Head inc Kelvin clips
- Option 01-P Passive LCR Test Head inc Kelvin clips
- Option 02 Power meter adaptor (specify A range)
- Option 02E 30A dc-100kHz clamp current probe
- Option 03A Injection transformer
- Option 10B Transit case
- Option 04A Amplifier 20Vpk-pk at 1A

Calibration or UKAS (NAMAS) certificates available

## Distributor:

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