Powertek

- Power Instrumentation, LCR analysis
- Gain-Phase / waveform analysis / PAV
- Shunts, current transformers

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Explanation of options and accessories for the GP102 and GP102 -PAV

GP102

Standard upright free standing GP102. See GP102 brochure for picture. Includes 2 x input probes, 1 x BNC-crocodile output cable, RS232 cable, power cord, user manual, certificate of conformance and test certificates.

GP102 - PAV

Phase Angle Voltmeter variant of the GP102 for testing avionic and positional control systems. Phase and amplitude accuracy is optimized in the 10Hz-100kHz range. See GP102 brochure for picture. Includes 2 x input probes, 1 x BNC-crocodile output cable, RS232 cable, power cord, user manual, certificate of conformance and test certificates.

GP102-IO

Upright free standing GP102, RS232 interface only, no front panel keys and display. Includes software, 2 x input probes, 1 x BNC-crocodile output cable, RS232 cable, power cord, user manual, certificate of conformance and test certificates.

GP102R-IO

System GP102 in 19" rack, 2U format. RS232 Interface only, no front panel keys and display. Includes software, 2 x input probes, 1 x BNC-crocodile output cable, RS232 cable, power cord, user manual, certificate of conformance and test certificates.

GP102R

System GP102 in 19" rack, 2U format. Includes RS232 interface, front panel controls and display. Includes 2 x input probes, 1 x BNC-crocodile output cable, RS232 cable, power cord, user manual, certificate of conformance and test certificates.

Option IEEE
The IEEE-488 is a parallel, bi-directional (talk and listen) interface, using the same ASCII command set as the GP102 RS232 interface. IEEE-488 can be fitted to any of the GP102 models; order codes are GP102/IEEE, GP102-IO/IEEE, GP102R-IO/IEEE or GP102R/IEEE.

Option-01P Passive LCR head

Allows convenient measurement of complex impedance parameters like L, C, R, Z, Resr, Rdc, Q, D, Tan delta and phase angle. Measurement range is 10Hz to 500kHz, Maximum R = 100kohm, Minimum C = 50pF and Minimum L=500nH. Supplied with Generator, CH1 and CH2 BNC connections along with black and red Kelvin test clips. Connects direct to the GP102 front panel BNC connectors.

Option-01A Active LCR head
Allows GP102 to measure complex impedance parameters like L, C, R, Z, Resr, Rdc, Q, D, Tan delta and phase angle. Measurement range is 10Hz to 2MHz, Maximum R = 100Mohm, Minimum C = 10pF and Minimum L=100nH. Supplied with Generator, CH1, CH2 and extension port connections along with black and red Kelvin test clips. This option connects direct to the GP102 front panel BNC connectors, a control cable connects to the GP102 rear panel extension port.

Option-02A UK power meter adaptor

The option 02A allows the GP102 to measure ±watts, VA, true power factor, amps rms, amps pk, crest factors, dc component, frequency Hz, Phase angle (cos phi), fundamentals and harmonics. The option 02A adaptor is external to the GP102 containing an internal shunt, power socket, line cord and 2 isolated BNC output connections. Available in 15A and 5A versions e.g. option 02A-15A or option 02A-5A.

Option-02B Schuko power meter adaptor
German, Danish, French, Spanish version of the above

Option-02C USA power meter adaptor
United States version of the above

Option-02E 30A clamp current probe
Calibrated wideband 30Arms Hall Effect clamp probe, frequency range DC-100kHz. This option allows the GP102 to measure power to 15kW. The option 02E probe also allows the GP102 to measure VA, power factor, amps rms, crest factors, dc component, frequency Hz, Phase angle (cos phi), fundamentals and current harmonics. Clamp design allows fast installation.

Option-02F wideband precision current shunt. 0.1% accuracy, rated 5 watts - Available in 0.02R, 0.05R, 0.1R and 1.0R ohmic values.

These precision wideband current shunts allow current measurement over the frequency range DC-500KHz. Using this option the GP102 can measure real power and complex impedance parameters like Z, Inductance, XL, Capacitance, Xc, tan delta, Q and phase angle. This option also allows the GP102 to measure VA, power factor, amps rms, current crest factors, dc current component, frequency Hz, phase angle (cos phi), fundamentals and current harmonics. Example part number:- Option-02F-0.02 = 0.02R wideband shunt.

Option 03A Injection Transformer
Injection transformer, ratio 6.3:1 pri-sec, intended to isolate the GP102 signal generator when checking switch mode power supply control loops. Bandwidth is 25Hz to 500kHz, isolation is >1kV. Incorporates BNC input cable and small size crocodile output connections.

Option 04A LPA01 Amplifier
Intended to boost the GP102 generator output for a variety of applications. Operates over the frequency range Dc-1MHz with a 20Vpk-pk 1A continuous output. The input impedance is 10k ohm with isolated BNC input and output connectors. Has switchable gain settings of x1, x4 or x 10.

Option 04C Isolation amplifier

The option 04C isolates the GP102 signal generator from the device under test and is used where the required test frequency is low, preventing the use of transformer based isolation. Typical applications include feedback control loops used in SMPS power factor correction circuits, where voltages are at power line potential. Here the required injection signal is likely at low frequencies from 0.1Hz to 20Hz. The unit has a working isolation of 850V from input to output and is supplied with its own ac power adapter, BNC input connection and crocodile clip output connections.

Option-05A impedance adaptor

Converts the GP102 generator 50 ohm output impedance to 75 ohm (BNC terminals) and 600 ohm (using 4mm output terminals)

Option 06A software utility

This simple Windows based RS232 utility, allows GP102 sweep measurements to be saved to a text file. This text file can be easily opened using Excel. An Excel macro is provided to allow easy importation and conversion to a Bode Plot graph. When using the option 06A, the GP102 would be operated manually to capture a set of sweep data, the 06A software is then used to transfer measurement from the GP102 to PC.

Option 06B/RS232 LabView Driver

This software option is a LabView driver allowing owners of the NI LabView software to use and edit the option 06B driver. The driver allows GP102 measurements to be saved to a text file, single shot and continuous acquisition of measurement data, transmission of set up commands along with a display window to monitor measurements. Data files created can be opened using Excel, data can then be imported into a spreadsheet.

Option 06B/IEEE-488 LabView Driver

This software option is a LabView driver allowing owners of the NI LabView software to use and edit the option 06B driver. The driver allows GP102 measurements to be saved to a text file, single shot and continuous acquisition of measurement data, transmission of set up commands along with a display window to monitor measurements. Data files created can be opened using Excel, data can then be imported into a spreadsheet.

Option 06C/RS232 software

This software option is a LabView based program (.exe) allowing control of the GP102. The user is not required to have the NI LabView software but is required to have the LabView runtime Engine Installed. The program allows GP102 measurements to be saved to a text file, single shot and continuous acquisition of measurement data, transmission of set up commands along with a measurement display window. Data files created can be opened using Excel, data can then be imported into a spreadsheet.

Option 06C/EL/RS232 software

This software option allows control of the GP102 / LPA400 for Electro Luminescent Lamp (EL Lamp) testing applications. The program allows GP102 LCRZ / electrical power measurements to be saved in a text file using single shot or timed acquisition of measurement data. Control of an external lightmeter is possible (specify when ordering), allowing simultaneous measurement of LCRZ / electrical power / light meter measurement data. Transmission of GP102 set up commands is automatic, front panel control of the GP102/LPA400 output voltage and frequency is possible. Incoming measurements can be monitored in a display window. Data files created can be opened using any spreadsheet.

Option 06D EL Amplitude step software
Perform amplitude sweep over 15 steps user defined steps

Option 06E EL Amplitude step software including light meter control
Perform amplitude sweep over 15 steps user defined steps including lightmeter data

Option 06F Bode plotting software for power supply loop testing

This software option allows the user to easily plot the gain phase data available from the GP102, used typically in power supply control loop testing. A colour plot of Gain and Phase is easily achieved, GP102 settings can be saved. Bode plots and sweep data can be stored. The user has control of input coupling, amplitude, sweep start, sweep stop along with the number of sweep points

Option-10A
Soft carry bag for GP102 & standard cable set

Option-10B
Hard carry case for GP102 upright & standard cable set

Option-10B-R
Hard carry case for GP102R & standard cable set

Option TAF01-U

The TAF01-U switching matrix allows automated or semi-automated testing of LVDTs and resolvers, used with the Powertek GP102 Phase Angle Voltmeter (GPAV). The TAF01-U allows the user to make a one time connection to the LVDT / Resolver windings, all measurement connections to the LVDT are routed through the TAF01-U to the GP102 measuring inputs, meaning reconnection is not necessary for each LVDT tests.

The TAF01-U is the unbuffered version of the TAF01, meaning it can operate to 50Vrms. It is a switching matrix, external to the GP102 PAV, allowing the GP102 PAV generator, CH1 reference and CH2 signal inputs to be routed to any of the three LVDT windings. Control of the TAF01-U is possible from the GP102 front panel or using the IEEE-488 or RS232 ports. The TAF01-U is connected via 3 bnc cables to GP102, a control cable connects from the TAF01-U to the GP102 extension port.

The TAF01-U also allows standard transformer tests, typically turns ratio, Z, Lp, Ls, Q, Cp, Cs, Tandelta, Rdc, Resr. Up to 3 transformer windings may be connected and tested.

Option-LVDT Fx

The LVDT test fixture allows easy connection from the LVDT to the TAF01-U matrix. Consisting of a PCB, fitted with quick release terminals, allowing the LVDT transformer to be conveniently connected to the TAF01 connection nodes. This plug-in fixture PCB allows user configurable connection from the relevant transformer windings to the TAF01 connection nodes.

Other accessories and spares for the GP102 Gain Phase Analyser

GP102 user manual with programming guide

GP102 laminated quick reference sheets

Application notes for Power supply control loop testing

Isoprobe - 500V cat II isolated BNC to safety probe with ground clip

4mm (banana) to 4mm (banana) safety test lead set comprising of 2 red and 2 black cables

Large jaw, safety type crocodile clip. Available in red and black

Isolated BNC to isolated BNC cable

GP102 BNC to crocodile generator output cable

Null modem RS232 cable 9 pin D type to 9 pin D type

Non-isolated BNC - 4mm adapter (banana). Has screw pillars

Isolated BNC - 4mm safety socket (banana) adapter

Software utilities CD