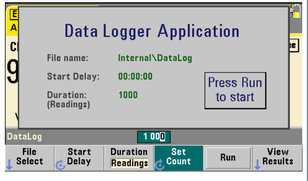
6. Data Logging

Data Log

Use the 'Data Log' key to log readings over time or based on reading count.

Readings are saved and displayed within a trend chart as they are logged. (The application can be stopped before the duration ends.)





Example: - log 1,000 readings
- use default path and file name

File Select - specify location of data log file (default = Internal\DataLog)

Duration Readings - set logging duration ('Readings')

Set Count - number of readings to log

Run - starts data logging (select 'Yes' to overwrite existing file)

View Results - displays the trend chart when logging is complete.

7. Utility Functions

Utility

Utility functions are counter operations and settings common to multiple types of counter measurements. Below is a summary of what the utility menus provide.

Store / Recall - store and recall user-defined states, set specific power-on states, restore factory default settings

I/O Config - enable/edit LAN, USB, and GPIB interface settings

Cal / AutoCal - perform a calibration or auto-calibration, read temperature within instrument

Instr Setup - self-test, time base, measurement time out, auto-level, phase measurement format

System Setup - display control, date/time settings, folder and data/state file operations, browser control (internal and external memory)

Battery Option - battery option 300 enable and charge level (if installed)

For Further Information

1. *Keysight 53220A/53230A User's Guide*
2. *Keysight 53210A/53220/53230A Service Guide*
3. *Keysight 53220A/53230A Programmer's Reference*
4. *Keysight 53210A/53220/53230A Product Reference CD*

www.Keysight.com/find/53220A or www.Keysight.com/find/53230A

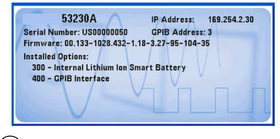
Using the 53220A/53230A Web User Interface

The Web User Interface (UI) is a built-in instrument utility that provides SCPI programming control of the instrument through its LAN interface. The Web UI uses a Java™-enabled PC Web browser and requires no external instrument drivers.

1. Connect a standard LAN cable directly between the counter and the PC, or between the counter and a network switch. Open the Web browser.
2. Obtain the IP address from the counter's 'About' window using the following keys:

Help - open the Help topic window

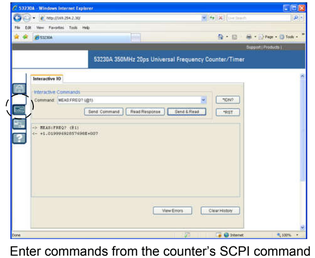
About - press the About softkey



3. Enter the IP address in the browser's address window. This opens the Web UI home page.

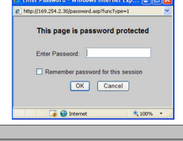


4. Open the Interactive IO window by clicking on the 'Remote Control' menu icon.



Enter commands from the counter's SCPI command set using the 'Command' window. Query commands which include '?' return data and can be sent using **Send & Read**. Commands which do not return data are sent using **Send Command**.

If prompted, click on 'Enter Password' to view the password protected page. When shipped from Keysight, there is no password protection.



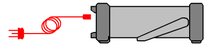
Keysight 53220A/53230A
350 MHz Universal Frequency Counter/Timer
Quick Start Tutorial

Product Reference CD-ROM. All product documentation, software, and examples are included on the *Keysight 53210A/53220A/53230A Product Reference CD-ROM.*

1. Preparing for Use

Connect the Power Cord.

Then plug in the instrument.



Check the Web for the latest firmware

The Keysight 53220A/53230A counter automatically senses standard power line voltages and frequencies. There are no switches to set or fuses to change.

Adjust the Carry Handle

Grasp the handle by the sides and *pull outward:*



Adjust the handle to the desired position:



To remove, see instructions on underside of handle.

Input Terminals

Channels 1-2
BNC (f)



7.5 Vpk into 50W
50V Max (AC/DC)
Damage Level: 350 Vpk

Battery Operation: 42V Max

Channel 3
Opt. 106/115
N-Type (f)



Max input +27 dBm
(5 Vrms)

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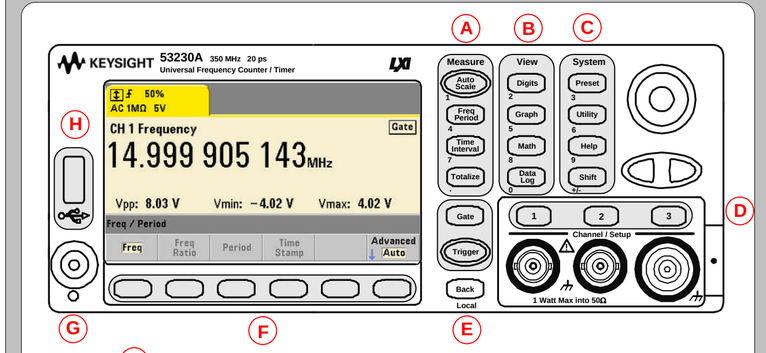
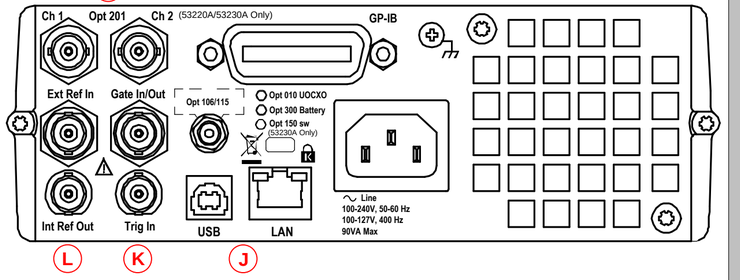
Printed In Malaysia August 2014 E0814
53220-90005 Edition 3

Panels at a Glance





Front Panel Features

	User's Guide
A Counter Measurements	(Chapter 3)
B Display Control	(Chapter 6)
C Instrument Wide	(Chapter 1)
D Channel Configuration	(Chapter 4)
E Triggering and Gating	(Chapter 5)
F Soft Key Area	(all chapters)
G On / Standby	(Chapter 1)
H USB "Host" Port	(Chapter 7)

Rear Panel Features

	User's Guide
I Parallel Rear Panel Inputs	(Chapter 4)
J Remote Interface (USB, LAN)	(Chapter 2)
K External Triggering and Gating	(Chapter 5)
L Frequency Reference	(Chapter 3)

Front and rear panels shown with product Option 106/115 (Channel 3) and Option 400 (GPIB).

1. Power-On, Local Control, Built-In Help, Alphanumeric Entry

Turns the counter on and off (standby). A self-test and auto-cal occurs during the power-on sequence and the counter is set to its preset settings.

Back / Local

Transfers instrument control from the remote interface (LAN, USB, GPIB) to the front panel. Also displays the previous softkey menu.

Help

Displays help topics which can be selected using the rotary knob. Press and hold any function key or softkey to display help for that key or feature.

Use the rotary knob and arrows to cycle through and enter alphanumeric characters and to navigate through files and folders when browsing the file system.

2. Setting the Measurement Function

Preset

Place the counter in a known state before selecting the measurement.

Measure: Auto Scale, Freq Period, Time Interval, Totalize

Select a measurement function by pressing the corresponding key within the 'Measure' column. Select a specific measurement using the softkeys below the display.

Use Auto Scale (signals > 100 Hz) to automatically detect the input signal and set the range and trigger threshold.

Internal triggering automatically starts the measurements.

Freq / Period Key: Freq | Freq Ratio | Period | Time Stamp | Advanced Auto

3. Channel Selection

Use the channel number keys to select the active input channel and display the channel configuration softkeys:

1 2 3

Example (Ch.1): - DC coupling
- 50Ω impedance
- 2.0V trigger threshold

Chan 1 Setup: Coupling AC DC | Impedance 1MΩ 50Ω | Range 5V 50V | Level Setup | BW Limit Off 100k | Probe None 10:1

Chan 1 Setup +2.000 V: Auto Level Off On | Level | Slope Pos Neg | NoiseRej Off On

Shift

Tip: numeric values can also be entered using the "shifted" numeric keys.

4. Triggering and Gating

Trigger

Use the 'Trigger' key to select the trigger configuration softkeys (source, readings per trigger, delay), or to issue a manual trigger.

Example: - trigger source 'Manual' ('Trigger' key)
- 1000 readings per trigger (use shifted numeric keys)

Trigger Setup 1 000: Source Manual | Rdgs/Trigger | Trig Delay

Gate

Use the 'Gate' key and gate softkeys to specify gate time, gate delay, and other gate parameters.

5. Math, Graphics, Reading Storage

Math

Math

Use the 'Math' key to view the math functions available through the softkeys. 'All Math' plus the selected function must be **On**.

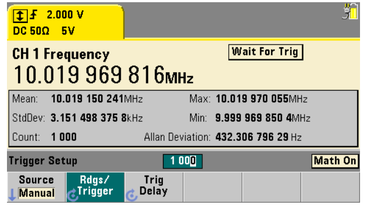
Math: All Math Off On | Smoothing | Null / Scale | Statistics | Limits

Math: Statistics Off On | Show P-P Allan | Math On | Reset Stats

Example: - compute statistics of 1,000 readings.

Trigger

Press the 'Trigger' key to send a single trigger and start the measurements (Steps 2-4).



Graphics

Graph

Use the 'Graph' and related softkeys to select a trend chart or enable a histogram for graphical representations of the measurements.

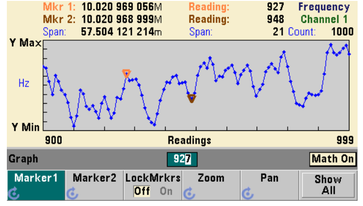
Graph: Trend Chart | Histogram | Math On

Trend Chart

Use the 'Trend Chart' softkey to view a chart of the readings taken, or currently being taken.

Graph: Chart Off On | Options | Save Readings | Zoom & Markers | Clear Readings | Math On

Example: - trend chart of 1,000 readings
- view last 100 readings
- open Zoom & Markers menu



Reading Storage

Save Readings / Export Readings

Use the 'Save Readings' and 'Export Readings' softkeys within the trend chart or histogram menus to save data internally or to an external USB device.

Use the front panel knob and arrows to create file names and browse through the file system.

