LAB basic HW Tools …

Instruments' Default State

E3630A triple-output Power Supply (Manual PS):

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OUTPUT VOLTAGE OVERSHOOT (all outputs):
During turn-on or turn-off of ac power, **output plus overshoot** will **not** exceed 1 V if the output control is set for less than 1 V. If the control is set for 1 V or higher, there is **no overshoot**.

CONNECTING LOAD
Each load should be connected to the power supply output terminals using **separate pairs** of connecting wires. This will minimize mutual coupling effects between loads and takes full advantage of the low output impedance of the supply. Load wires must be of adequately heavy gauge to maintain satisfactory regulation at the load.

REVERSE VOLTAGE PROTECTION
A diode is connected across the output terminals with reverse polarity. This **diode protects** the output electrolytic capacitors and the series regulator transistors from the effects of a reverse voltage applied across the output terminals.

34401A Multimeter (DMM):

Reset state (default settings) @ **power on**.

54622A Oscilloscope (Scope):

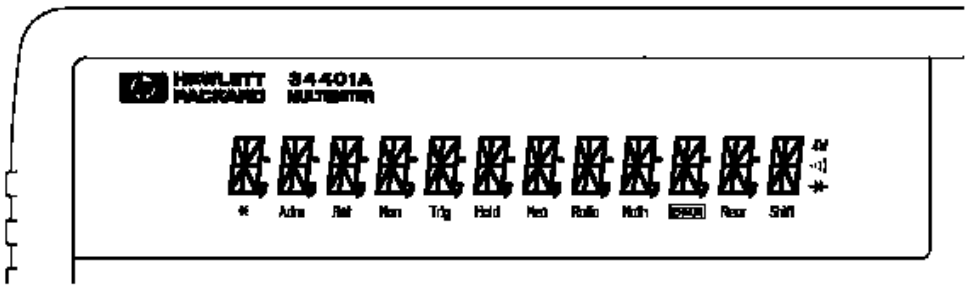
Default setting: **'Save/Recall'** key 'Default Setup' softkey

33220A Function/ARBitrary waveform generator (ARBgen):

Default setting: **'Store/Recall'** key 'Set to default' softkey

34401A Multimeter (DMM):

Display Annunciators



*	Turns on during a measurement.
Adrs	Multimeter is addressed to listen or talk over the HP-IB interface.
Rmt	Multimeter is in remote mode (remote interface).
Man	Multimeter is using manual ranging (autorange is disabled).
Trig	Multimeter is waiting for a single trigger or external trigger.
Hold	Reading Hold is enabled.
Mem	Turns on when reading memory is enabled.
Ratio	Multimeter is in dcv:dcv ratio function.
Math	A math operation is enabled (null, min-max, dB, dBm, or limit test).
ERROR	Hardware or remote interface command errors are detected.
Rear	Rear input terminals are selected.
Shift	"Shift" key has been pressed. *Press "Shift" again to turn off.*
4W	Multimeter is in 4-wire ohms function.
*1)	Multimeter is in continuity test function.
→	Multimeter is in diode test function.

To review the display annunciators, hold down the Shift key as you turn on the multimeter.

Power-On and Reset State

The parameters marked with a bullet (•) are stored in ***non-volatile*** memory.
The factory settings are shown.

Measurement Configuration	Power-On/Reset State
AC Filter	20 Hz (medium filter)
Autozero	On
• Continuity Threshold	• 10 Ω
Function	DC volts
Input Resistance	10 MΩ *(fixed for all dcv ranges)*
Integration Time	10 PLCs
Range	Autorange
Resolution	5½ digits, slow mode
Math Operations	**Power-On/Reset State**
Math State, Function	Off, Null
Math Registers	All registers are cleared
• dBm Reference Resistance	• 600 Ω
Triggering Operations	**Power-On/Reset State**
Reading Hold Threshold	0.10% of range
Samples Per Trigger	1 sample
Trigger Delay	Automatic Delay
Trigger Source	Auto Trigger
System-Related Operations	**Power-On/Reset State**
• Beeper Mode	• On
• Comma Separators	• On
Display Mode	On
Reading Memory	Off (cleared)
Input/Output Configuration	**Power-On/Reset State**
• Baud Rate	• 9600 baud
• HP-IB Address	• 22
• Interface	• HP-IB (IEEE-488)
• Language	• SCPI
• Parity	• Even (7 data bits)
Calibration	**Power-On/Reset State**
• Calibration State	• Secured

54622A Oscilloscope (Scope):

To apply the default factory configuration

- To set the instrument to the factory-default configuration, press the **Save/Recall** key, then press the **Default Setup** softkey.

  The default configuration returns the oscilloscope to its default settings. This places the oscilloscope in a known operating condition. The major default settings are:

  Horizontal main mode, 100 us/div scale, 0 s delay, center time reference

  Vertical (Analog) Channel 1 on, 5 V/div scale, dc coupling, 0 V position, 1 MΩ impedance, probe factor to 1.0 if an AutoProbe probe is not connected to the channel

  Trigger Edge trigger, Auto sweep mode, 0 V level, channel 1 source, dc coupling, rising edge slope, 60 ns holdoff time

  Display Vectors on, 20% grid intensity, infinite persistence off

  Other Acquire mode normal, Run/Stop to Run, cursors and measurements off

  Labels all custom labels in the Label Library are erased

33220A Function/ARBitrary waveform generator (ARBgen):

Agilent 33220A Factory Default Settings

Output Configuration	Factory Setting
Function	Sine wave
Frequency	1 kHz
Amplitude / Offset	100 mVpp / 0.000 Vdc
Output Units	Vpp
Output Termination	50 Ω
Autorange	On
Modulation	**Factory Setting**
Carrier (AM, FM, PM, FSK)	1 kHz Sine wave
Carrier (PWM)	1 kHz Pulse
Mod. Waveform (AM)	100 Hz Sine wave
Mod. Waveform (FM, PM, PWM)	10 Hz Sine wave
AM Depth	100%
FM Deviation	100 Hz
PM Deviation	180 degrees
FSK Hop Frequency	100 Hz
FSK Rate	10 Hz
PWM Width Deviation	10 µs
Modulation State	Off
Sweep	**Factory Setting**
Start / Stop Frequency	100 Hz / 1 kHz
Sweep Time	1 Second
Sweep Mode	Linear
Sweep State	Off
Burst	**Factory Setting**
Burst Count	1 Cycle
Burst Period	10 ms
Burst Start Phase	0 degrees
Burst State	Off
System-Related Operations	**Factory Setting**
• Power-Down Recall	• Disabled
Display Mode	On
Error Queue	Errors are Cleared
Stored States, Stored Arbs	No Change
Output State	Off
Triggering Operations	**Factory Setting**
Trigger Source	Internal (Immediate)
Remote Interface Configuration	**Factory Setting**
• GPIB Address	• 10
• DHCP	• On
• IP Address	• 169.254.002.020
• Subnet Mask	• 255.255.000.000
• Default Gateway	• 000.000.000.000
• DNS Server	• 000.000.000.000
• Host Name	• *none*
• Domain Name	• *none*
Calibration	**Factory Setting**
Calibration State	Secured

Parameters marked with a bullet (•) are stored in *non-volatile* memory.

'Store/Recall' key

'Set to default' softkey