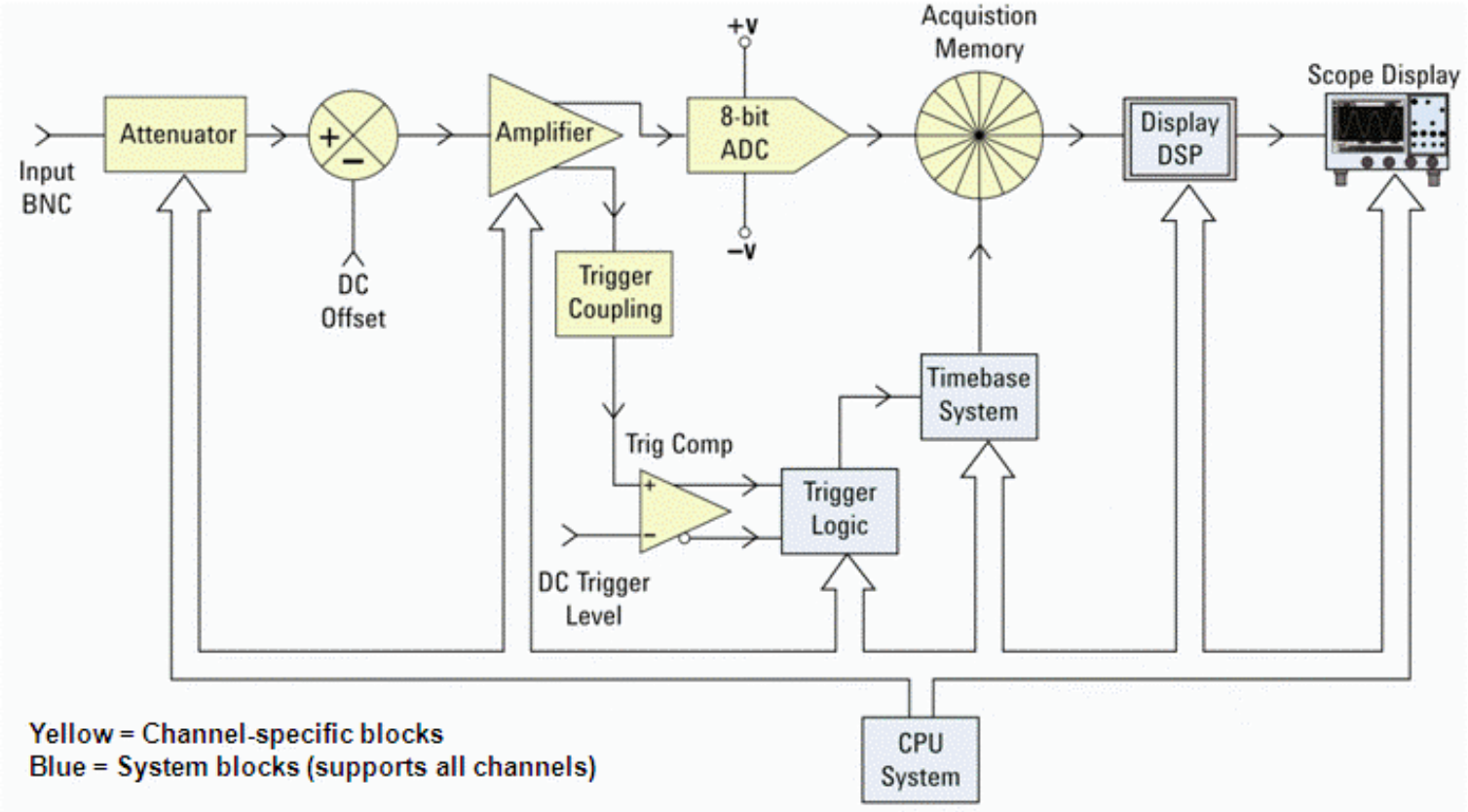
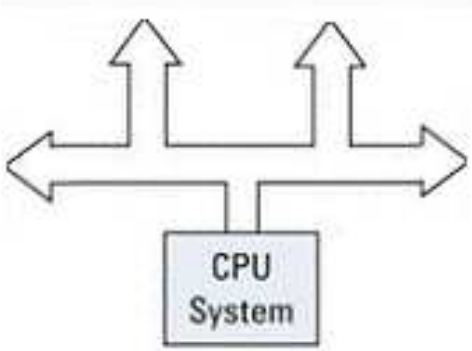
Digital oscilloscope

Blockdiagram (one channel)



Menu-**Buttons** and **Entry**-knob



Entry - knob

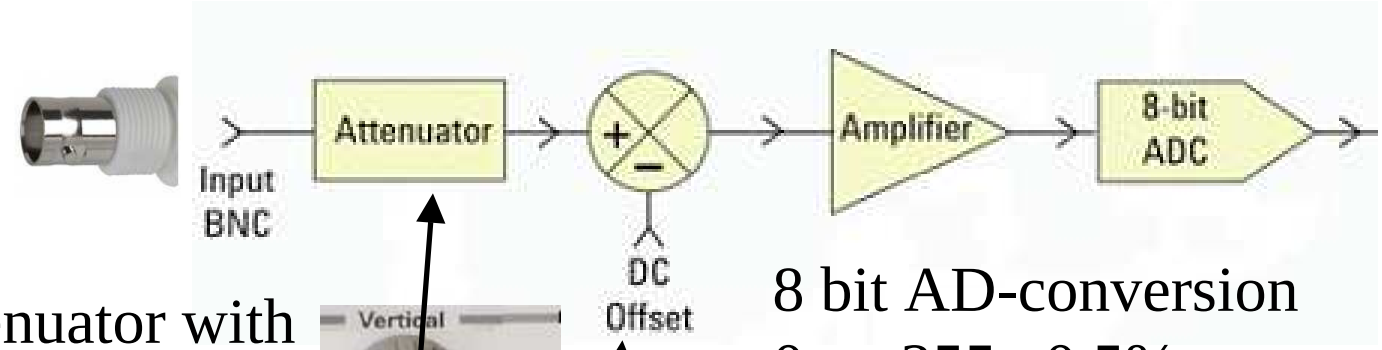
You could reach the differnt menus from the Buttons. Under the screen you will find Softkeys. You make your selections by twisting and pressing the Entry-knob.

Softkey Labels

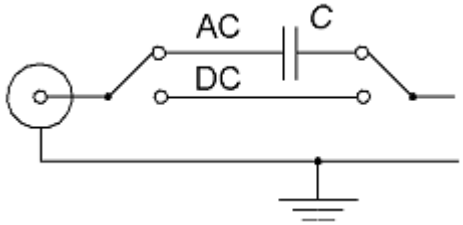
If you press any button ”for a second” – then the apropriate helptext will be displayed!

← **Softkeys**

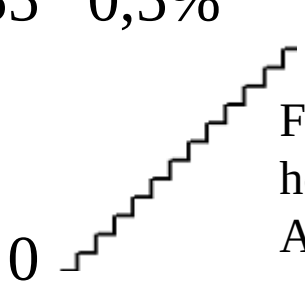
Vertical (Y-axis, voltage)



Attenuator with
2 – 5 – 10 step



8 bit AD-conversion
0 … 255 0,5%

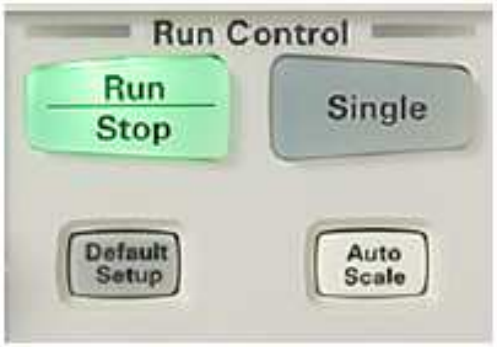


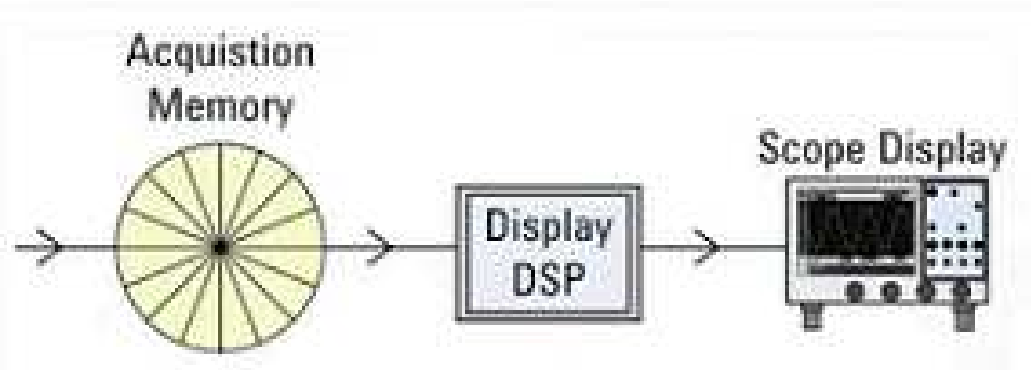
Full screen height is 255 AD-steps

Input could be AC-coupled in order to block DC-components. **DC-coupled is the default setting**.

If you could find an attenuator-setting for your signal to fill the entire screen height, then your measurement will have the resolution of 0,5%.

Run Control





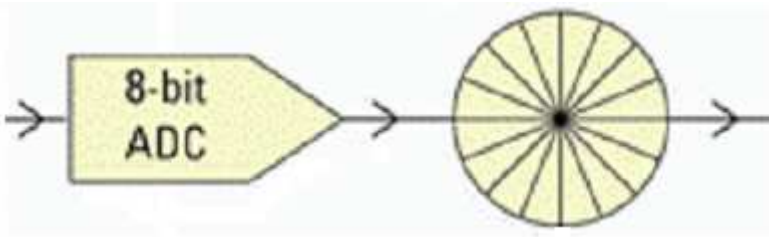
•**Run**/Stop**.** The data storage will update repetedly (most common). If the signal is periodic and has a well defined trigger-point then the display will show a stable trace.

• **Stop** will ”freeze” the trace as it was at the instance when you pressed the stop-button.

• **Single**. Data is stored in the buffer **once**. When the acqusition memory is full, the display will show the trace. This setting is for single events.

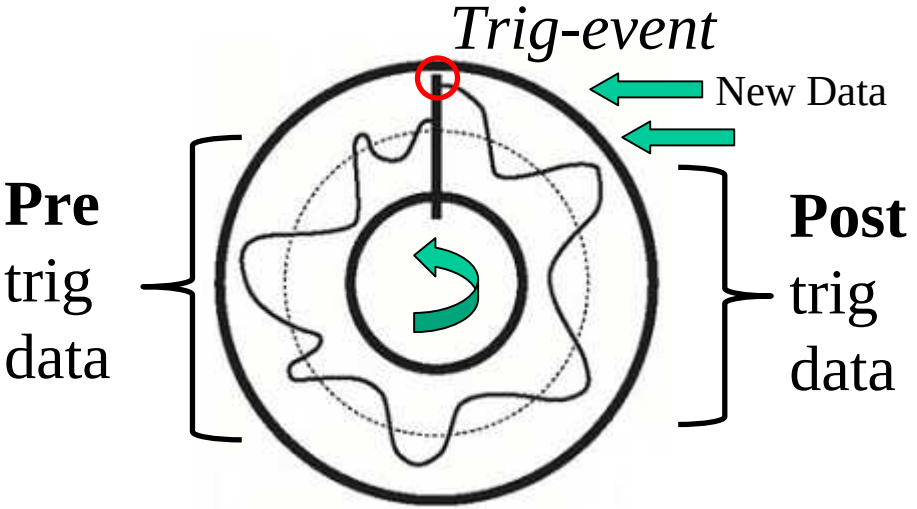
Despite settings, a digital oscilloscope will always present a recorded version of your signal.

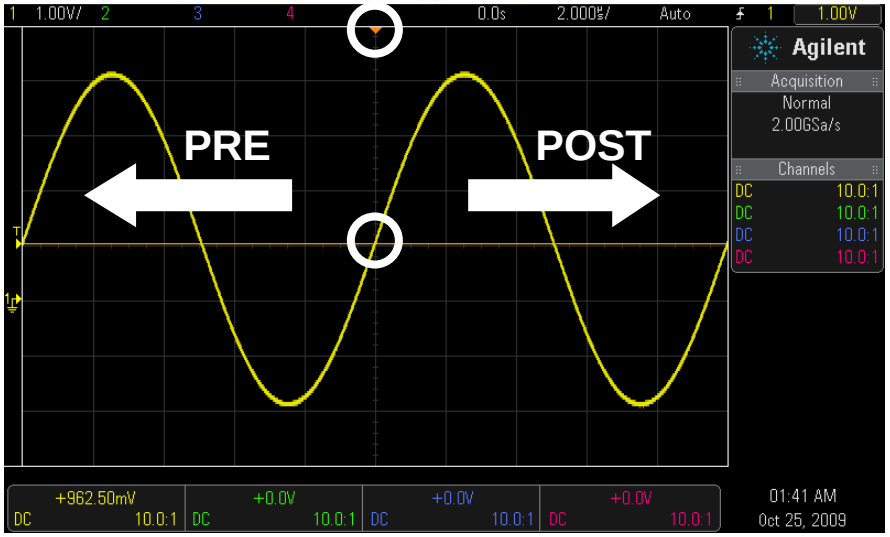
Acquisation buffer



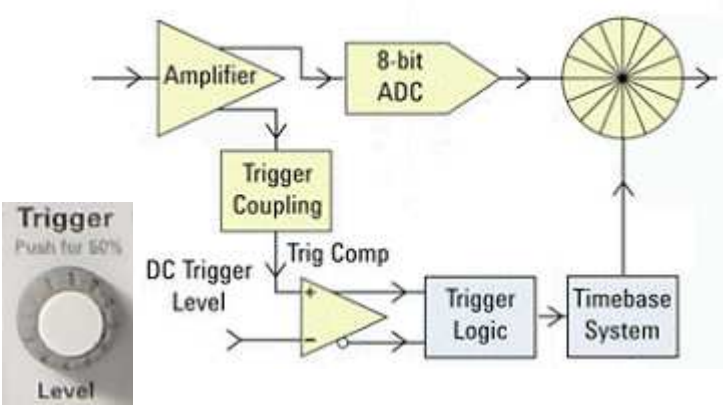
Data is continuously stored in a circular buffer.
When the trig-event is fulfilled the buffer is defined as ”half full” and the new data is stored in the other half of the buffer.

*Therefore you will be able to see the same amount of data **before** (pre) as **after** (post) the trig-event!*

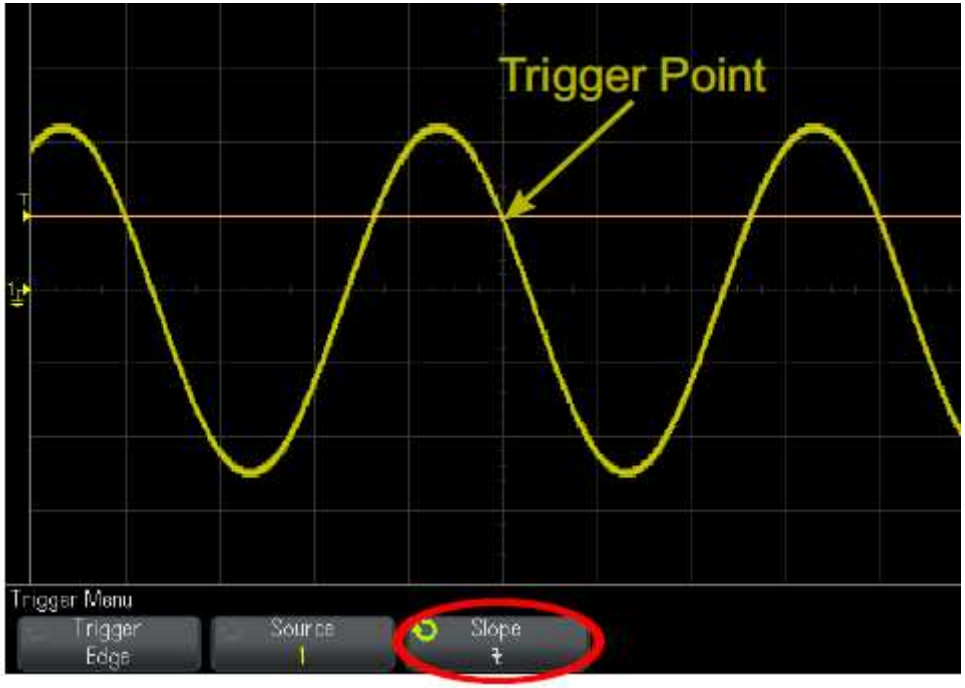




Triggering, synchronized traces

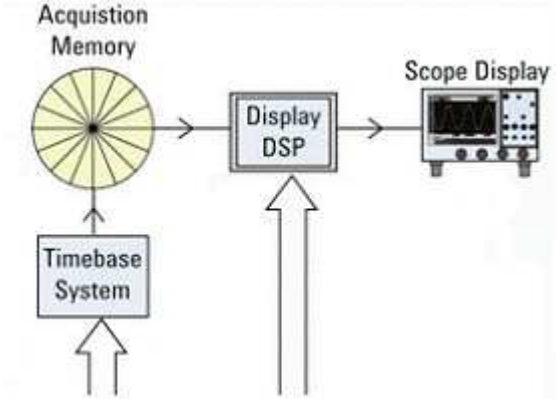


When buffer content is shown continuously in sequence on the screen, it has to be synchronized in order to give a stable trace.

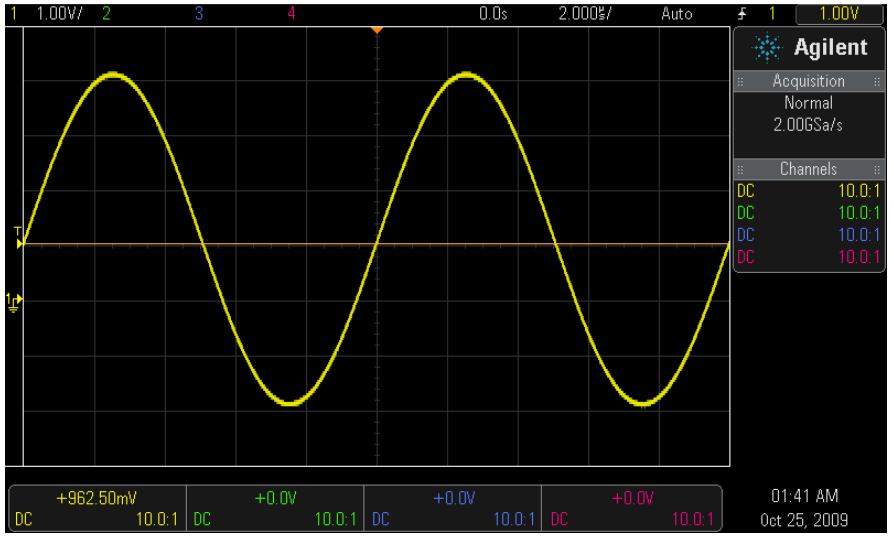


Trigger-point **level**, and **slope** (slope), could be choosen arbitrary.
(*positive voltage level and negative/falling slope is the setup for this picture*).

Horizontal (X-axes, time)



With the ”Magnifier-button” you can select a part of the trace to study in detail.

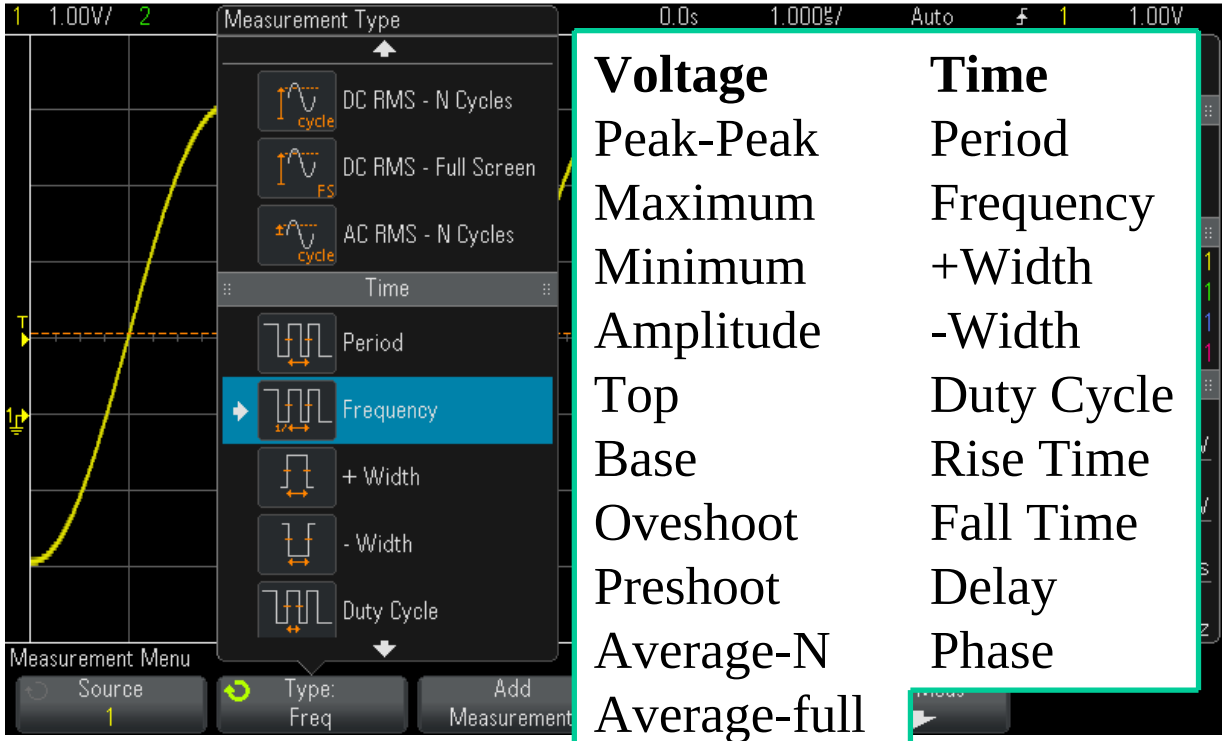


With the timebase system you change the samplingfrequency for the data acquistion, and choose what part of the stored signal to display.

Automatical measurments

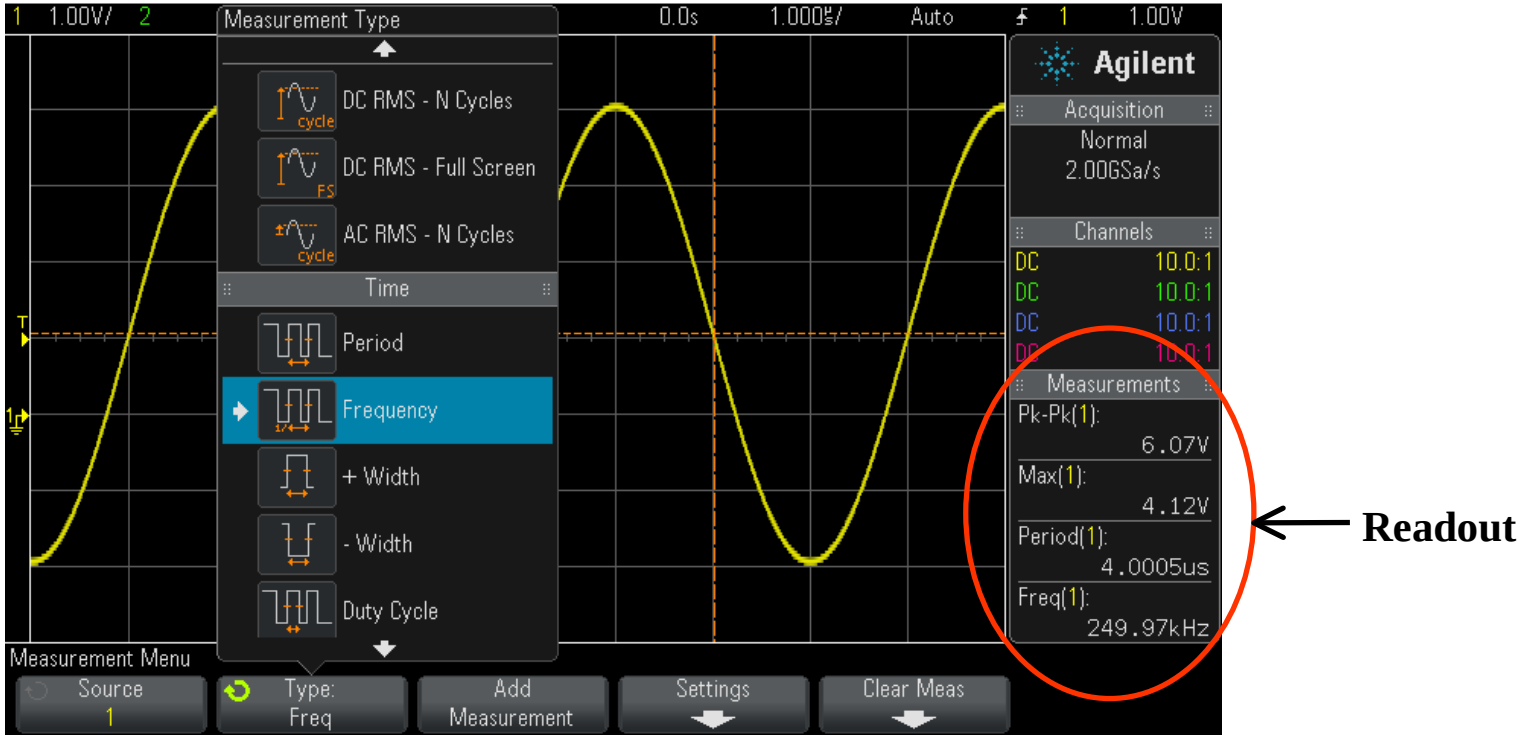
Softkeys

- Source
- Type
- Add Measurement
- Settings
- Clear Meas



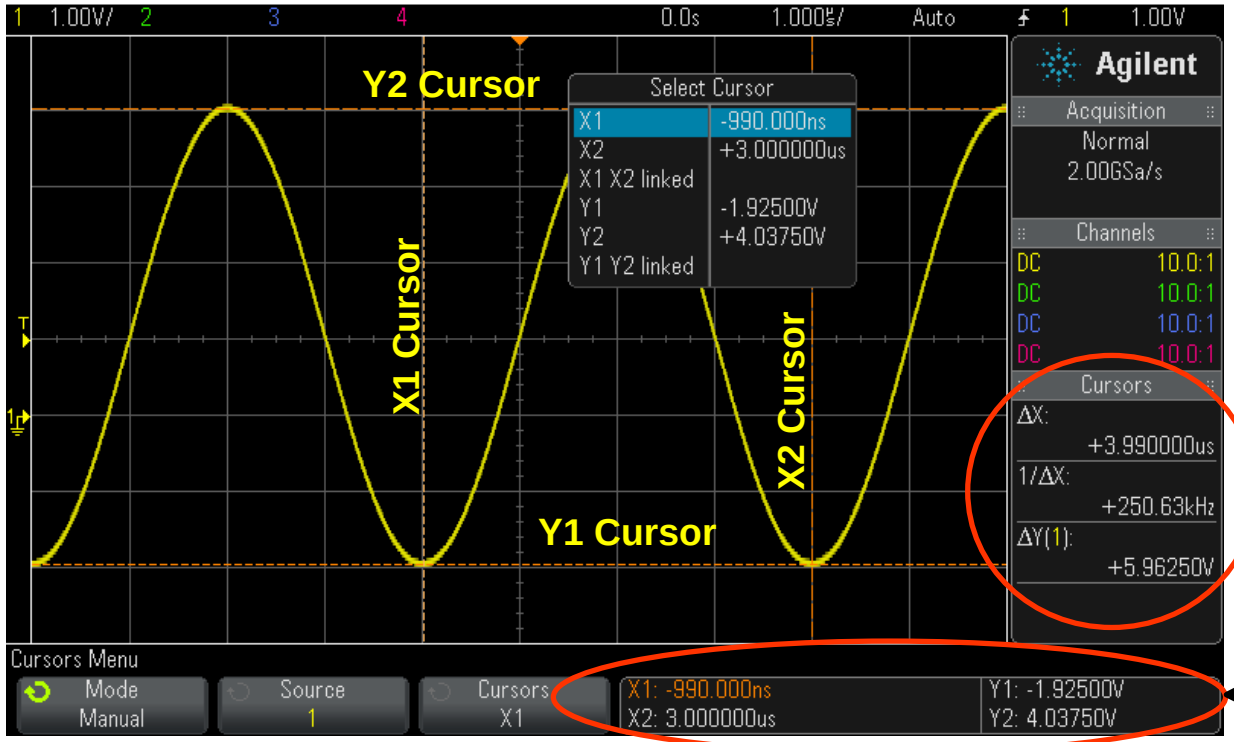
Voltage	**Time**
Peak-Peak	Period
Maximum	Frequency
Minimum	+Width
Amplitude	-Width
Top	Duty Cycle
Base	Rise Time
Oveshoot	Fall Time
Preshoot	Delay
Average-N	Phase
Average-full	
DC-RMS-N	
DC-RMS-full	
AC-RMS-N	
AC-RMS-full	

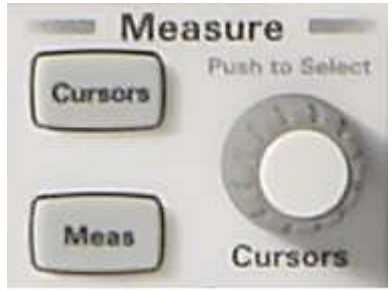
Automatical measurments **Frequency**



Readout

Measurements with cursors





Cursor Controls

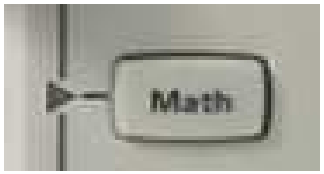
Δ Readout

Absolute V & T Readout

- Position X & Y cursors by hand.
- Oscilloscope uses your vertical and horizontal settings. Both absolute and differential values will show.

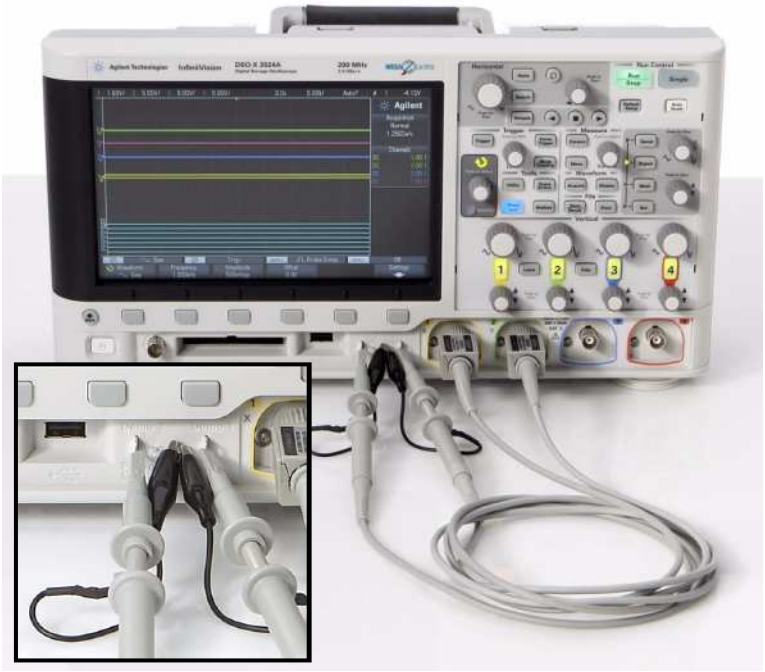
Math

+ Add
- Subtract
× Multiply



With Waveform Math you can **multiply** or **subtract** two traces with each other.

Inbuilt training-signals



Inbuilt training-signals

When you turn on the oscilloscope, *or* if you press **Help**, you will get access to the **Training Signals**.

- Sine
- Sine with Noice
- Phase Shifted Sine
- Sine with Glitch
- Amplitude Modulation
- RF Burst
- FM Burst
- Repetitive Pulse w Ringing
- Single-Shoot Pulse w Ringing
- Clock w Glitch
- Digital Burst
- Digital Burst w Glitch