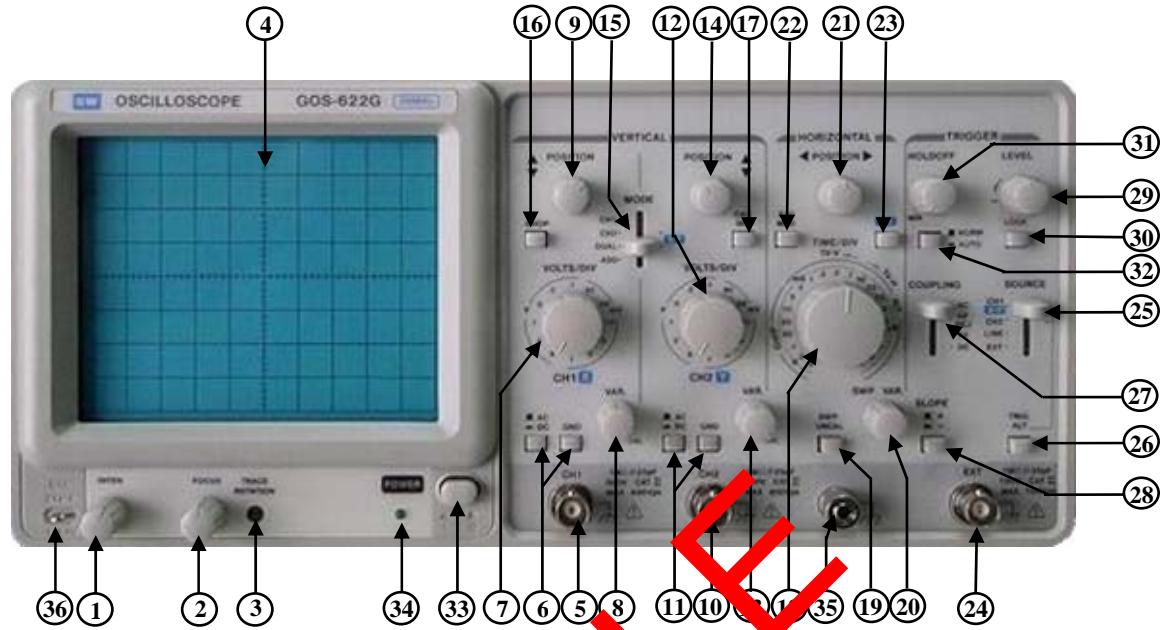


Instek GOS-622G Oscilloscope

Front Panel Controls



Cathode Ray Tube (CRT) Controls:

- (1) INTEN Controls the brightness of the trace.
- (2) FOCUS Allows for focusing of the trace to the sharpest image.
- (3) TRACE ROTATION Potentiometer for aligning the horizontal trace in parallel with the grid lines.
- (4) CRT SCREEN For viewing waveforms.

Vertical Axis Controls:

- (5) CH 1 Vertical input terminal for Channel 1. When in X-Y operation, X-axis input terminal.
- (6) AC-DC-GND Selects connection mode between Channel 1 input signal and vertical amplifier.
- (7) VOLTS/DIV Selects the Channel 1 vertical axis sensitivity from 1mV/DIV to 5V/DIV in 12 ranges.
- (8) VARIABLE Fine adjustment of Channel 1 vertical axis sensitivity. When in CAL position, sensitivity is calibrated to the indicated value.
- (9) POSITION Vertical position control of Channel 1 trace.
- (10) CH 2 Vertical input terminal for Channel 2. When in X-Y operation, Y-axis input terminal.
- (11) AC-DC-GND Selects connection mode between Channel 2 input signal and vertical amplifier.
- (12) VOLTS/DIV Selects the Channel 2 vertical axis sensitivity from 1mV/DIV to 5V/DIV in 12 ranges.
- (13) VARIABLE Fine adjustment of Channel 2 vertical axis sensitivity. When in CAL position, sensitivity is calibrated to the indicated value.
- (14) POSITION Vertical position control of Channel 2 trace.
- (15) MODE Selects operation of CH 1 and CH2
 - CH 1 The oscilloscope operates as a single-channel instrument using CH 1.
 - CH 2 The oscilloscope operates as a single-channel instrument using CH 2.
 - DUAL The oscilloscope operates as a dual-channel instrument using both CH 1 and CH 2. CHOP/ALT are automatically changed by the TIME/DIV setting.
 - ADD The oscilloscope displays the algebraic sum of the two signals.
- (16) CHOP Allows for the two traces to be displayed in the CHOP mode at all ranges.
- (17) CH 2 INV The oscilloscope displays the algebraic difference of the two signals when in ADD mode.

Horizontal Axis Controls:

- (18) TIME/DIV Selects the rate at which the waveform is displayed across the CRT screen (sweep speed).
- (19) SWP. UNCAL When pushed in, the sweep time can be made slower using the SWP.VAR control (20) by a factor of ≥ 2.5 of the indicated value. When not pushed in, the indicated values are calibrated.
- (20) SWP. VAR Vernier control of sweep time. Allows horizontal time scale to be set in between the discrete TIME/DIV settings. The indicated values are calibrated when the SWP. UNCAL (19) button is not pushed in.
- (21) POSITION Horizontal positioning control of the trace.
- (22) X 10 MAG When button is pushed in, a magnification of 10 occurs on the horizontal scale.
- (23) X-Y X-Y operation is enabled when pressed.
When in X-Y mode, time is no longer measured on the X axis. The X axis represents the CH 1 input and the Y axis represents the CH 2 input.

Trigger Controls:

- (24) EXT TRIG Input terminal is used in common for external triggering a signal. To use this terminal, set SOURCE switch (25) to the EXT position.
On this setting, a better-conditioned signal can be used to trigger the scope while observing a relatively weak signal.
- (25) SOURCE Selects the internal triggering source signal.
CH1 When the VERT MODE switch (15) is set to DUAL or ADD, selects CH 1 for the internal triggering source signal. When in X-Y mode, select CH 1 for the X-axis signal.
(X-Y)
CH 2 When the VERT MODE switch (15) is set to DUAL or ADD, selects CH 2 for the internal triggering source signal.
LINE Selects the AC power line frequency signal as the triggering signal.
EXT The external signal applied through EXT TRIG input terminal (24) is used as the internal triggering source signal. When in the X-Y mode, the X-axis operates with the external sweep signal.
- (26) TRIG. ALT When the VERT MODE switch (15) is set to DUAL or ADD, and the SOURCE switch (25) is selected at CH 1 or CH 2, with the engagement of the TRIG. ALT switch (26), CH 1 and CH 2 will be alternately selected for the internal triggering source signal.
- (27) COUPLING Selects the coupling of the triggering signal to the trigger circuit in accordance with the characteristics of the measured signal.
AC This coupling is for AC triggering which is used most commonly. As the triggering signal is applied to the trigger circuit through an AC coupling circuit, stable triggering can be attained without being affected by the DC component of the input signal. The low-range cutoff is 10-Hz.
HF REJ (High frequency rejection) The triggering signal is fed to the trigger circuit through an AC coupling circuit and a low pass filter (approx. 50-kHz). The higher frequencies are rejected and only the lower frequencies are applied to the trigger circuit. (Useful for noise reduction)
TV Useful for observation of TV video signals. The triggering signal is AC coupled and fed through the triggering circuit to the TV sync separator circuit. The separator circuit picks off the sync signal, which is used to trigger the sweep. Thus the video signal can be displayed stably. Being linked to the TIME/DIV switch, the sweep speed is switched for TV-V and TV-H as follows:
TV-V: 0.5s – 0.1ms
TV-H: 50 μ s – 0.1 μ s
DC The triggering signal is DC-coupled to the trigger circuit. This mode is used when triggering is desired with the DC component of the triggering signal or when a signal with very low frequency or a signal with a large duty cycle ratio is needed to be displayed.
- (28) SLOPE Selects the polarity of the triggering signal.
+ Triggering occurs as the triggering signal crosses the triggering level in a positive-going direction.
– Triggering occurs as the triggering signal crosses the triggering level in a negative-going direction.

- (29) LEVEL Displays a stationary waveform and sets a start point for the waveform. The trigger level changes in the positive direction when the control knob is turned clockwise, and it changes in the negative direction as the knob is turned counter-clockwise.
- (30) LOCK When the LEVEL LOCK switch is engaged, the triggering level is automatically maintained within the amplitude of the triggering signal, and stable triggering is made without requiring level adjustment (although jitter may not be suppressed when in the ALT mode).
- (31) HOLDOFF Used when the signal waveform is complex and stable triggering cannot be attained with the LEVEL knob alone.
- (32) TRIGGER MODE Selects the desired trigger mode.
 - AUTO When no triggering signal is applied or when triggering signal is less than 50-Hz, sweep runs in the free run mode.
 - NORM When no triggering signal is applied, sweep is in a steady state and the trace is blanked out. Used primarily for observation of a signal \leq 50-Hz.

Others:

- (33) POWER Main power switch of the instrument. When this switch is turned on, the LED (34) is also turned on.
- (34) POWER LED indicating oscilloscope power is turned on.
- (35) GND Ground terminal of oscilloscope main frame.
- (36) CAL This terminal delivers the calibration voltage of 2-V_{p-p}, 1-kHz, positive square wave. The output is 2k Ω .

EXAMPLE