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Find the *Kenwood CS-4135A* at our website: ***Click HERE***

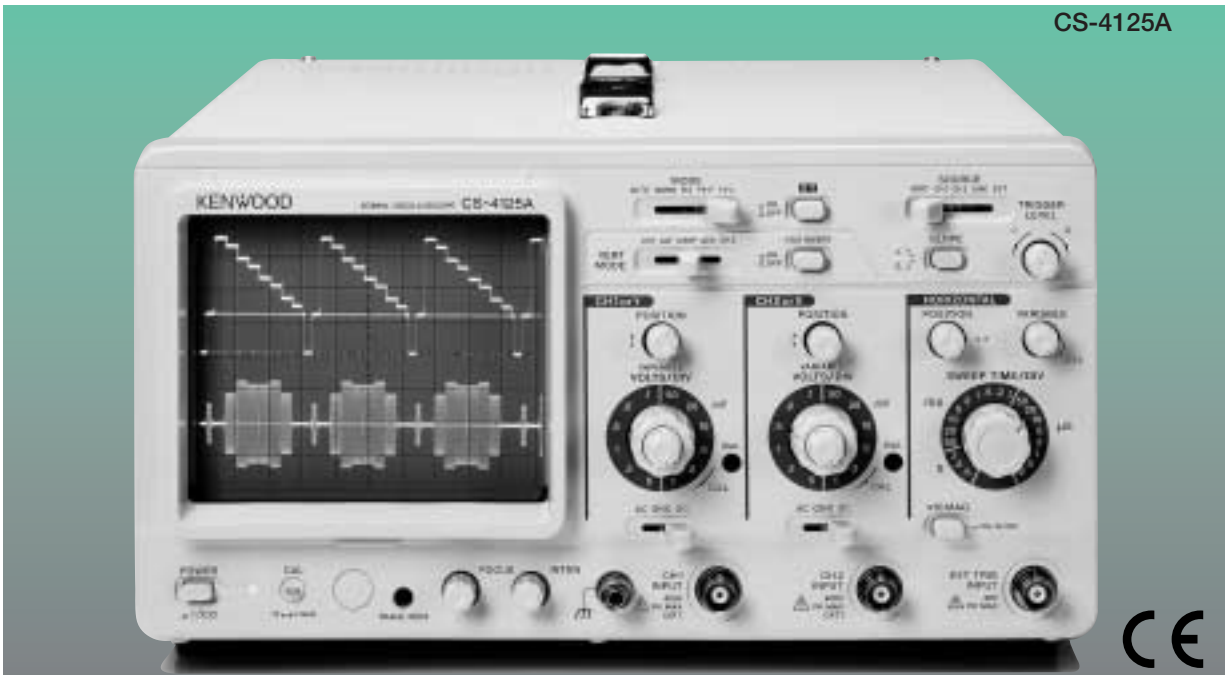
## Oscilloscopes

# CS-4100A SERIES

40MHz 2-Channel
## CS-4135A
20MHz 2-Channel
## CS-4125A

### OUTLINE

The CS-4100A Series with excellent cost efficiency were created from a fusion of performance, reliability, operability and design, and realize general-purpose characteristics which can be used in a variety of observations and inspections ranging from very small to very large signals.

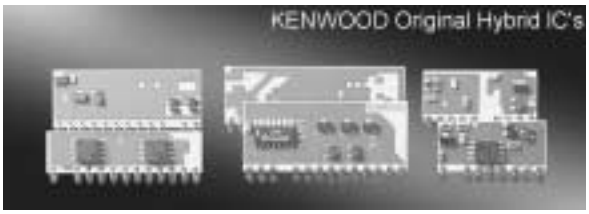





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## FEATURES

### High reliability with Kenwood Original Hibrid ICs




### High-intensity CRT (12 kV) (with scale illumination)

Large-aperture (150 mm) CRT with post stage acceleration (12 kV) displays bright and sharp waveforms. The internal graticule eliminates parallax in measurement and the scale illumination is convenient for picture shooting and observations under low light (the CS-4125A uses a 2 kV CRT and does not have the scale illumination.)

### Dynamic range with a headroom for accurate waveform display without distortion

As the dynamic range with a headroom assures the linearity of displayed waveforms, waveforms can be displayed without distortion until the upper limit of the frequency band. The CS-4135A provides a wide frequency bandwidth from DC to 40 MHz (-3 dB) between 5 mV/div to 5 V/div while the CS-4125A provides DC to 20 MHz (-3 dB) with the same sensitivity.

### High sensitivity of 1 mV/div (DC to 5 MHz)

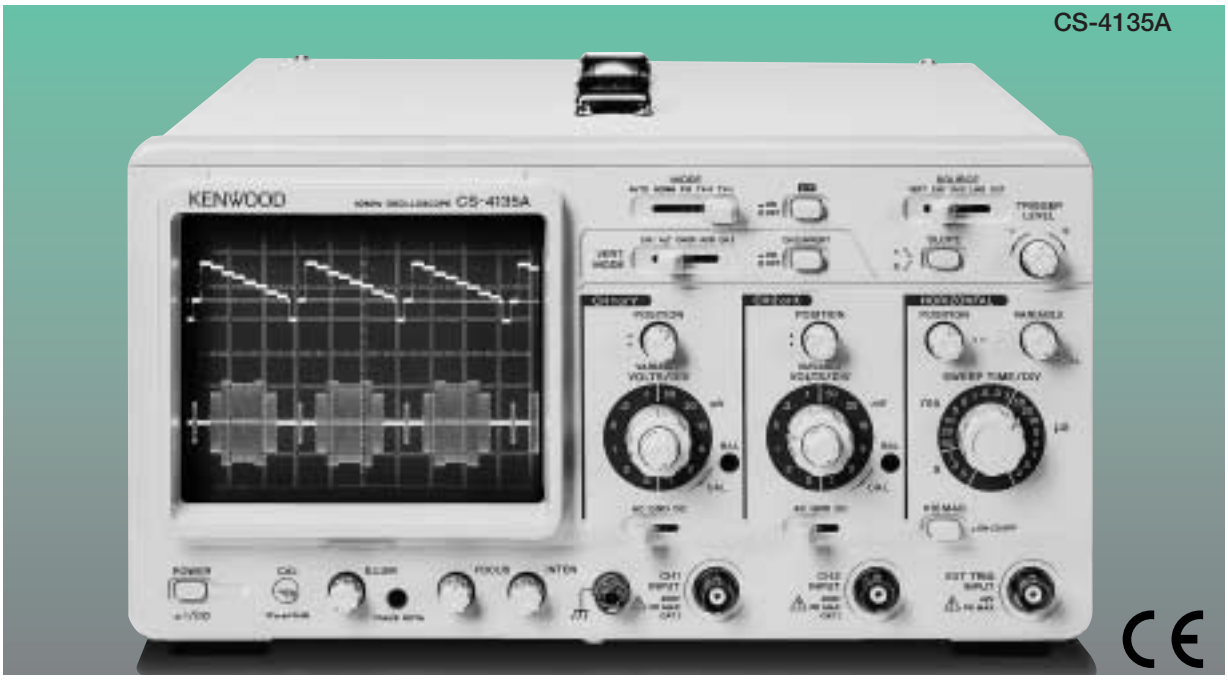
The vertical axis sensitivity can be varied continually from 1 mV/div to 5 V/div with an attenuator. The 1 mV/div sensitivity is especially powerful in measuring very-low, complicated signals.

### Maximum sweep rate of 20 ns/div (x10 MAG)

The sweep rate can be varied continually from 0.5 s/div to 0.2µs/div. The sweep magnification (x10 MAG) allows to magnify the time scale by 10 times with a one-touch operation so that a part of a complicated waveform can be observed in more detail.

### FIX sync

The FIX sync function cuts off troublesome procedures for synchronization. Much of the preparation work can be omitted so that the measurement or inspection work can be started more quickly.





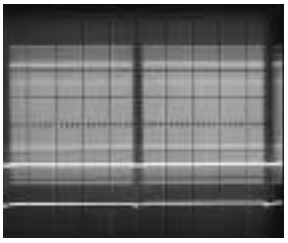

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### One-touch TV sync

The horizontal and vertical video signals can be observed with a one-touch operation. Stable synchronization is assured without the need of synchronizing operation.



Horizontal line TV signal



Vertical line TV signal

### Convenient VERT mode

The VERT mode switches the sweep triggering sources automatically according to the vertical axis mode. When the vertical axis mode is CH1, the CH1 signal becomes the trigger source, and the CH2 signal becomes the trigger source when the vertical axis mode is CH2. In ALT mode, CH1 and CH2 signals can be triggered independently even when they have different frequencies.

### One-touch ALT/CHOP switching

The ALT and CHOP modes can be switched with a one-touch operation in the 2-phenomena mode. This is convenient in phase-related observation of waveforms.

### X-Y Mode

Commences operation as an X-Y oscilloscope with CH1 as the Y-axis and CH2 as the X-axis.

### Vertical axis signal output connector

As this connector outputs the input signal at a rate of 50 mV/div, connecting a frequency counter makes it possible to measure the frequency of a very low signal while observing its waveform.

### Waveforms can be observed by applying intensity modulation.

### Added or subtracted waveforms can be observed.

### The trace inclination can be corrected with the front panel operation.

### Relay-type attenuators with long life and excellent operability are used.



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## SPECIFICATIONS

| Model | | | CS-4135A | | CS-4125A | |
|---|---|---|---|---|---|---|
| **CRT :** Type | | | 150mm rectangular with internal graticule | | | |
| Accelerating voltage | | | Approx. 12kV | | Approx. 2kV | |
| Effective area | | | 8×10 div. (1div=10mm) | | | |
| **Vertical axis (Common for CH1, CH2)** | | | | | | |
| Operating modes | | | CH1, CH2, ADD, ALT, and CHOP | | | |
| Sensitivity | | | 1mV/div to 5V/div (1mV/div., 2mV/div.±5%, 5mV/div to 5V/div. ±3%) | | | |
| Attenuator | | | 1-2-5 steps, 12 ranges, and fine adjustment | | | |
| Frequency response | DC | | DC to 40MHz (−3dB) (5mV/div. to 5V/div.) | | DC to 20MHz (−3dB) (5mV/div. to 5V/div.) | |
| | | | DC to 5MHz (−3dB) (1mV/div. to 2mV/div.) | | DC to 5MHz (−3dB) (1mV/div. to 2mV/div.) | |
| | AC | | 10Hz to 40MHz (−3dB) (5mV/div. to 5V/div.) | | 10Hz to 20MHz (−3dB) (5mV/div. to 5V/div.) | |
| | | | 10Hz to 5MHz (−3dB) (1mV/div. to 2mV/div.) | | 10Hz to 5MHz (−3dB) (1mV/div. to 2mV/div.) | |
| Input impedance | | | 1MK ±2%, Approx. 23pF | | | |
| Rise time | | | Approx. 8.75ns (40MHz) (5mV/div. to 5V/div.) | | Approx. 17.5ns (20MHz) (5mV/div. to 5V/div.) | |
| | | | Approx. 70ns (5MHz) (1mV/div to 2mV/div.) | | Approx. 70ns (5MHz) (1mV/div. to 2mV/div.) | |
| Crosstalk | | | Below −40dB (at 1kHz sine wave) | | | |
| Polarity inversion | | | CH2 only | | | |
| Maximum input voltage | | | 800V p-p or 400V (DC+AC peak) | | | |
| CHOP frequency | | | Approx. 250kHz | | | |
| **Horizontal axis (CH2 input)** | | | | | | |
| Operating modes | | | Switch to X-Y on CH1 : Y-axis / CH2 : X-axis | | | |
| Sensitivity | | | Same as CH2 vertical axis | | | |
| Input impedance | | | Same as CH2 vertical axis | | | |
| Frequency response | | | DC : DC to 500kHz (−3dB) / AC : 10Hz to 500kHz (−3dB) | | | |
| X-Y phase difference | | | Within 3 degrees at 50kHz | | | |
| **Sweep :** Sweep time | | | 0.2µs/div. to 0.5s/div. ±3% | | 0.5µs/div. to 0.5s/div. ±3% (0.2µs/div. : UNCAL) | |
| | | | 1-2-5 steps, 20 ranges, and fine adjustment | | | |
| Magnified sweep (×10MAG) | | | ×10, ±5% | | ×10, ±5% (0.2µs/div. : UNCAL) | |
| Linearity | | | ±3% (×10MAG : ±5%) | | ±3% (0.2µs/div:UNCAL)<br>(×10MAG : ±5%, 20ns/div. : UNCAL) | |
| **Triggering :** Trigger sources | | | VERT, CH1, CH2, LINE and EXT | | | |
| Mode | | | AUTO, NORM, FIX, TV-F and TV-L | | | |
| Trigger coupling | | | AC, TV-F and TV-L | | | |
| **Sensitivity** | NORM | INT | 10Hz to 20MHz | 1.5div. | 10Hz to 5MHz | 1div. |
| | | EXT | | 0.25Vp-p | | 0.2Vp-p |
| | | INT | 20MHz to 40MHz | 2div. | 5MHz to 20MHz | 1.5div. |
| | | EXT | | 0.3Vp-p | | 0.3Vp-p |
| | AUTO | INT | 50Hz to 20MHz | 1.5div. | 50Hz to 5MHz | 1div. |
| | | EXT | | 0.25Vp-p | | 0.2Vp-p |
| | | INT | 20MHz to 40MHz | 2div. | 5MHz to 20MHz | 1.5div. |
| | | EXT | | 0.3Vp-p | | 0.3Vp-p |
| | TV | INT | FRAME, LINE | 1div. | FRAME, LINE | 1div. |
| | | EXT | LINE | 0.2Vp-p | LINE | 0.2Vp-p |
| | FIX | INT | 50Hz to 40MHz | 2div. | 50Hz to 20MHz | 2div. |
| | | EXT | | 0.5Vp-p | | 0.5Vp-p |
| **External trigger** : Input impedance | | | 1MK, Approx. 23pF | | | |
| Maximum input voltage | | | 84V p-p or 42V (DC+ACpeak) | | | |
| **Calibration voltage** | | | 1V p-p±3% (Square wave, 1kHz, positive polarity) | | | |
| **Intensity modulation** : Input voltage | | | TTL level (dark for positive voltage) | | | |
| Input impedance | | | Approx. 5kK | | | |
| Frequency response | | | DC to 3.5MHz | | | |
| Maximum input voltage | | | 84V p-p or 42V (DC+AC peak) | | | |
| **CH1 Signal output** | | | | | | |
| Output voltage | | | Approx. 50mV/div. (loaded 50K) | | | |
| Output impedance | | | Approx. 50K | | | |
| Frequency response | | | 100Hz to 20MHz (within ±3dB, loaded 50K) | | 100Hz to 10MHz (within ±3dB, loaded 50K) | |
| **Trace rotation** | | | Enables trace rotation adjustment from front panel | | | |
| **Environmental condition** | | | 10℃ to 35℃, 85% or less (temperature/humidity for characteristics in spec.) | | | |
| **Operation conditon** | | | 0℃ to 40℃, 85% or less (temperature/humidity for operation) | | | |
| **Power source** | | | 100/120/220/230V AC ±10% (250V AC maximum), 50/60Hz | | | |
| **Power consumption** | | | 30W maximum | | | |
| **Case dimensions** | | | 290 (W)×150 (H)×390 (D) mm | | | |
| **Maximum dimensions** | | | 290 (W)×172 (H)×443 (D) mm | | | |
| **Weight** | | | Approx. 6.9kg | | Approx. 6.6kg | |
| **Accessories** | | | Instruction manual (1) / Probe (PC-54) (2) / Power cable (1) | | | |





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