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GOULD 4072 AND 4074 HIGH SPEED DIGITAL STORAGE OSCILLOSCOPE



Gould 4074 4-channel
Digital Storage Oscilloscope with 270 Waveform Processor

- **400 M samples/s 8-bit converters on every channel**
- **2 or 4 channel versions**
- **100 MHz transient bandwidth**
- **Low jitter and 2 ns/div time resolution**
- **Waveform processing**
- **Fully programmable**

The Gould 4070 Series provides application flexibility to meet a wide range of needs, including high speed and processing capabilities for design and test applications. These scopes also provide full programmability for laboratory automation or ATE, the portability needed for field service, and the ruggedness and easy operation required for manufacturing applications.

Best performance around

Gould's 4070 Digital Storage Oscilloscope Series delivers the best performance available. It features exclusive 400 M samples/s digitizers on every channel, enabling true 100 MHz bandwidth and accuracy for both transient and continuous signals in real time. To ensure the best results from fast signals there are sine and linear interpolators; less than 200 ps jitter to give high accuracy equivalent time sampling to 2-ns/div resolution, 5-ns glitch capture, and much more.

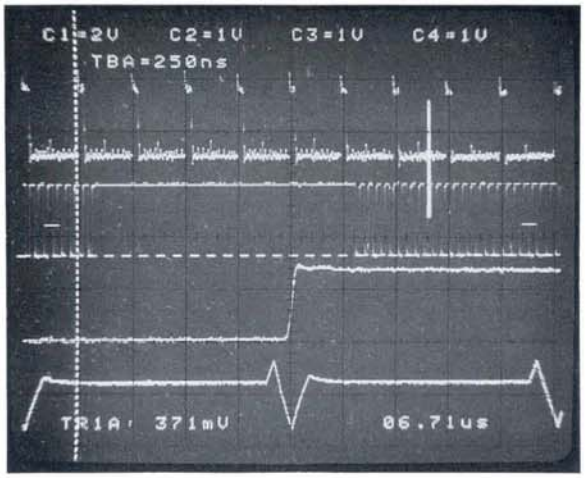
Exceptional triggering capability

To complement the signal capture performance, the 4070 offers one of the most sophisticated triggering systems available on any oscilloscope today. Two timebases with separate trigger inputs are available, which can run synchronously or asynchronously and offer full delay facilities, such as delay by time, delay by events and gating. When delay by events is selected, the Gould 4070 will either trigger after the Nth event, so that individual pulses can be stored from logic trains, or it will trigger every Nth event for the display of individual lines of TV signals.

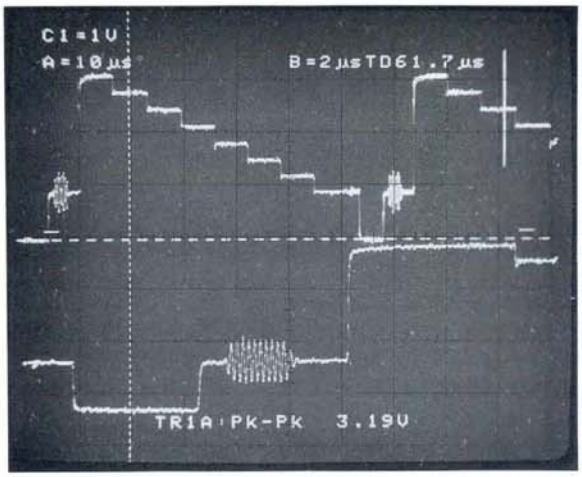


Gould 4072 2-channel
Digital Storage Oscilloscope

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Four channels makes digital development easier.
Four channels can give accurate timing information because there are four full channels of operation.



Advantage of dual timebase used with trigger delay system.
Use the optional Waveform Processor to trigger the 4070 on any preselected TV or video line. The fine detail of the color burst on the lower trace was achieved using the dual timebase facility in combination with the flexible trigger delay system.

MODELS 4072 AND 4074 SPECIFICATIONS

(Unless otherwise stated, the specifications of the 4072 and 4074 are identical.)

Vertical Input

Input: 4072: 2 Channels
4074: 4 Channels

Bandwidth: DC: 0 – 100 MHz (– 3 dB).
AC: 4 Hz – 100 MHz (– 3 dB).

Sensitivity: 2 mV/div to 5 V/div.

Input Impedance: 1 MΩ/20 pF.

Input Protection: 400 VDC or pk AC.

Vertical Position Range: ± 8 div.

Display

CRT: 10 x 12 cm rectangular. Internal illuminated graticule.

Display Modes:

4072: CH1, CH2, CH1 invert, CH2 invert, CH1 + CH2, CH1 vs CH2, Reference Traces 1 through 8.

4074: CH1, CH2, CH3, CH4, CH1 invert, CH2 invert, CH3 invert, CH4 invert, CH1 vs CH2, CH1 vs CH3, CH1 vs CH4, Reference Traces 1 through 8.

Interpolation: Selectable either sine, linear or no interpolation.

Trigger Reference: There is an on-screen indicator which shows the location of the trigger level and the trigger point.

Readout: Readout characters indicate the current setting of the instrument: vertical sensitivity, timebase and cursor measurements.

Acquisition System

Maximum Sample Rate: 400 M samples/s.

Vertical Resolution: 8 bits (0.4%).

Record Length: 1K word per input channel.

Acquisition Modes

Refresh Mode: For stored data and display updated by trigger event.

Roll Mode: Stored data and display updated continually prior to being frozen by trigger.

Pre-trigger Roll Mode: Stored data is updated continually as per roll mode in pre-trigger part of the display. Then entire display is frozen as in refresh mode upon receipt of trigger.

Glitch Capture: Capture of either positive, negative or alternate positive and negative glitches. Typically a 5-ns pulse can be captured with 80% confidence. There is a 100% confidence of capture to 95% of amplitude for a 30-ns pulse.

Averaging: From 2 to 256 sweeps.

Non-Volatile Memory

Waveforms: Up to 8 waveforms can be stored and recalled.

Set-Ups: Total of 4 set-ups can be stored.

Specifications continued on next page.

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Horizontal Deflection

Horizontal Display Modes: A, A intensified by B, A alt B, B only, X-Y, Refresh, Roll, Pre-Trigger Roll.

Horizontal Display Accuracy: ±3%.

A and B Delayed Sweep Range: 20 ns/div to 20 s/div. Sweep speeds faster than 250 ns/div use equivalent time sampling (ETS).

Horizontal Expansion: Expansion from x2 to x20 times to a maximum of 2 ns/div.

Trigger Delay: A or B sweep start can be delayed from either Trigger A or Trigger B, respectively. Delay can be either negative (pre-trigger), or positive (post-trigger).

Trigger Range:

Pre-Trigger: 0 to 100% with 0.1% resolution.

Post-Trigger:

Timebase Range	Max. Delay
20 s to 0.1 ms/div	99.9 s
50 µs to 50 ns/div	0.99 s
20 ns/div	0.4 s

Delay by Events: This will allow the B sweep to be delayed from A sweep by up to 999,999 events with maximum trigger frequency of 100 MHz.

Trigger:

There are two trigger systems A and B. Each system has similar specifications.

Trigger A:

Source: 4072: CH1, CH2, EXT A, LINE.
4074: CH1, CH3, EXT A, LINE.

Couplings: AC, DC, ACHP, ACLP, DCLP.
TV Line, TV Field 1.
DCLP, ACLP — (<15 kHz).
ACHP — (>15 kHz).

Trigger B:

Source: As Trigger A except use EXT B.

Couplings: As Trigger A. TV Line taken from A Source.

Slope: Selectable +ve, −ve.

Trigger Level: Variable. Level indicated on screen with marker.

External Input Impedance: 1 MΩ/20 pF.

External Input Protection: 200 VDC or pk AC.

Trigger Combinations: A and B Timebase can be triggered independently or in any combination of the following:
'A' Trigger only.
'A' Triggered then after Nth event.
'A' Triggered then after Nth event plus 'B' trigger delay.
'B' Trigger only.
'A' Triggered then after N x 'B' trigger events.

Trigger Output: Rear panel TTL compatible pulse corresponding to the trigger point on the display.

Cursor Measurements

Voltage and time differences between the measurement and datum cursors are automatically displayed.

IEEE-488 Interface

Read and Write Functions: All front panel controls are fully programmable.

Data can be read from and written to all of the memories.

All on-screen alpha-numerics can be read remotely.

The computer can display messages on the display in 14 lines of 32 characters each.

RS-423 (RS-232C) Interface

Specification: All of the functions available via the IEEE-488 Interface are available via the RS-423 Interface.

Baud Rate: 50, 110, 300, 600, 1200, 2400, 4800, 9600 selectable via menu.

Digital Plotter Interface

The instrument can directly address HPGL format plotters via either the IEEE-488 or RS-423 Interface. This plots out either menus or traces. The trace plots will include cursor information, range settings, date and time.

Color: Different colors selected for traces and the grid when multicolor plotters are used.

Internal Plotter

Direct digital plots to the internal multicolor plotter can be selected by the menu to be in the same format as above.

Analog Plotter Output

Analog Dual

4072: Simultaneous output of X with Y1 and Y2 outputs.

4074: As 4072 followed by output of X with Y3 and Y4 outputs.

Analog Single

4072: Individual plot of single Y channel plus X output (allowing 2 channels to be plotted sequentially from the socket).

4074: As 4072, but all 4 channels plotted sequentially.

Auto Plot

Initiates a plot at end of acquisition, then re-arms instrument at end of plot.

Power Requirements

Voltage: 90 V - 260 VAC. No switching required between voltage ranges.

Frequency: 45 - 440 Hz.

Power: 200 W max.

Ordering Information

Part Number	Description
0409-4720	4072 2-Channel Digital Oscilloscope
0409-4740	4074 4-Channel Digital Oscilloscope
0409-4773	170A Waveform Processor
0409-4775	270 Waveform Processor

Waveform Processor

See types 170A and 270 on page 68.

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