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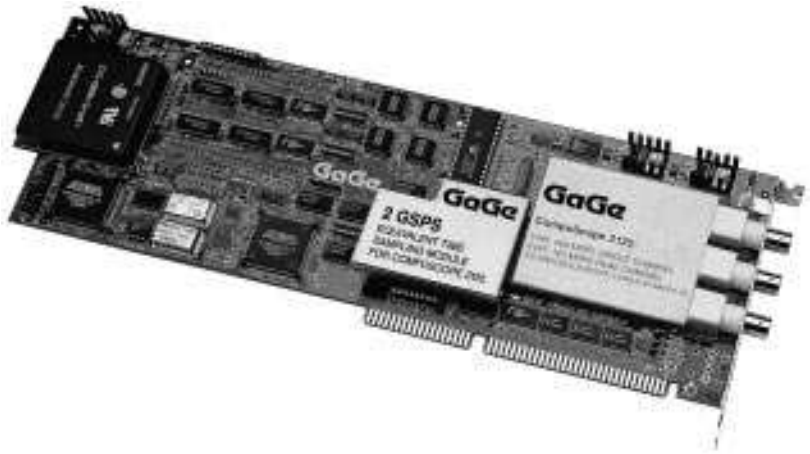
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Find the *DynamicSignals / GaGe CompuScope 2125* at our website: *Click HERE*

CompuScope 2125

Ultra-fast IBM PC Based Data Acquisition Card with Oscilloscope Software

CompuScope 2125 is a family of ultra-high speed data acquisition cards which can digitize analog signals at real time sampling rates of 250 MSPS with optional 2 GS/s equivalent time sampling rates.



COMPUSCOPE 2125

The CompuScope 2125 digitizes analog signals with a resolution of 8 bits at a sampling rate of up to 250 MSPS and stores the resulting digital pattern in the on-board memory.

The IBM PC is then allowed to access the memory and retrieve the data for further processing.

250 MSPS SAMPLING

The CompuScope 2125 uses two monolithic flash A/D converters, each running at 125 MSPS.

In the single channel mode the two ADCs are clocked in a “ping-pong” mode to achieve up to 250 MSPS sampling.

On-board programmable gain amplifiers and offset control circuits ensure measurement accuracy and long term thermal stability.

OPTIONAL 2 GS/s EQUIVALENT TIME SAMPLING

The optional ETS module allows the CompuScope 2125 to sample repetitive signals at speeds up to 2 GS/s.

Utilizing the industry standard Random Equivalent Time sampling techniques, the ETS module brings a new level of performance to the PC based Instrumentation industry.

SYSTEM ARCHITECTURE

Architecturally, CompuScope 2125 is very similar to a Digital Storage Oscilloscope. Even the front-end electronics are designed to be of oscilloscope quality and specifications.

This was done so that the user can design the data acquisition system the same way as if an oscilloscope, the best-known of all electronic instruments, were being used.

NO GPIB REQUIRED

Once the system has been designed, a CompuScope 2125 can easily be substituted for the oscilloscope to take advantage of the small size, low power, high data transfer rate, simple programming, straightforward interface to PC without GPIB and low cost offered by the CompuScope 2125 over a comparable DSO and GPIB solution.

MEMORY DEPTH

CompuScope 2125 is currently available with memory depths of 256 K, 1M, 4M and 8 Msamples.

In the single channel mode, the maximum number of sample points is equal to the memory depth of the CompuScope 2125 model being used, whereas in the dual channel mode the maximum number of sample points is half the memory depth.

For example, in the 256 K model there are 262,144 sample points for channel A in the single channel mode, but only 131,072 points per channel in the dual channel mode.

Each sample occupies one byte.

The data stored in the CompuScope 2125 memory can be transferred to the PC memory or hard disk for post processing without any interface bus. In fact, the CompuScope 2125 memory is mapped into the memory map of the IBM PC, so it can be accessed just as easily and quickly as the PC’s own memory.

Data throughput to the PC memory is in excess of 2 MB/s on a Pentium based machine.

HIGH TRANSFER RATE

The fast data transfer rate to PC’s memory allows the CompuScope 2125 to be used in applications which have a high Pulse Repeat Frequency (PRF).

Data can be captured by CompuScope 2125 and transferred to PC’s memory in a tight loop up to thousands of times per second.

Of course, the maximum achievable repeat frequency depends upon the amount of data being transferred.

INTERRUPT CAPABILITY

CompuScope 2125 can be made to interrupt the 80x86 processor upon receiving a trigger, upon completion of data storage or upon filling up the memory. Interrupts are selected via switches on the card.

PRE-TRIGGER DATA

Due to the digital nature of the CompuScope 2125, it is capable of storing both pre- and post-trigger data, making it a very powerful tool for transient analysis.

The amount of post-trigger data can be specified in a GageScope menu or via software, the remaining memory is pre-trigger memory.

COAXIALLY SHIELDED RELAYS

The CompuScope 2125 uses coaxially shielded reed relays for signal switching. The coaxial shielding helps guard against EMI from the noisy environment inside an IBM PC.

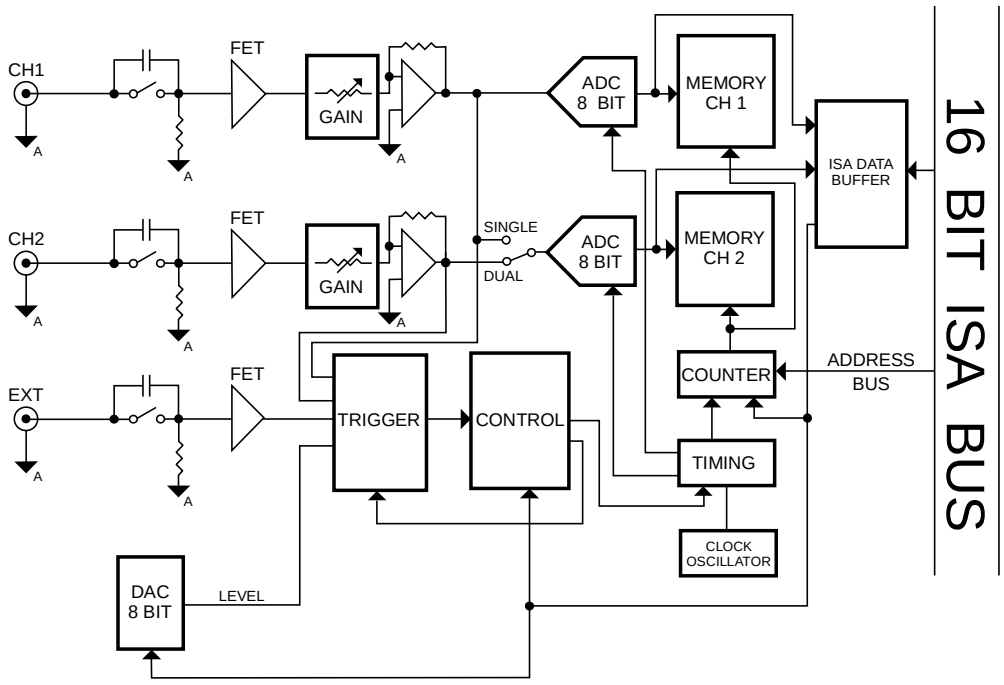
In addition to the shielding, the eight-layer CompuScope 2125 printed circuit board also protects sensitive analog signals with three power planes.

COMPUSCOPE 2125 FEATURES

- 2 GS/s Sampling for Repetitive Signals
- 250 MSPS Sampling for one-shot signals
- 125 MSPS simultaneous sampling on 2 channels
- 8 Bit Resolution
- 125 MHz Bandwidth
- 42 dB Signal to Noise Ratio
- Up to 8 Meg Memory
- Up to 8 Cards in One PC
- Extensive Software Drivers

GaGe

CompuScope 2125 Block Diagram



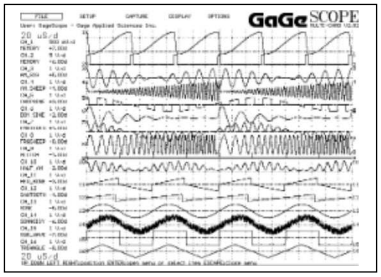
FLEXIBLE TRIGGERING

CompuScope 2125 features state-of-the-art windowed triggering.

Two independent comparators provide triggering from either one or both channels, from an external signal or a logical combination of them all at two independent trigger levels with independent trigger slopes.

FREE GAGESCOPE DIGITAL OSCILLOSCOPE SOFTWARE

CompuScope 2125 is accompanied by a free copy of the powerful, full color GageScope software which allows the CompuScope 2125 to be used as a digital oscilloscope.



Software features include real-time screen updates, real-time control of oscilloscope parameters, cursor measurements, zoom capability, optional X-Y display, optional FFT, optional Averaging etc. Please see the specification sheet on GageScope for more details.

DRIVERS AND OEM SUPPORT

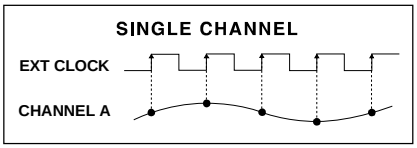
Gage's OEM Support Program offers qualified developers and OEMs the support to make the CompuScope 2125 a part of their products.

Gage supplies drivers for the CompuScope 2125 for DOS, QNX, Windows 3.1, Windows 95 and Windows NT operating systems and third party packages such as HP VEE, LabVIEW etc.

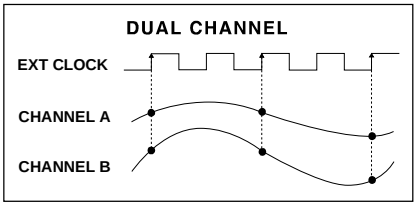
EXTERNAL CLOCK

An external clock option can be ordered from the factory in situations where a special sampling frequency is desirable.

In the single-channel mode, the input signal is sampled at every rising edge of the External Clock.



In the dual channel mode, sampling is done on every other edge of the External clock, i.e. sample rate is half the frequency of the External Clock.

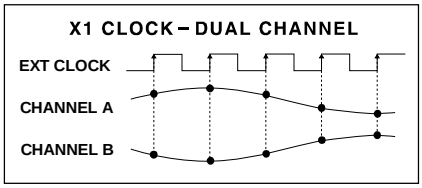


External Clock must be a TTL signal with a maximum frequency of 250 MHz.

The rise and fall times of the clock signal must be better than 8 ns for proper operation at the peak sample rates. A minimum pulse width of 5 ns must be respected.

X1 EXTERNAL CLOCK

A special external clock upgrade can be ordered from the factory which allows the hardware to simultaneously sample both inputs on every low-to-high transition of the External Clock, instead of every other one.



SOFTWARE DRIVERS

DOS Drivers

- Source Code for Borland C
- Source Code for Visual C
- Source Code for Watcom C

Windows 3.1 DLL

- Visual C++/ Borland C++
- Visual BASIC for Windows
- Turbo Pascal for Windows
- HP VEE
- LabVIEW for Win 3.1
- LabWindows CVI for Win 3.1
- Visual Designer
- Hypersignal

Windows '95 DLL

- Visual C++
- LabVIEW for Windows 95
- LabWindows CVI for Win 95

Windows NT DLL

- Visual C++
- LabVIEW for Win NT
- LabWindows CVI for Win NT

QNX Drivers

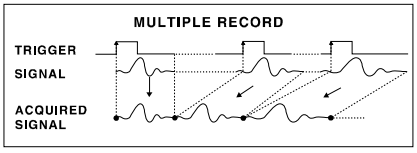
- Source Code for Watcom C

The maximum External Clock frequency for a CompuScope 2125 with the X1 Clock Upgrade is 125 MHz.

It must be noted that it is not possible to operate the card in single-channel mode once this upgrade is performed.

MULTIPLE RECORDING

Multiple recording, a standard feature, allows the CompuScope 2125 to capture data on successive triggers and stack it in the onboard memory.



GageScope software can display the stacked data as individual acquisitions. Software drivers also provide support for accessing the stacked data.

This is useful for applications in which a series of bursts of data have to be captured in quick succession.

GATED DIGITIZATION

A Gated Digitization option can be ordered from the factory. Data is stored in the RAM only when the external TTL GATE input is HIGH.

This can be useful when it is desirable to stack successive data captures in the onboard memory.

Rise and fall times of the GATE signal must be better than 50 ns.

POWER-DOWN MODE

CompuScope 2125 can be powered down when not in use, so it does not consume power needlessly.

SOFTWARE SELECTABLE 50Ω INPUT IMPEDANCE

CompuScope 2125 allows the user to select the input impedance to either be 1 MΩ or 50Ω. This is done by switching an on-board relay which selects the appropriate terminating resistor.

APPLICATIONS

Digital Oscilloscope
Ultrasonic Testing
Laser Doppler Anemometer
Laser Diode Characterization
Lidar
Non Destructive Testing
Ultrasonic Materials Testing
Disk Drive Testing
Acoustic Emission Testing
Radar Signal Analysis
Telephony
Explosion Testing
Spectrum Analysis
Vibration Analysis
Nuclear Instrumentation

2 GS/s Sampling

CompuScope 2125 / ETS

The CS2125 ETS Module is an option that customers can purchase for applications which require very fast digitization of repetitive signals.

The CompuScope 2125/ETS offers Equivalent Time Sampling Rates for repetitive signals of up to 2 GS/s and Real Time Sampling rate for one-shot signals as high as 250 MSPS.

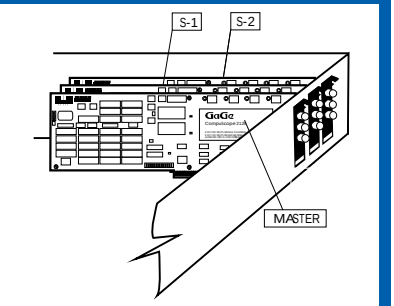
The combination of very fast Equivalent and Real Time sampling rates makes the CompuScope 2125/ETS unique in its class of products.

Disk Drive Testing and other Manufacturing Test applications benefit the most from the CompuScope 2125/ETS not only because of the fast sample rate but also the fast data throughput to the IBM PC it offers - almost 15 times faster than a DSO-GPIB combo.

The CompuScope 2125/ETS utilizes Random Equivalent Time sampling to digitize repetitive waveforms. This method involves digitizing the input signal repeatedly using the same trigger conditions and then rebuilding the signal in software.

The main advantage of Random Equivalent Time Sampling, as opposed to other methods such as Sequential Equivalent Time sampling, is that it allows both pre- and post-trigger data to be captured.

MASTER / SLAVE MULTI-CARD SYSTEMS



One of the most unique features of the CompuScope cards is the Multi-Card system that can be configured.

A Multi-Card system, comprised of one Master and up to 7 Slave boards, can be ordered from the factory if the user wants to capture more than two channels with a common clock and trigger. A board to board interconnect will be supplied with the system. This interconnect carries all the signals needed for proper synchronization.

GageScope Multi-Card software can then display up to 32 channels from these boards on the same screen.

Software drivers also support such Master/Slave systems.

ORDERING INFORMATION

Product	Part Number
CompuScope 2125 - 256K	125-101-002
CompuScope 2125 -1M	125-101-003
CompuScope 2125 - 4M	125-101-004
CompuScope 2125 - 8M	125-101-005
GageScope Single-Card	Included
GageScope Multi-Card	200-001-002
GageScope: FFT Module	200-001-003
GageScope: X-Y Module	200-001-004
GageScope: Averaging	200-001-005
GageScope: Maintenance Program	200-111-123
256K to 1M Upgrade	125-181-001
256K to 4M Upgrade	125-181-010
256K to 8M Upgrade	125-181-011
1M to 4M Upgrade	125-181-012
1M to 8M Upgrade	125-181-013
4M to 8M Upgrade	125-181-014
External Clock Upgrade	125-181-002
X1 External Clock Upgrade	125-181-015
Master Multi-Card Upgrade	125-181-003
Slave Multi-Card Upgrade	125-181-004
Gated Digitization Upgrade	125-181-006
Periodic Re- Calibration	125-181-007
2 GS/s ETS Option	125-181-008
Gage Driver Pack	200-113-000
Driver Maintenance Program	200-111-124
Driver Pack Maintenance Program	200-111-125
CompuScope C Drivers	200-113-001
CompuScope Quick BASIC Drivers	200-113-002
CompuScope Windows 3.x DLL	200-113-005
CompuScope LabVIEW for Win 3.1	200-113-006
CS LabWindows CVI for Win 3.1	200-113-007
CompuScope Windows NT DLL	200-113-008
CompuScope Windows '95 DLL	200-113-009
CompuScope LabVIEW for Win 95	200-113-010
CompuScope LabVIEW for Win NT	200-113-011
CS LabWindows CVI for Windows 95	200-113-012
CS LabWindows CVI for Windows NT	200-113-013
CompuScope QNX Driver	200-113-014
CompuScope HP VEE Drivers	200-113-016
CS DSO Replacement Driver	200-113-017
X10 / X1 Probe, Extra	220-100-001
X100 Probe	220-100-002

All Upgrades performed at the factory

COMPUSCOPE 2125 SPECIFICATIONS

SYSTEM REQUIREMENT

IBM PC AT, 386, 486, Pentium or ISA compatible PC with 640 kilobytes of RAM, VGA, graphics card and monitor and 1MB hard disk space. 80x87 coprocessor recommended.

SIZE

Single-slot full-length 16 bit ISA PC board

POWER

20 Watts at + 5 Volt, 5W in power down
1 Watt at - 12 Volt, 1W in power down
15 Watts at + 12 Volt, 0.5W in power down

CHANNELS A & B

Inputs per card :	2
Impedance :	1 MΩ, 25 pF or 50 Ω Software selectable
Coupling :	AC or DC
Bandwidth :	125 MHz
Resolution :	8 bits
Voltage Range :	±200mV, ±500mV, ±1V, ± 2V and ±5V
Amplitude :	Absolute Max ±15 Volts
Accuracy :	± 2 %
Sampling Rate	
Channel A:	250 MSPS max 125 MSPS,100 MSPS, 50 MSPS, 20 MSPS,...
Channel B:	125 MSPS max 100 MSPS, 50 MSPS, 20 MSPS, 10 MSPS, ...
Aperture jitter :	5 ps, rms
Memory Depth	Programmable with 64 (*128*) sample resolution in dual (*single*) channel mode
Channel A :	up to full on-board memory
Channel B :	up to half on-board memory
SNR :	42 dB @ 125 MSPS 4 MHz input in ±1V range
Protection :	Diode Clamped
Connector :	BNC

MEMORY DEPTHS AVAILABLE

Memory Depth:	256 K, 1M, 4M and 8MB

OPTIONAL EQUIVALENT TIME SAMPLING

Sample Rate :	2 GS/s, 1 GS/s, 500MS/s and 250 MS/s
Inputs :	Always in dual channel mode
Bandwidth :	125 MHz
Averaging :	Up to 22 acquisitions
Record Length :	1024 points default, expandable using the drivers

TRIGGERING

Source :	CH A, CH B, Ext or Kbd
Type :	Analog windowed triggering with two trigger levels
Levels :	256 per trigger level
Slope :	Positive or Negative
Mode :	Pre, Mid, or Post-trigger
Post Trigger Data:	128 points minimum can be defined with a 64 point resolution in dual channel mode and 128 points in single channel mode.

EXTERNAL TRIGGER

Impedance:	1 MΩ, 25 pF
Amplitude :	Absolute Max ±15 Volts
Voltage Range:	±1 V and ±5 V
Coupling :	AC or DC
Bandwidth :	100 MHz
Connector :	BNC

EXTERNAL CLOCK

Max. Freq. :	250 MHz
Signal Level :	TTL or 0 to 2 Volt sine wave ECL input option available - contact factory

MULTIPLE RECORD

Pretrigger Data:	None
Record Length:	128 points minimum can be defined with a 64 point resolution in dual channel mode and 128 points in single channel mode.

MULTICARD SYSTEMS

Maximum Number:	
Of Cards:	8
Of Channels:	16 at 125 MSPS 8 at 250 MSPS

TRANSFER RATES

On board RAM to PC Memory:	2 MB/s

INTERRUPTS

Interrupt Lines :	IRQ4, IRQ5, ... Switch Selectable
Interrupt on:	Trigger, End of Capture, Memory Full

DISPLAY (GAGESCOPE SOFTWARE)

Traces :	Up to 32. Either from hardware, disk or math
Timebase :	10 Ms/div to 1 ns/div
Vertical Scale :	1KV/div to 1 mV / div
Scrolling :	All channels
Trigger Marker :	Displayed on screen
Cursors :	Absolute, dV and dT

OUTPUT (GAGESCOPE SOFTWARE)

Hard Copy :	HP LaserJet, HP InkJet or Epson dot matrix
File Format :	GageScope binary format, 2 column ASCII

MATHEMATICAL ANALYSIS

Functions :	Addition, Subtraction, Multiplication or Division of up to any three channels
Optional FFT :	Up to 4096 point dual channel FFT
Optional X-Y :	Up to 4096 point continuous or unlimited single shot display of any two channels
Optional Averaging :	Up to 4096 point continuous

SOFTWARE DRIVERS

DOS Based CompuScope Drivers

- Borland C / Visual C
- Quick BASIC
- Protected Mode Pascal

Windows 3.1 DLL

- Visual C++ / Borland C++
- Visual BASIC for Windows
- Turbo Pascal for Windows
- HP VEE
- LabVIEW for Windows 3.1
- LabWindows CVI for Windows 3.1
- Visual Designer — Contact Gage for release Date
- Hypersignal — Contact Gage for release Date

Windows 95 DLL

- Visual C++
- LabVIEW for Windows 95
- LabWindows CVI for Windows 95

Windows NT DLL

- Visual C++
- LabVIEW for Windows NT
- LabWindows CVI for Windows NT

QNX Drivers

- Source code for Watcom C

MATERIALS SUPPLIED

One CompuScope 2125 card

One GageScope software package

Reference Manual

Two X10 / X1 Oscilloscope Probes

WARRANTY

One year parts and labor

All specifications subject to change without notice

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