

Teradyne 1890

The Teradyne 1890 test system provides a wide variety of board testing capabilities on digital, analog and hybrid circuit boards.

FEATURES

100VAC to 250VAC, 50/60Hz isolation transformer allows the tester to be move anywhere with just changing the jumpers
32pins per Driver/Receiver board

Analog Test

Programmable 3, 4, 6 wire measurement accuracy
Complete coverage of R, L, C, diode, transistor, op amp, A/D, D/A and more
Programmable voltage and current stimulus and measurement
Quadrature measurement for low value capacitors and parallel RC networks
Mix-mode testing



Vector Features

Vector Stimulus allows specifying drive high, drive low, or high impedance state for each pin and for each cycle.
Vector Measurement allows specifying expect high, expect low, or ignore for each pin and for each clock cycle.
Measurement enable timing
Vector enable specifies each pin at each clock cycle independently
Global Ignore specifies that all

Measurement types: Signature Analysis (CRC) up to 2 MHz, HICHECK identifies stuck high pins
Transition Counting (Count) up to 5 MHz
Duty Cycle (HIGH) up to 2 MHz
One COUNT or HIGH measurement per burst
COUNT and HIGH always run in separate bursts

Measurement enable timing:

Specified per measurement pin
All pins in a burst have same enable timing
Programmed in reference to Gray code frequencies

Pattern Depth: 32767 Max

Device Size Constraints: Disables: 128 nodes Max

Device pins in test 128 Max

Guards per test: 20 Max

Gray Code Features

Up to 14 Gray code frequencies (F1 through F14) and their complements (F1* through F14*), preset high (PH), preset low (PL), preset pulse (PP), logic high (LH), and logic low (LL) can be applied to the device-under-test in any combination. Connect and disconnect features also provide synchronous three-state function.

Digital Test

measure pins are ignored on a given clock cycle.
Pattern Depth:

Vector Processor board contains 1 Mbyte of memory, with 64k reserved for use by its microprocessor.

Remaining memory is available for test patterns.

Memory consumption is pattern-dependent.

Each clock cycle consumes at least 4 bytes.

No maximum pattern depth is enforced, but 100k patterns (Clock cycles) should be achievable.

Programmable clock rate: Clock Frequency = 2 MHz/CD, where CD=Clock Divisor
 $1 \leq CD \leq 200$

Default and Max Frequency: 2 MHz(CD=1)

Min Frequency: 10KHZ(CD=200)

Single clock for stim and measure

Hardware time-out: <32ms @ 2Mhz

Mixed Mode: Analog stimulus and measurement within digital test
Up to 10 analog pins per test step (device)

Single analog stimulus in each group

Single analog measurement per burst

Software ensure that analog measurement falls within digital burst



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NEA INC

Disable nodes:

Quantity limited only by tester hardware.
Disables can be any series of vector
disables are run before all digital tests.
Disable nodes hold their last state during

the test page burst.

Guard nodes:

Quantity limited only by tester hardware.
Guard nodes are specified as additional
nodes on the digital test worksheet.

Programmable clock rate

Separate clocks for stimulus and mea-
surement.

The stimulus clock reference is free-
running.

The period of stimulus clock reference is
programmable for each step.

Programming resolution: 25 ns

Clock Divisor (CD): $20 \leq CD \leq 32767$

Default and Minimum periods: 500ns (CD=20)

All stimulus pin changes are synchronous with
the stimulus clock

The measurement delay is programmable:

Programming resolution: 25 ns

Measurement Delay(MD): $4 \leq MD \leq$

CD

Default Period: 100 ns (MD = 4)

Minimum period: 100 ns (MD = 4)

Termination Resistors

Provide loads to measurement nodes

Choices: 1K and 500 Ohms to +5 V or ground, or
1K each to +5 V and grounds

Add ~500 pf to measurement node when selected

Defaults: No terminators selected

Software Features

Software can automatically learn response from
DUT

Software Timeout: The software timeout notifies
the user if a burst will exceed user-specified
timeout and will not run the burst.

Default: No Timeout

backdrive in a test program.

Default = 0

(Run at maximum speed, no enforce cool-
off)

Percent specified = Ratio off-time/backdrive time

Digital Specifications

Every pin has a unique driver

Every driver is capable of providing both Gray
code and vector stimulus

*Programmable Measurement Threshold Reference
Range:*

-2V to +10V, +/- 35 mV

*Driver/Receiver Boards - Digital measurement
Threshold comparison at Driver/Receiver board
Receiver Specs:*

Threshold detection accuracy:

threshold reference: +/- 200 mV

Input Voltage Range: -10V to +10V, response
only pin

0V to +5V, stim and response pin

Open receiver input defaults to Logic High

Input Resistance: 4k Ohm, minimum

Analog Specifications

Shorthand Test Mode:

Test limits may be calculated by adding the
following:

Shorthand accuracy tolerance

System resistance, capacitance, or
inductance

Longhand Mode:

Test limits maybe calculated by the considering

Simulus tolerance

System resistance, capacitance, or
inductance (if not subtracted)

Measurement tolerance

Device under test tolerance



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