

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

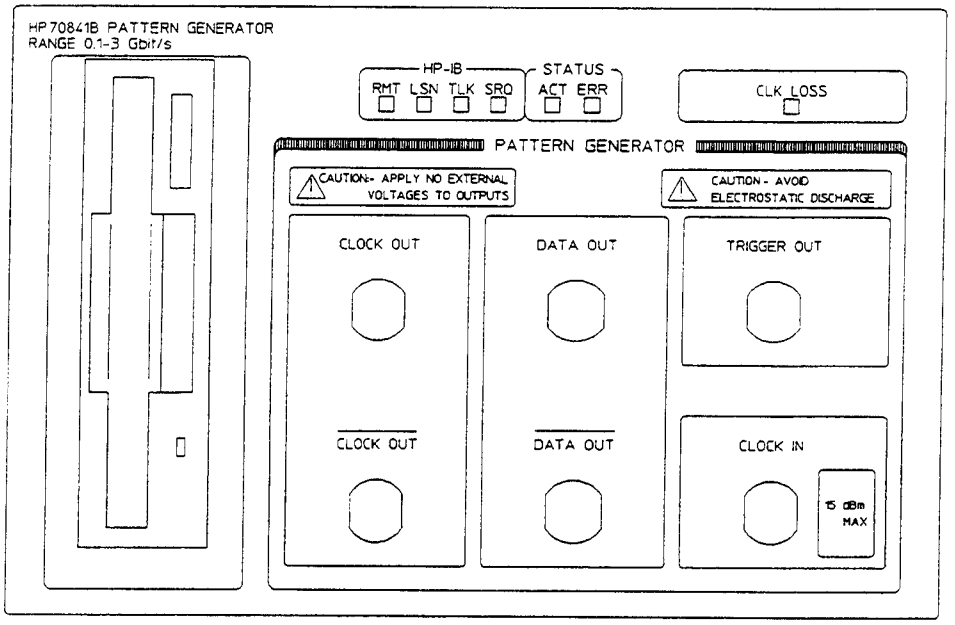
- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Keysight / Agilent 70800B* at our website: ***Click HERE***

HP 70841B Pattern Generator



Description

The HP 70841B pattern generator module in Hewlett-Packard's Modular Measurement System (MMS) occupies a 4/8 module slot and has eight Input/Output ports, six on the front panel and two on the rear panel. A floppy disc drive enables the user to store user defined patterns up to 4 Mbits in length.

Specifications

The following gives an abbreviated version of pattern generator module specifications; refer to the HP 71600B Series Installation and Verification manual for detailed specifications.

Operating Frequency Range

HP 70841B: 100Mbit/s to 3 Gbit/s

Patterns

The following test patterns are provided:

PRBS Test Patterns:

- 2^{31}-1, polynomial $D^{31}+ D^{28}+1=0$, inverted.
- 2^{23}-1, polynomial $D^{23}+ D^{18}+ 1=0$, inverted (as in CCITT Rec 0.151).
- 2^{15}-1, polynomial $D^{15}+ D^{14}+ 1=0$, inverted (as in CCITT Rec 0.151).
- 2^{10}-1, polynomial $D^{10}+ D^{7}+ 1=0$, inverted.
- 2^{7}-1, polynomial $D^{7}+ D^{6}+ 1=0$, inverted.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Zero Substitution/Variable Mark Density Test Patterns

- 8192 bits, based on 2^{13}-1 PRBS;
- 2048 bits, based on 2^{11}-1 PRBS;
- 1024 bits, based on 2^{10}-1 PRBS;
- 128 bits, based on 2^{7}-1 PRBS;

Zero Substitution

Zeros can be substituted for data to extend the longest run of zeros in the above patterns. The longest run can be extended to the pattern length, minus one. The bit after the substituted zeros is set to 1.

Variable Mark Density

The ratio of 1s to total bits in the above patterns can be set to 1/8, 1/4, 1/2, 3/4 and 7/8.

Word Test Patterns

Variable length user patterns from 1 to 4194304 bits are provided.
Resolution from:
1 to 32 kbits in 1-bit steps.
32 kbits to 64 kbits in 2 bit steps
64 kbits to 128 kbits in 4 bit steps
128 kbits to 256 kbits in 8 bit steps
256 kbits to 512 kbits in 16 bit steps
512 kbits to 1 Mbits in 32 bit steps
1 Mbits to 2 Mbits in 64 bit steps
2 Mbits to 4 Mbits in 128 bit steps

Pattern Stores

Four internal user pattern stores capable of holding up to 8192 bits, and eight disc pattern stores capable of storing up to 4 Mbits of data are provided.

Alternating Word Test Patterns

Alternate between two user-programmable 16-bit words under the control of the rear-panel Auxiliary input; changeover is synchronous with the end of the word.

Alternate Patterns

Switch between two patterns (A and B) with the switch occurring at the end of a pattern. There are two modes of operation as follows:

- Switch between two data patterns (A and B), for example from (A to B) or (B to A).
- Enable a single insertion of a number of instances of pattern B to be output. The number of *B* instances is equal to the smallest integral multiple of the pattern length, that divides exactly by 128.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Patterns A and B must be as follows:

- The same length.
- 1 bit to 2 Mbits in length.

Resolution

1 bit to 16 kbits in 1 bit steps
16 kbits to 32 kbits in 2 bit steps
32 kbits to 64 kbits in 4 bit steps
64 kbits to 128 kbits in 8 bit steps
128 kbits to 256 kbits in 16 bit steps
256 kbits to 512 kbits in 32 bit steps
512 kbits to 1 Mbits in 64 bit steps
1 Mbits to 2 Mbits in 128 bit steps

Add Errors

Single errors or fixed error rates from one error in 10^9 bits to one error in 10^3 bits may be added to the data. External errors may be input to the data via the rear panel ERROR INJECT port.

Error Inject

The rear panel ERROR INJECT input adds a single error to the data output for each rising edge (TTL levels) at the input.

Trigger Pulse

When a pure PRBS is selected (2^{n-1}), the TRIGGER OUTPUT produces a pulse which is either synchronized to the pattern (Pattern mode) or is the input clock divided by 32 (Clock/32 mode).

In PATTERN mode the trigger pattern that the user has entered is matched to the pattern being generated and a trigger pulse is output when the two correspond. If an alternating - word pattern is selected the trigger output pulse is either a regenerated version of the rear panel *AUX* input, which is used to switch between the words or the input clock divided by 32.

Trigger Pattern for Zerosub PRBS, Mark Density PRBS, or User Pattern

When either of the above patterns are selected the trigger pattern is selected with the `TRIGGER BIT` softkey, and can be set anywhere within the pattern.

Alternate Pattern Trigger

When an alternate pattern is selected, the user can select between a trigger pulse synchronized to the input or one pulse per pattern.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Frequency Measurement

Measure the incoming clock frequency to five significant digits. If an integral MMS clock source is used (for example HP 70311A or HP 70312A) then the frequency set up on this clock is displayed to ten significant digits.

Status Indicators

Front Panel LEDs:

Clock Loss: Indicates nominal low clock power at Clock Input.
HP-IB and HP-MSIB: Six LEDs indicate status.

Clock Input/Output and Data Output

Specifications for the Clock Input, Data Output and Clock Output ports, and Trigger Output are given in the HP 71600B Series Installation and Verification manual.

AUX INPUT

Introduction

The rear panel AUX INPUT port can be used to control alternate patterns, alternate words or inhibit data. The following paragraphs explain each mode of operation.

Auxiliary Input Control of Alternate Patterns

Path

(MENU) `select pattern` `user pattern` `ALT PAT CONTROL` `SOURCE AUX USR`

When `ALT PAT CONTROL` and `SOURCE AUX` are selected the instrument will output one of two patterns (A or B). The setting of the `OUTPUT ALT ONCE` softkey, and the signal at the rear panel AUX INPUT control which pattern is output in one of two modes as follows:

- `ALT` selected: The logic state of the signal at the AUX INPUT determines which pattern is output. A logic zero will output pattern A.
- `ONCE` selected: The rising edge of a signal (pulse width >100 ns) at the AUX INPUT causes a number of instances of pattern B to be output. The number of pattern B instances is equal to the smallest integral multiple of the pattern length that divides exactly by 128.

Note 

In both modes switching between patterns is at the end of a pattern and is hitless or error free.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP