20MHz Pulse/Function Generator

MODEL 8021

- **Popular output waveforms include: Sine, Triangle, Symmetrical Square, Positive and Negative Square waves, Positive and Negative going Ramps**

- **Bright 4 digits display; visible at any lighting condition**

- **Pulse output waveforms include: Symmetrical Pulse, Positive and Negative Pulses and Puls complements**

- **High resolution digital settings, either from the front panel or through the GPIB interface**

- **Parameters are set over exceptionally wide ranges**

- **Complete error detection for error-free operation**

- **Output may sweep, on a linear or on a logarithmic scale**

- **Built-in, independently-programmed, asynchronous trigger generator**

- **Complete GPIB programmability (with option 1installed)**

- **30 storable, non-volatile, front panel set-ups**

Model 8021 is a high performance pulse/function generator. It provides the basic features and functions as does the Model 8020. Additional waveforms include positive/negative going ramp, pulse and pulse complement. Pulse width and ramp width ranges are controllable within an extremely wide range of 25.0nS to 9.99S. Its versatility ensures a broad range of applications especially where complete control over pulse or ramp parameters is required. Rapid, repeatable testing is assured by thirty non-volatile front panel set-ups which give exact reproduction of previous tests no matter how complex.

Versatility
Using the microprocessor technology, the Tabor 8021 provides reliability and ease of operation in either manual or GPIB-IEEE 488 modes. Modification of parameters is digitally set over exceptionally wide ranges:

- **Frequency** - set from 2mHz to 20MHz
- **Amplitude** - set from 10mV to 15V
- **Pulse Width** - set from 25nS to 9.99
- **Ramp Width** - set from 5µS to 9.99s
- **Carrier Level** - set from 0% to 100%
- **Sweep Time** - set from 10mS to 1000S

The 8021 provides a variety of signal waveforms are used as test stimuli to many different electronic devices. Each model features as standard Sweep and VCO modes. Triggering facilities include Gated and Triggered modes and an internal trigger generator.

Alternately, the 8021 may also be used as independent sweep generators with their output signal swept over an exceptionally wide range of 10 decades. Eight built-in sweep modes, and a choice of linear or logarithmic scale, covers a great deal of applications. A marker having a programmable frequency is available. Its output, when connected to an oscilloscope provides Z-axis modulation for trace intensification. The 8021 features a non-volatile memory capable of storing 30 complete front panel set-ups including the last setup before power shut down. This feature ensures exact duplication of previous set-ups no matter how complex.

Precision
The 8021 employs a built-in frequency counter. This counter is incorporated in an internal closed loop which constantly monitors the output frequency. When deviation from the programmed frequency is sensed, the counter instantly sends correcting data to the microprocessor. Utilizing this procedure enhances the basic frequency accuracy to 0.1% -an uncommon figure in such a class of instruments.

Production Environment
Rapid repeatable testing every time is assured by special features, which reduce the potential of operator`s set-up error. Easy to understand panel layout and positive action buttons simplify operation even for less skilled user. Error messages in the readout warn of possible operator mistake. Any of 30 pre-programmed complete setup states, stored in a non-volatile memory can be recalled by a simple number, ensuring exact duplication of previous set-up no matter how complex. This feature saves a lot of time which is otherwise required to set up the instrument for different tests. All controls-choice of waveforms, setting of modifiers, and wave form output disconnect -are programmable through the GPIB interface. The last set-up state is automatically established on power turn-on, weather the power is off momentarily, over night or longer, ensuring exact continuation of the previous test. Storage of parameters include GPIB address is by a non-volatile memory. During system check-out the unit provides an error status report which may be recalled using the serial polling sequence.

TABOR ELECTRONICS Ltd.

The measure of perfection

20MHz Pulse/Function Generator

Model 8021

Service and Support

Beyond providing precision Test & Measurement instruments, Tabor Electronics provides unparalleled service and support, and is continuously finding new ways to bring added value to its customers.

Our after-sales services are comprehensive. They include all types of repair and calibration, and a single point of contact that you can turn to whenever you need assistance. As part of our extensive support, we offer individualized, personal attention Help Desk, both online and offline, via e-mail, phone or fax.

Tabor Electronics maintains a complete repair and calibration lab as well as a standards laboratory in Israel and USA. Service is also available at regional authorized repair/calibration facilities.

Contact Tabor Electronics for the address of service facilities nearest you.

Applications

For expert technical assistance with your specific needs and objectives, contact your local sales representative or our in-house applications engineers.

Manuals, Drivers, and Software Support

Every instrument comes equipped with a dedicated manual, developer libraries, IVI drivers, and software. However, if your specific manual is lost or outdated, Tabor Electronics makes it possible to log-on to its Download Center and get the latest data "in a click".

Product Demonstrations

If your application requires that you evaluate an instrument before you purchase it, a hands-on demonstration can be arranged by contacting your local Tabor Electronics representative or the Sales Department at our Corporate Headquarters.

Three-year Warranty

Every Tabor Electronics instrument comes with a three-year warrantee. Each one has full test results, calibration certificate, and CD containing product's manual and complete software package. Our obligation under this warranty is to repair or replace any instrument or part thereof which, within three years after shipment, proves defective upon examination. To exercise this warranty, write or call your local Tabor representative, or contact Tabor Headquarters and you will be given prompt assistance and shipping instructions.

CORPORATE HEADQUARTERS
9 Hattasia St. P.O.Box404,
Tel Hanan, Israel 20302
☎ +972 (4) 8213393
FAX +972 (4) 8213388
www.taborelec.com

EUROPE

Austria
UEI-Viena
☎ +43 15451 588
FAX +43 15451 464

Benelux (Belgium, The Netherlands and Luxemburg)
BFI Optilas B.V.
☎ +31 172 44 60 60
FAX +31 172 44 34 14

Bulgaria
New-Tek Ltd.
☎ +359 296 25286
FAX +359 268 7110

Cyprus
Sprel Ltd.
☎ +357 2237 7159
FAX +357 2237 7284

Czech Republic & Slovakia
Testovaci Technika s.r.o.
☎ +420 2 7478 2237
FAX +420 2 7478 1285

Denmark
Atimco AS
☎ +45 8625 8899
FAX +45 8625 5889

France
Racal Instruments SAS
☎ +33 1 3923 2205
FAX +33 1 3923 2225

Germany
CompuMess Elektronik GmbH
☎ +49 89 321501-0
FAX +49 89 321501-11

Greece
American Technical Enterprises S.A
☎ +30 210 5240 740
FAX +30 210 5249 995

Hungary
ProMet Merestechnika
☎ +36 24 521 240
FAX +36 24 521 253

Italy
LP Instruments srl
☎ +39 2 4840 1713
FAX +39 2 4840 1852

Norway
Nortelco AS
☎ +47 2257 6100
FAX +47 2257 6130

Poland
Helmar
☎ +48 22 436 3106
FAX +48 22 436 3110

Romania
InterNET SRL
☎ +40 21 312 1662
FAX +40 21 312 1663

Russia
CDIP
☎ +7 0959 56 2022
FAX +7 0959 56 2022

Spain & Portugal
Instrumentos De Media SL
☎ +34 91 300 0191
FAX +34 91 388 5433

Sweden & Finland
Ferner Elektronik AB
☎ +46 8 760 8360
FAX +46 8 760 8341

Switzerland
Elstar Elektronik AG
☎ + 41 56 427 1888
FAX + 41 56 427 1976

United Kingdom & Ireland
SEMATRON UK Ltd.
☎ + 44 1256 812222
FAX + 44 1256 812666

Yugoslavia (Bosnia, Croatia, Macedonia,Montenegro, Serbia, Slovenia)
Mechanic & Electronic Measurement
☎ +43 1943 4254
FAX +43 1943 4251

ASIA PACIFIC & JAPAN

Australia
Trio Test & Measurement Solutions
☎ +61 8 8234 0504
FAX +61 8 8234 0130

India
AIMIL Ltd.
☎ +91 11 2695 0001
FAX +91 11 2695 0011

Japan
TOYO Corporation
☎ +81 3 3279 0771
FAX +81 3 3246 0645

Korea
ITB Corporation
☎ +82 2 549 8501
FAX +82 2 549 8502

New Zealand
Electrotest Ltd.
☎ +64 9 448 2600
FAX +64 9 448 2611

Philippines
Sunley Inc.
☎ +63 2751 1216
FAX +63 2815 0730

Singapore, Thailand & Vietnam
Gold Lite Engineering Pte Ltd.
☎ +65 6273 0487
FAX +65 6273 5006

Taiwan, China & Hong Kong
Precision International Corp.

Taiwan
☎ +886 2 85124888
FAX +886 2 85124900

China & Hong Kong
☎ +86 21 64401300
FAX +86 21 64400524

AFRICA

South Africa
Channels Measurement
☎ +27 11 254 8362
FAX +27 11 254 8451

MIDDLE EAST

Israel
Dan-El Technologies Ltd.
☎ +972 3 9271888
FAX +972 3 9271666

Turkey
Alfatek Test & Automation Ltd.
☎ +90 216 474 7355
FAX +90 216 474 7357

UNITED STATES

US SALES & SUPPORT OFFICE
☎ +1 909 7970484
FAX +1 909 7974955

IL, IN, IA, KS, KY, MN, MO, NE, ND, SD, WI
Base Eight, Inc.
☎ +1 847 670 1680
FAX +1 847 670 1737

AZ, CO, ID, MT, NM, TX, El Paso, UT, WY
Berry Technical Sales Inc.
☎ +1 303 665 9116
FAX +1 303 833 1294

AR, LA, OK, TX
Data Marketing Associates Inc.
☎ +1-972 661 0300
FAX +1 972 490 0836

OH, WV, PA, MI
Dytec EAST
☎ +1-330 405 8311
FAX +1 330 405 8313

DC, MD, VA
Eastern Instrumentation Corp.
☎ +1 410 884 7303
FAX +1 410 884 7306

PA, NJ
El Philly
☎ +1 856 231 0668
FAX +1 856 231 9022

HAW, NV, CA
Sierra Technical Sales
☎ +1 510 713 9957
FAX +1 510 713 9958

NJ, NY
Tera Technologies Inc.
☎ +1 888 921-TERA
FAX +1 888 449 2799

CT, ME, MA, NH, RI, VT
Test-Rep Associates, Inc.
☎ +1 978 692 8000
FAX +1 407 839 0337

AL, FL, GA, MS, NC, SC, TN
W.A Brown Instruments
☎ +1 407 648 9660
FAX +1 407 839 0337

CA, NV
W5 Inc.
☎ +1 949 212 1199
FAX +1 714 281 0767

CANADA
Testforce Systems Inc.
☎ +1 514 856 0970
FAX +1 514 856 6983

LATIN AMERICAS SALES & SUPPORT OFFICE
☎ +1 440 543 7710
FAX +1 440 543 9681

TABOR ELECTRONICS Ltd.

The measure of perfection

www.taborelec.com

WAVEFORMS

Sine, Triangle, Square, Positive Pulse, Negative Pulse, Pulse Complements, Positive Ramp, Negative Ramp, and TTL Pulse (SYNC output).

FREQUENCY CHARACTERISTICS

Range:	2mHz to 20MHz.
Resolution:	3 1/2 digits (2000 counts max).

ACCURACY

Continuous:	±3% of full scale, from 2mHz to 9.99Hz; ±0.1% of full scale, from 10Hz to 20MHz.
VCO and Gated:	±3% of reading, to 1.99MHz; ±5% of reading, to 20MHz.
Jitter:	< 0.1% ± 50ps.

WAVEFORM CHARACTERISTICS

Sine Wave Total harmonic distortion:	< 1%, from 2mHz to 19.9Hz; <0.5%, from 20Hz to 100KHz; <1%, from 100KHz to 1MHz.
Harmonic signals:	25dB below carrier, above 1 MHz.
Sine Flatness:	< 0.5dB, to 1MHz; < 1.5dB to 20MHz.
Triangle Linearity:	Better than 99%, up to100KHz.

SQUARE WAVE/PULSE

Transition Time:	< 12ns.
Aberration:	< 5%.

TTL PULSE

Rise/Fall time:	< 25ns.

OUTPUT CHARACTERISTICS

Stand-By Mode:	Output Normal or Disabled, selectable.
Impedance:	50Ω, ±2%.
Output Level:	20.0mV to 30.0Vp-p, into open circuit; 10.0mV to 15.0Vp-p, into 50Ω.
Resolution:	2 1/2 digits (150 counts).

Accuracy (1KHz):	±2% of reading, from 1.0V to 15.0V; ±4% of reading, from 10mV to 1.50V.
Output Protection:	Protected against continuous short to case ground.
Offset Range:	Offset and amplitude are independently selectable within a ±7.5 window.
Offset Resolution:	3 digits.

PULSE/RAMP CHARACTERISTICS

Pulse Modes:	Symmetrical Pulse, Positive Pulse, Negative Pulse and Complement.
Pulse width Range:	25.0ns to 9.99s.
Max Duty Cycle:	90% (limited by 25ns dead time).
Ramp Modes:	Positive or Negative going ramp.

Ramp

Frequency Range:	2mHz to 150KHz.
Ramp width Range:	5.00ms to 9.99s.
Max Duty Cycle:	90% (limited by 1mS dead time).
Width Resolution:	3 digits (999 counts max).
Width Accuracy:	25.0ns to 99.9ms, ± (3% + 4ns); 100ms to 9.99s, ±10%.

EXTERNAL PWM (Pulse Width Modulation)

Input:	Via front panel PWM IN connector.
Input Impedance:	10KΩ, ±5%.
Sensitivity:	±5V produces > 10% pulse width change, when instrument is set to 100 counts.

TRIGGERING CHARACTERISTICS

Source:	Manual (front panel push-button), external TRIG IN or internal trigger generator.

MODES

External Trigger:	Each input cycle generates a single output cycle.
Internal Trigger:	An internal timer repeatedly generates a single output cycle.

Gated:	External signal enables generator. First output cycle synchronous with trigger edge. Last cycle of output wave form always fully completed.
External Trigger:	TTL, positive going edge, 20MHz max.
Internal Trigger Period:	Continuously adjustable from 10s to 1000s.

LOGARITHMIC SWEEP CHARACTERISTICS

Modes:	Auto, Manual, Triggered or Gated sweep. Main frequency, when triggered, repeatedly changes from start frequency setting to stop frequency setting. Available sweep directions are: up, down, up-down and down-up.
Width:	10 decades maximum.
Rate per Decade:	continuously adjustable from 10ms to 1000s, NOMINAL, per decade.
Steps per decade:	Depends on sweep time and range. Automatically adjusted for maximum steps per sweep time. Maximum steps are 200; Minimum steps are 50.
Sweep Output:	2V/decade, for < 5 decades; 1V/decade, for > 5 decades.
Marker Output:	0V with no marker; drops to -5V, NOMINAL, when marker frequency is reached.
Sweep Stop Resolution:	Same as frequency resolution.

LINEAR SWEEP CHARACTERISTICS

Modes:	Same as in logarithmic sweep.
Sweep Width:	3 decades maximum.
Sweep Time:	continuously adjustable from 10ms to 1000s, NOMINAL.
Sweep Out:	0 to 10V, ±5%.
Sweep Steps:	Depends on sweep time and range. Automatically adjusted by the instrument to get the maximum steps per sweep time. Maximum steps are 1000; Minimum steps are 16.

Marker Output: Same as in logarithmic sweep

Sweep Stop
Resolution: Same as frequency resolution.

VCO (FM) CHARACTERISTICS

Input Impedance: 10KΩ, ±5%.
Sensitivity: 0V to -10V, ±20% produces frequency change 1/1000 from main frequency, when main frequency is set to 1999 counts.
Band Width: DC to 70KHz.
FM Sensitivity: 0V to ±100mV, modulates to 1% deviation from center frequency

OPTION 1 - GPIB INTERFACE

Programmability: All front panel controls.
Subsets: SH1, AH1, T6, TE0, L4, LE0, SR1, RL1, PP2, DC1, DT1, C0.

Data Output
Format: Fixed output format consisting of 15 or 17 ASCII characters plus terminators.
Data Input Format: ASCII characters lower or upper case. ASCII characters smaller than 20 HEX (32) are ignored except CR (0D HEX).
Service Request: Selectable for illegal commands, illegal parameters and errors.
String Termination: Selectable CR, LF, EOI or combination of all.
Address Selection: Front panel programming.

GENERAL

Display: 4 digits, 7 segment LED's 0.5" high.
Power: 115/230Vac, 50 or 60Hz, 50VA max.
Stored Set-ups: 30 complete sets of front panel set-ups. Storage guaranteed for 3 years.

Operating
Temperature: 0 to 40°C, ambient.
Specified
Accuracy: + 25°C, ±5°C.
Storage
Temperature: -40°C to + 70°C.
Dimensions: 3.5" x 8.3" x 15.4" (HxWxL).
Rack Mount
Dimensions: 3.5" x 19" (HxW).
Weight: Approximately 12Lbs.
EMC: CE marked
Reliability: MTBF per MIL-HDBK-217E, 25°C, Ground Benign
Safety: Designed to meet IEC 1010-1, UL 3111-1, CSA 22.2 #1010

Workmanship
Standards: Conform to IPC-A-610D
Supplied
Accessories: Power Cord, CD containing Operating Manual and developer libraries.
Warranty: 3 years standard

ORDERING INFORMATION

MODEL	8021

20MHz Pulse / Function Generator

OPTIONS

Option 1	GPIB Interface

ACCESSORIES

S-Rack mount	19" Single Rack Mounting Kit
D-Rack mount	19" Dual Rack Mounting Kit
Case Kit:	Professional Carrying Bag

Note: Options and Accessories must be specified at the time of your purchase.

TABOR ELECTRONICS Ltd.