

MG3641A/3642A

Synthesized Signal Generator

125 kHz to 1040/2080 MHz





—100 dBc (Non-harmonic spurious)
Signal
Purity



The pure quality you expect

People have always valued crystals like quartz as a symbol of purity and good luck — quartz was used as jewelry by the ancients and the crystal ball still represents good fortune. But today, quartz crystals play another role in leading-edge electronics. For example, clear and reliable digital cellular phones depend on the precise vibration of the quartz-crystal oscillator.

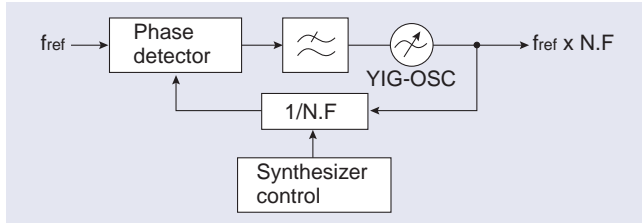
The worldwide proliferation of digital telephones requires ever-increasing capacity at even higher signal frequencies, and relies on signal purity in specified bandwidths. Anritsu developed the MG3641A and MG3642A Synthesized Signal Generators to meet the need for higher signal purity at higher frequencies. These two generators cover frequency ranges from 125 kHz to 1040 MHz, and 125 kHz to 2080 MHz with non-harmonic spurious of only -100 dBc and a setting resolution of 0.01 Hz/0.01 dB. A full lineup of easy-to-use versatile functions in a compact cabinet makes them essential tools for high-frequency measurement at on-site maintenance, as well as in R&D.

- 0.01-Hz, 0.01-dB Setting Resolution
- High Signal Purity (-100 dBc Spurious)
- Versatile Modulation Functions
- Excellent Carrier Wave Frequency Stability in FM Mode
- Frequency and Level Sweeping
- Large Memory for 1000 Panel Settings

Superior Basic Functions

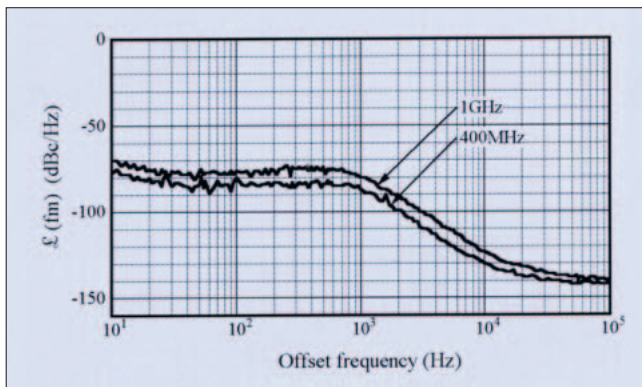
- **High resolution and low spurious**

Anritsu's synthesizer technology allows frequency to be set with a resolution of 0.01 Hz across the full frequency range. And the non-harmonic spurious is better than -100 dBc for reliable measurement at any frequency.



- **Excellent noise-free characteristics**

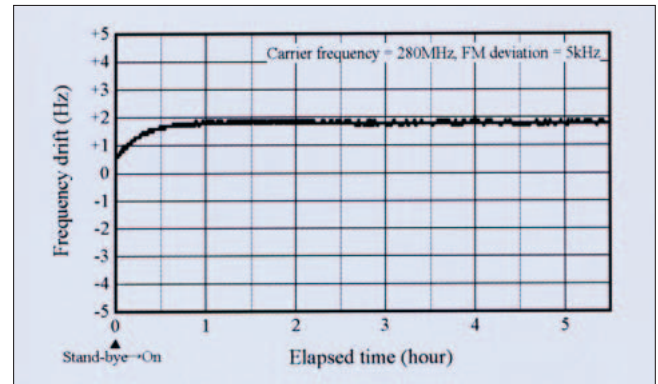
A unique low-noise YIG oscillator produces a high-purity signal with SSB phase noise of better than -130 dBc/Hz (1 GHz, 20-kHz offset), making these signal generators ideal for interference testing of radio receivers and as sources for various local and reference signals.



SSB Phase noise characteristic

- **High-stable carrier frequency**

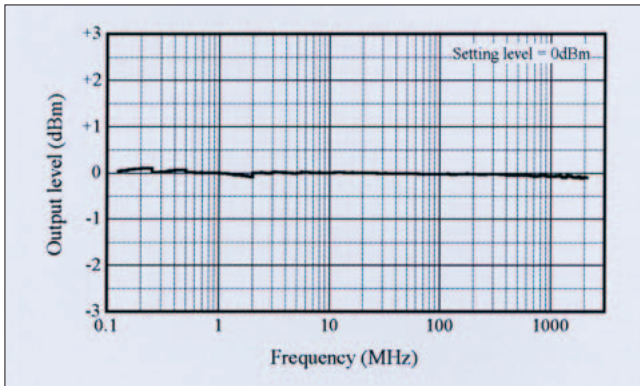
The carrier frequency is produced by a high-stability crystal oscillator and remains phase-locked even at frequency modulation. Frequency calibration for testing FSK modulation receivers, such as paging systems, is unnecessary.



Frequency stability of carrier wave at frequency modulation

- **Superior level accuracy**

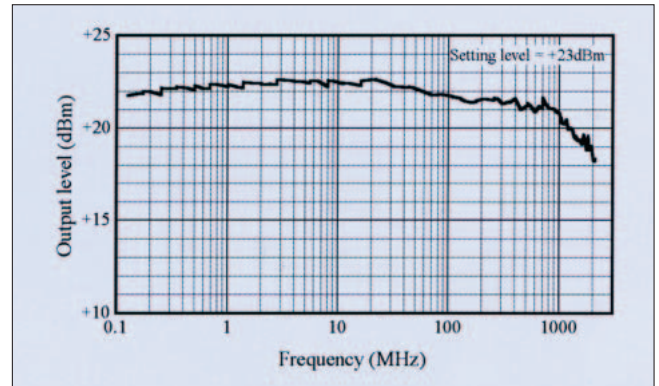
Since the output signal is compensated precisely across the full frequency range, the frequency-level characteristics are very good. In addition, the quadruple-shielding construction and high-accuracy/high-reliability step attenuator provide accurate output down to the lowest levels. The superior level accuracy enables precise measurement of high-sensitivity receivers.



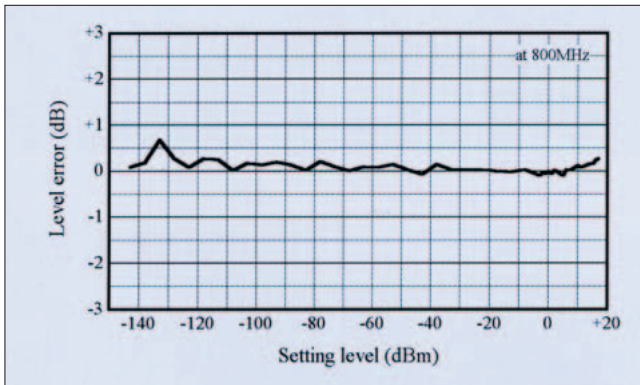
Output level frequency characteristics

- **High output**

A stable signal with an output of +17 dBm can be output across the full frequency range to drive a variety of local signal sources and power amplifiers. In addition, an over-drive level up to +23 dBm can be set to make full use of the internal amplifier capability. If the amplifier output power reaches the limit and the output power is insufficient, a status message is displayed. This is useful for confirming output limits.



Maximum output level



Output level accuracy

- **High resolution at level setting**

Since the output level can be set with a resolution of 0.01 dB over the entire level range, these synthesizers can be used as calibration signal sources for standards such as power meters.

Easy Operation and Easy-to-Read Displays

- **Basic parameters displayed on large screen**

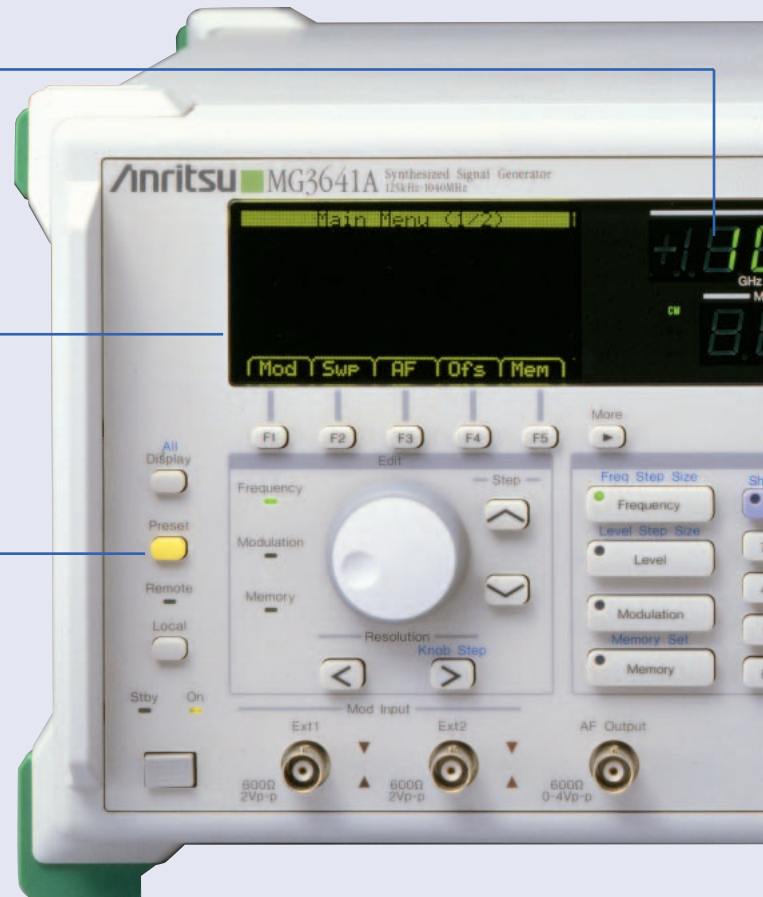
Basic parameters, such as frequency, output level, and memory address are displayed on an easy-to-read large 7-segment indicator.

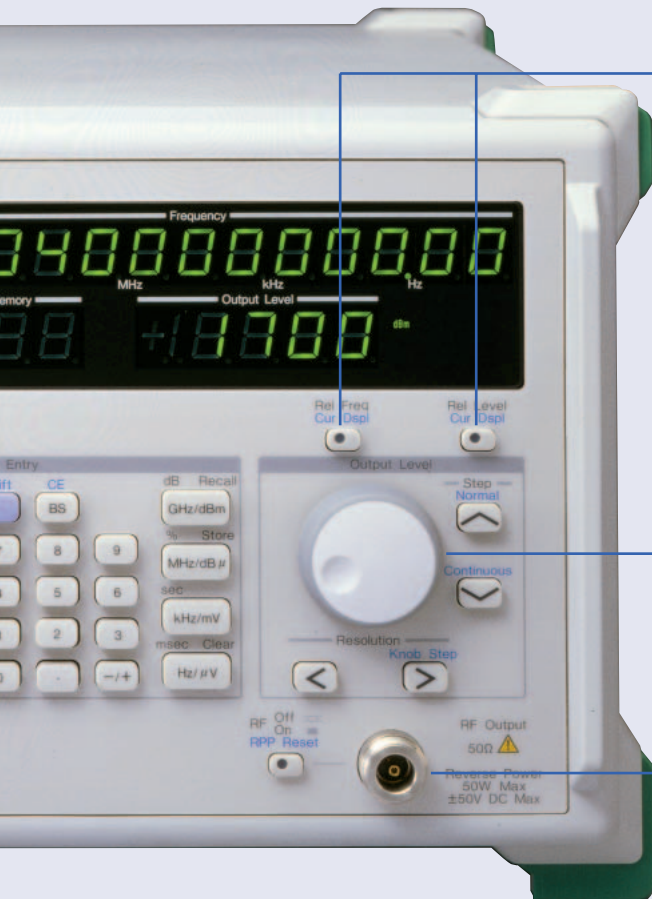
- **Simple displays for complex functions**

Parameters like modulation and sweeping are set using function keys under the multi-menu displays..

- **Initialization by Preset key**

Panel settings are initialized by the [Preset] key and the initialization contents can be tailored to the usage.





- **One-touch relative display**

The relative frequency and output level are displayed just by pressing these one-touch keys.

- **Dedicated rotary encoder for output level**

A dedicated rotary encoder and step keys for setting the output level are arranged near the output connector to increase/decrease the output level directly.

- **Internal reverse power protection**

An internal reverse power protection circuit protects internal circuits from damage even if a transceiver connected to the output connector transmits by mistake.

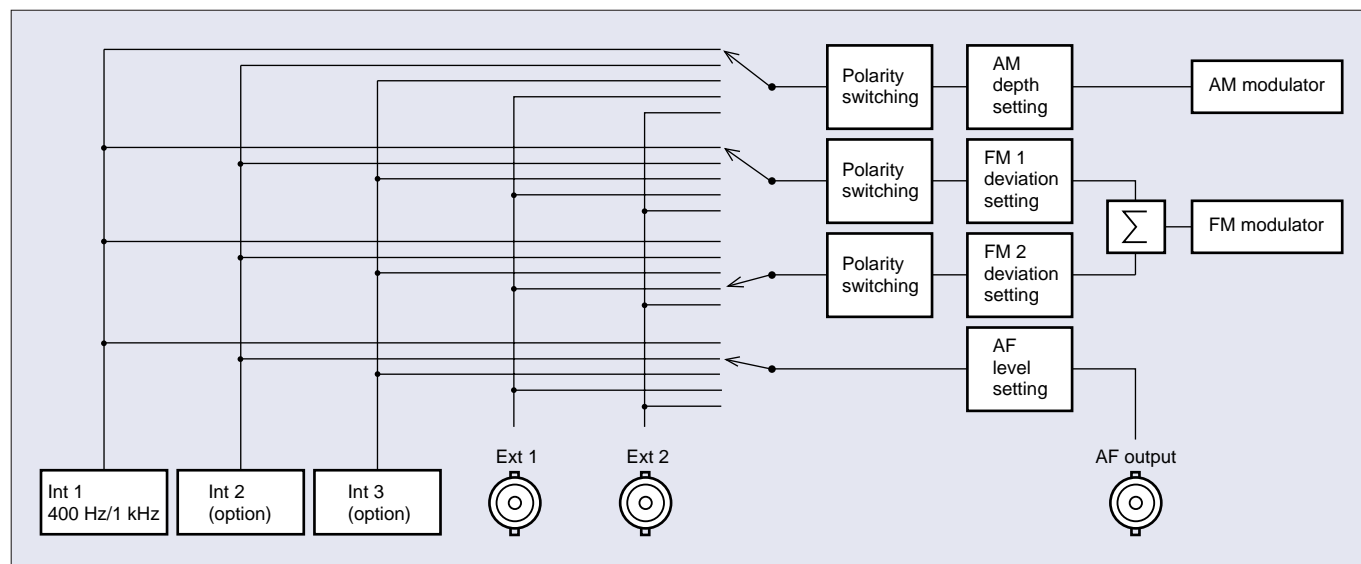


Versatile Modulation Types

• Three internal AF signal sources

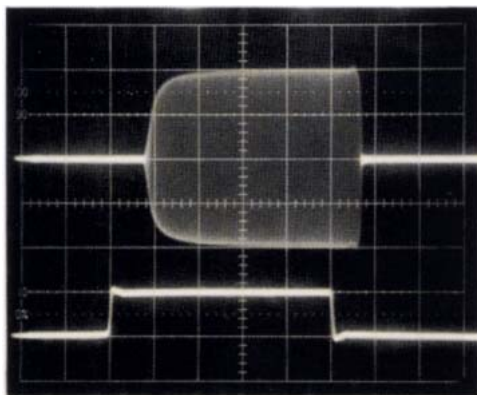
Up to three internal AF signal sources are supported by adding options to the standard sine-wave oscillator (1 kHz, 400 Hz). The AF synthesizer (Option 21) is a digital synthesizer that generates sine-wave, triangular, square, and sawtooth waveforms; it can also be used as a function generator as well as a modulation signal source.

All the AF sources have accurate frequencies because they are synchronized to the reference signal in the same manner as the carrier frequency. Moreover, they can be output from the AF output connector.



• Pulse modulation (Option 11)

High-speed pulse modulation is supported using an external modulation signal (TTL level). The output can be used for various burst signals with an ON/OFF ratio of more than 80 dB, as well as a pseudorandom signal for radar.



Pulse modulation waveform (100 ns/div)

• Simultaneous AM and FM modulation

In addition to permitting simultaneous one-route AM and two-routes FM modulation, the modulation factor and polarity can be set independently.

The modulation signal can be selected from three internal AF signal sources and two external input signals (Ext 1, Ext 2).

• Pattern generator (Option 23)

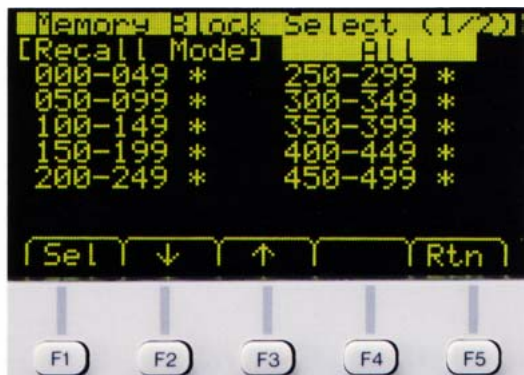
Installing the Pattern Generator (Option 23) in the MG3641A/MG3642A allows FSK modulation or pulse modulation in combination with the FSK Encoder (Option 22) or Pulse Modulator (Option 11) without an external instrument.

Full Function Lineup

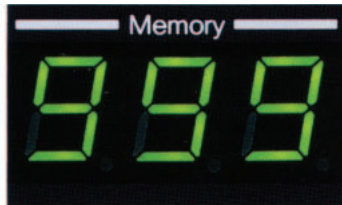
• Large memory

The large internal memory can save 1000 panel settings. The front panel has a dedicated display for memory addresses that can be recalled continuously using the knob, or the step keys.

The 1000 address memory is divided into 20 blocks of 50 units and continuous recall can be selected for each block. In addition, frequency settings can be continuously recalled with no impact on other parameters.



Memory block management menu

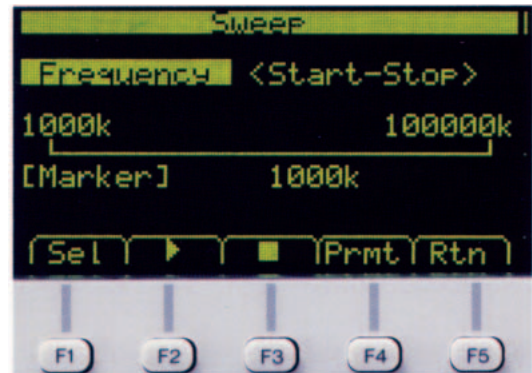


Memory address display

• Various sweep functions

Frequency and output level can be swept digitally for efficient measurement of device frequency characteristics, input/output linearity of various devices, and receiver spurious response.

Difficult-to-set sweep parameters are set easily at the multi-menu displays.



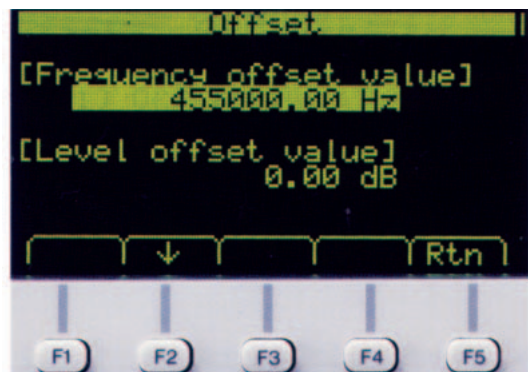
Sweep menu

• Continuously variable output

The level of the output signal can be set continuously without breaks over a 20-dB range. This is useful for testing devices and circuits where hysteresis depends on the input signal. Due to the 0.01-dB setting resolution, the level can be changed with analog-like variation.

• Offset display

The frequency and level of the actually output signal can be offset against the settings and displayed values. And the level at the output side of an amplifier or mixer connected to the output connector can be displayed and set.

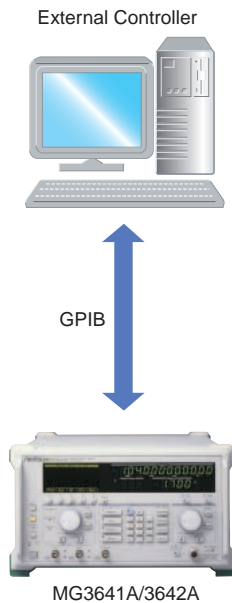


Offset display setting menu

Remote Control

• SCPI-standard GPIB commands

The GPIB control commands conform to the SCPI (Standard Commands for Programmable Instruments) recommendations. SCPI offers users common software for configuring automatic measurement systems, because it provides compatibility between different manufacturers.



• GPIB Command conversion mode

Operation can be controlled using GPIB commands for the earlier MG3633A or MG3631A/MG3632A Synthesized Signal Generators by using the GPIB command conversion function. This permits backwards compatibility with earlier automated measurement software.

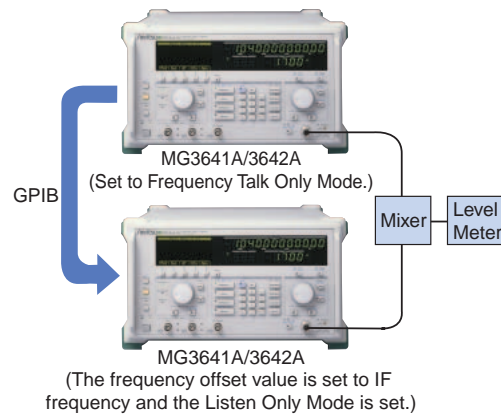
Note: Some commands cannot be converted due to functional differences.

• GPIB Only-Mode linked operation

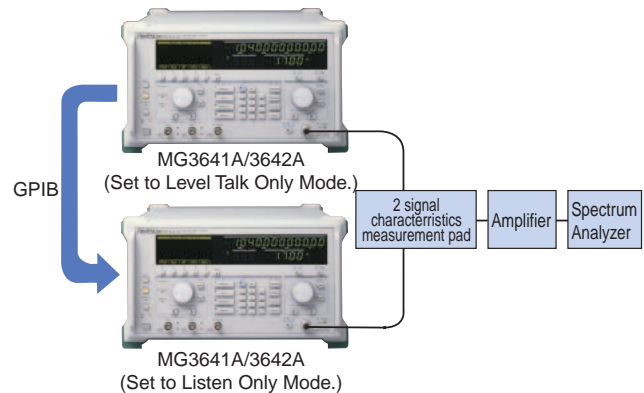
Two sets of the MG3641A/MG3642A can be linked and operated without an external controller by using the Frequency and Output Level Only modes.

The Frequency Only Mode is used for evaluating the characteristics of mixers.

The Level Only Mode is useful for evaluating the cross-modulation characteristics of non-linear devices, such as amplifiers.



Measurement of mixer characteristics using Frequency Only Mode and frequency offset



Amplifier IM3 measurement using Level Only Mode

Specifications

• MG3641A/3642A (mainframe)

Carrier frequency	Range: 125 kHz to 1040 MHz (MG3641A), 125 kHz to 2080 MHz (MG3642A) Resolution: 0.01 Hz Accuracy: Reference oscillator accuracy; reference oscillator accuracy ±(0.3% of FM setting deviation + 5 Hz) at frequency modulation Internal reference oscillator*1 Frequency: 10 MHz; Aging rate: ±5 x 10 ⁻⁹ /day; Start-up characteristics: 1 x 10 ⁻⁷ /10 min (for 24 h after power-on), Temperature stability: ±3 x 10 ⁻⁸ (0 to +50°C) External reference input: 5/10 MHz, ±10 ppm, ≥0.7 Vp-p/50 Ω (AC coupling), BNC connector (rear panel) Buffer output: 10 MHz, TTL level (DC coupling), BNC connector (rear panel) Switching time: <40 ms (external control, response time from last command until becomes within ±0.1 ppm of set frequency)																								
Output	Range: -143 to +17 dBm (settable range: -143 to +23 dBm) Units: dBm, dBμ, V, mV, μV (dBμ, V, mV and μV switchable between termination voltage display and open voltage display) Resolution: 0.01 dB Frequency characteristics (at 0 dBm): ±0.5 dB, ±1.0 dB (pulse modulation: on)*2 Accuracy: ±1 dB (-127 to +17 dBm, upper limit at pulse modulation*2: +12 dBm), ±3 dB (<-127 dBm) Impedance: 50 Ω (N connector), VSWR: <1.5 (≤-3 dBm), <2.5 (>-3 dBm) Switching time: <50 ms (normal mode), <100 ms (level safety mode), <10 ms (continuous mode) *Response time from last command until becomes within ±0.5 dB of final level Special setting mode Continuous mode: Variable within set value ±10 dB with no interruption of output Safety mode: Prevent large spike signal generation when operating mechanical-type attenuator Interference radiation: <0.1 μV (at output frequency), <1 μV (over entire frequency range, multi-menu display: OFF) *At 25 mm from cabinet measured with 25 mm diameter loop antenna (2 windings) terminated at 50 Ω																								
Signal purity	Spurious (CW mode, ≤+7 dBm) Harmonics: <-30 dBc (2nd, 3rd) Non-harmonic: <-100 dBc (≥15 kHz offset) Those related power: <-40 dBc (<15 kHz offset) SSB phase noise (CW Mode, 20 kHz offset): <-140 dBc/Hz (10 to <256 MHz), <-136 dBc/Hz (256 to <512 MHz), <-130 dBc/Hz (512 to 1040 MHz), <-124 dBc/Hz (>1040 MHz, MG3642A only) Residual AM: <-80 dBc (≥500 kHz, CW mode, +7 dBm, 50 Hz to 15 kHz demodulation band) Residual FM (CW mode) 300 Hz to 3 kHz demodulation band: <4 Hzrms (10 to <512 MHz), <8 Hzrms (512 to 1040 MHz), <16 Hzrms (>1040 MHz, MG3642A only) 50 Hz to 15 kHz demodulation band: <5 Hzrms (10 to <512 MHz), <10 Hzrms (512 to 1040 MHz), <20 Hzrms (>1040 MHz, MG3642A only)																								
Amplitude modulation	Range: 0% to 100% Resolution: 0.1% Accuracy: ± (5% offset value + 2%) *≥0.4 MHz, ≤+7 dBm, ≤90% AM, source: Int 1 (1 kHz), 300 Hz to 3 kHz demodulation band Modulation frequency response (output: ≤+7 dBm) <table><tr><th rowspan="2">Carrier frequency</th><th colspan="2">Upper limit frequency</th><th rowspan="2">Lower limit frequency</th></tr><tr><th>AM: 30%</th><th>AM: 90%</th></tr><tr><td>0.4 to <0.5 MHz</td><td>2 kHz (±1 dB bandwidth)</td><td>1 kHz (±1 dB bandwidth)</td><td rowspan="5">DC: External DC coupling (±1 dB bandwidth) 20 Hz: External AC coupling (±1 dB bandwidth)</td></tr><tr><td>0.5 to <2 MHz</td><td>10 kHz (±1 dB bandwidth)</td><td>5 kHz (±1 dB bandwidth)</td></tr><tr><td>2 to <32 MHz</td><td colspan="2">20 kHz (±1 dB bandwidth)</td></tr><tr><td>32 to <64 MHz</td><td colspan="2">50 kHz (±1 dB bandwidth)</td></tr><tr><td>≥64 MHz</td><td colspan="2">50 kHz (±1 dB bandwidth), 100 kHz (±3 dB bandwidth)</td></tr></table> Distortion: <-40 dB (30% AM), <-30 dB (90% AM) *≥0.4 MHz, ≤+7 dBm, source: Int 1 (1 kHz) Incidental FM: <200 Hz peak *≥0.4 MHz, ≤AM: 30%, ≤+7 dBm, source: Int 1 (1 kHz), 300 Hz to 3 kHz demodulation band Modulation signal source: One of internal (Int 1, Int 2, Int 3) and external (Ext 1, Ext 2) Modulation signal polarity: Positive/negative switchable			Carrier frequency	Upper limit frequency		Lower limit frequency	AM: 30%	AM: 90%	0.4 to <0.5 MHz	2 kHz (±1 dB bandwidth)	1 kHz (±1 dB bandwidth)	DC: External DC coupling (±1 dB bandwidth) 20 Hz: External AC coupling (±1 dB bandwidth)	0.5 to <2 MHz	10 kHz (±1 dB bandwidth)	5 kHz (±1 dB bandwidth)	2 to <32 MHz	20 kHz (±1 dB bandwidth)		32 to <64 MHz	50 kHz (±1 dB bandwidth)		≥64 MHz	50 kHz (±1 dB bandwidth), 100 kHz (±3 dB bandwidth)	
Carrier frequency	Upper limit frequency		Lower limit frequency																						
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32 to <64 MHz	50 kHz (±1 dB bandwidth)																								
≥64 MHz	50 kHz (±1 dB bandwidth), 100 kHz (±3 dB bandwidth)																								
Frequency modulation	Range: 0 to 125 Hz (125 to <250 kHz) 0 to 25.6 kHz (16 to <32 MHz) 0 to 250 Hz (250 to <500 kHz) 0 to 51.2 kHz (32 to <64 MHz) 0 to 500 Hz (0.5 to <1 MHz) 0 to 102 kHz (64 to <128 MHz) 0 to 1 kHz (1 to <2 MHz) 0 to 256 kHz (128 to <256 MHz) 0 to 2 kHz (2 to <4 MHz) 0 to 512 kHz (256 to <512 MHz) 0 to 4 kHz (4 to <8 MHz) 0 to 1024 kHz (512 to 1040 MHz) 0 to 10 kHz (8 to <16 MHz) 0 to 2048 kHz (>1040 MHz, MG3642A only) Resolution: 1 Hz (0 to 4 kHz deviation) 250 Hz (102.25 to 256 kHz deviation) 10 Hz (4.01 to 10 kHz deviation) 500 Hz (256.5 to 512 kHz deviation) 25 Hz (10.025 to 25.6 kHz deviation) 1 kHz (513 to 1024 kHz deviation) 50 Hz (25.65 to 51.2 kHz deviation) 1 kHz (1025 to 2048 kHz deviation, MG3642A only) 100 Hz (51.3 to 102 kHz deviation)																								

Frequency modulation	<p>Accuracy: \pm (5% offset value + 10 Hz) (0.4 to <512 MHz), \pm (5% offset value + 20 Hz) (512 to 1040 MHz) \pm (5% offset value + 40 Hz) (>1040 MHz, MG3642A only) *Source: Int 1 (1 kHz), 300 Hz to 3 kHz demodulation band Modulation frequency response: DC or 20 Hz^{*3} to 20 kHz (0.4 to <10 MHz), DC or 20 Hz^{*3} to 100 kHz (\geq10 MHz) \pm1 dB bandwidth Distortion: <-40 dB \geq16 MHz, 3.5 kHz deviation, source: Int 1 (1 kHz) <-45 dB \geq16 MHz, 22.5 kHz deviation, source: Int 1 (1 kHz) Incidental FM: <1% peak \geq64 MHz, \leq+7 dBm, 100 kHz deviation, source: Int 1 (1 kHz), 300 Hz to 3 kHz demodulation band External modulation group delay: <30 μs \geq10 MHz, source: external DC coupling mode, modulation rate: \leq100 kHz Modulation signal source (FM1, FM2): One of internal (Int 1, Int 2, Int 3), and external (Ext 1, Ext 2) Modulation signal polarity: FM1, FM2 positive/negative switchable</p>
Pulse modulation	According to option specifications
Modulation signal source	<p>Internal modulation (Int 1) Frequency: 400 Hz, 1 kHz Accuracy: Same as reference oscillator accuracy Internal modulation (Int 2, Int 3): According to option specifications External modulation (Ext 1, Ext 2) Proper input level: 2 Vp-p approx. Input impedance: 600 Ω, BNC connector Coupling: DC/AC switchable</p>
AF Output	<p>Output signal source: One of internal (Int 1, Int 2, Int 3), and external (Ext 1, Ext 2) Output level: 0 to 4 Vp-p Output level resolution: 1 mVp-p Output level accuracy: \pm (5% of setting level + 2 mVp-p) *Source: Int 1 (1 kHz) Impedance: 600 Ω, BNC connector</p>
Simultaneous modulation	Excluding amplitude modulation and pulse modulation ^{*2} combination, simultaneous modulation, modulation rate, deviation independently settable
Sweep function	<p>Sweep parameters: Frequency, output level, memory Sweep patterns Frequency sweep (start/stop): Linear (specified step size and number of points), Log (multiplying factor: 1%) Frequency sweep (center/span): Linear (specified step size and number of points) Level sweep (start/stop, center/span): dB (specified step size and number of points) *Sweep: continuous mode (max. 20 dB width) Memory sweep: Start/stop Sweep mode: Auto, single, manual Sweep time Setting range: 1 ms to 600 s/point *Actual sweep time depends on switching time for each sweep parameter (frequency, output level) Resolution: 10 μs/point Auxiliary output X-Out: Ramp waveform (sweep start point: 0 V, sweep end point: +10 V), BNC connector (rear panel) Z-Out: TTL level (H-level at sweeping), BNC connector (rear panel) Blanking-Out: TTL level (L-level at switching), BNC connector (rear panel) Marker-Out: TTL level (H-level at marker match), BNC connector (rear panel)</p>
Functions	<p>Relative display: Carrier frequency, output level Offset display: Carrier frequency, output level Memory: Saves/recalls 1000 panel settings; recall contents: panel, frequency, frequency/output level selection Trigger: An external trigger signal (rear panel BNC connector, TTL level) can be used to execute a previously programmed operation sequence on the panel (except power switch, [Preset] key, [Local] key and rotary knob). Max. number of sequence steps of trigger program: 20 steps Back-up: The panel settings before power-off are backed-up and displayed again at power-on, except data-input contents, GPIB data contents, remote settings, RPP operations GPIB Control: All functions, except programming operation for trigger program, power switch, [Local] key, rotary knobs, and resolution keys (Interface: SH1, AH1, T5, L3, TE0, SR1, RL1, PP0, DC1, DT1, C0, E2)</p>
Reverse power protection	Max. reverse input power: \leq 50 W (\leq 1040 MHz), \leq 25 W (>1040 MHz, MG3642A only), \pm 50 Vdc
Power supply	100 or 240 Vac ^{*4} (+10%, -15%), 47.5 to 63/380 to 420 Hz, \leq 200 VA
Temperature	Operating: 0° to +50°C, Storage: -30° to +71°C
Dimensions and mass	320 (W) x 177 (H) x 451 (D) mm, \leq 20 kg
EMC	<p>EN61326: 1997/A2: 2001 (Class A) EN61000-3-2: 2000 (Class A) EN61326: 1997/A2: 2001 (Annex A)</p>
LVD	EN61010-1: 2001 (Pollution Degree 2)

*1: Can be changed to 5 x 10⁻¹⁰/day using reference crystal oscillator (Option 01)

*2: Only with pulse modulator (Option 11) installed

*3: External DC coupling: DC, External AC coupling: 20 Hz

*4: Specify a nominal voltage of either 100 V and 240 V when ordering; the maximum operating voltage is 250 V.

• Options

Option 01 Reference Oscillator			Frequency: 10 MHz Aging rate: 5×10^{-10} /day Temperature stability: $\pm 5 \times 10^{-9}$ (0° to +50°C)
Option 11 Pulse Modulator			Frequency: 125 kHz to 2080 MHz On/off ratio: >80 dB Rise/fall time: <100 ns Min. pulse width: <500 ns Pulse repetition rate: DC to 1 MHz Max. delay time: <100 ns Overshoot, ringing: <20% Video feed-through: <20% Pulse modulation input: 50/600 Ω , TTL (positive logic), BNC connector (rear panel)
Option 21 AF Synthesizer			Frequency: 0.01 Hz to 400 kHz (sine-wave), 0.01 Hz to 50 kHz (triangular, square and sawtooth waveforms) Resolution: 0.01 Hz Waveform: Sine-wave, triangular, square and sawtooth waveforms Frequency accuracy: Same as reference oscillator accuracy
Option 22 FSK Encoder			Frequency shift (Data 2 ¹ , Data 2 ⁰) = (0, 0): -frequency deviation setting, (Data 2 ¹ , Data 2 ⁰) = (0, 1): -frequency deviation setting/3, (Data 2 ¹ , Data 2 ⁰) = (1, 0): +frequency deviation setting, (Data 2 ¹ , Data 2 ⁰) = (1, 1): +frequency deviation setting/3 Frequency set Free: Frequency shift simultaneously with data input Rise trigger: Frequency shift at external clock rise time Fall trigger: Frequency shift at external clock fall time Baseband filter Filter type: 10-th order Bessel filter Cut-off frequency: 100 Hz to 30 kHz (-3 dB) Setting resolution: Upper 2 digits Frequency deviation accuracy: Depends on frequency modulation deviation accuracy of mainframe (at by-pass to baseband filter) External modulation input Data 2 ⁰ /2 ¹ : TTL level (pull-down), BNC connector (rear panel) External clock input: TTL level (pull-up), BNC connector (rear panel)
Option 23 Pattern Generator	Data pattern	Free	Number of memories: 4 (defined: 1 to 4) Memory capacity: 524,288 bits/memory Pattern output Range: Top address and data bit length can be set for respective free-pattern memories. Top address setting range: 00000 to 65,535 Data bit length setting range: 2 to 524,288 bits (final address of output: 65,535 max.) Memory: Saves 1-byte units via GPIB interface Saves when pattern generator output off, or idle pattern being output
		Fixed	PN9 pseudorandom pattern (conforming to ITU-T V.52), PN15 pseudorandom pattern (conforming to ITU-T O.151), 01 fixed pattern
	Idle pattern		Number of memories: 1 (idle) Memory capacity: 524,288 bits Pattern output Range: The top address and data bit length can be set. Top address setting range: 00000 to 65,535 Data bit length setting range: 2 to 524,288 bits (Final address of output: 65,535 max.) Memory: Saves 1-byte units via GPIB interface Saves when pattern generator output off
	Output method		Single: Specified data pattern output once only (PN9 and PN15 output twice) Continuous: Specified data pattern output continuously When the data pattern is not output, the idle pattern is output continuously..
	Output rate		Range: 1 to 99,999 bps (resolution: 1 bps) Accuracy: Same as reference oscillator of MG3641A/3642A
	Output system		1-bit NRZ output (corresponding to binary data output): Data is output to the Data 2 ¹ Output sequentially, one bit after another starting from the top bit. The logic of Data 2 ⁰ is fixed to 0. 2-bit NRZ output (corresponding to quadrature data output): Data is output to the Data 2 ¹ Output and Data 2 ⁰ Output sequentially, two bits after another, starting from the top bit.
	Output level		Data 2 ⁰ Output: TTL level, Data 2 ¹ Output: TTL level, Clock Output: TTL level, rising

• **MX364001B Software for Pattern Generator Data Write**

Read-out data	DOS text file
Write memory	Data pattern memory (defined: 1 to 4), idle pattern memory (idle)
Contents of write data	Pattern data: 2 to 524,288 bits/memory (text format file) Top address of output: 0 to 65,535 (any settable) Data bit length: 2 to 524,288 bits (bit length of pattern data automatically calculated and recorded) Data name: Max. 8 characters (idle pattern memory not named)
Personal Computer	IBM PC/AT compatible
OS	Microsoft® Windows 95®
Interface	GPIB (National Instruments PCI-GPIB or PCMCIA-GPIB)

Ordering Information

Please specify model/order number, name, and quantity when ordering.

Model/Order No.	Name	Remarks
MG3641A	Mainframe Synthesized Signal Generator	125 kHz to 1040 MHz
MG3642A	Synthesized Signal Generator	125 kHz to 2080 MHz
	Standard Accessories	
	Power Cord, 2.5 m: 1 pc	
B0325	GPIB Connector Shielded Cap: 1 pc	
F0013	Fuse, 5 A: 2 pcs	For 100 Vac
F0012	Fuse, 3.15 A: 2 pcs	For 200 Vac
W1137AE	MG3641A/3642A Operation Manual: 1 copy	
	Options	
MG364[]A-01	Reference Oscillator	Aging rate: 5×10^{-10} /day
MG364[]A-11	Pulse Modulator	Pulse repetition rate: DC to 1 MHz
MG364[]A-21*1	AF Synthesizer	0.01 Hz to 400 kHz, resolution: 0.01 Hz
MG364[]A-22*1	FSK Encoder	2 or 4 levels FSK
MG364[]A-23*1	Pattern Generator	
	Application Software	
MX364001B*2	Software for Pattern Generator Data Write	Microsoft® Windows 95®
	Optional Accessories	
J0576B	Coaxial Cord (N-P · 5D-2W · N-P), 1 m	
J0127A	Coaxial Cord (BNC-P · RG58A/U · BNC-P), 1 m	
J0007	GPIB Cable, 1 m	408JE-101
J0008	GPIB Cable, 2 m	408JE-102
MP51A	Pad	DC to 200 MHz, $75 \Omega \rightarrow 50 \Omega$
MP52A	Pad	DC to 200 MHz, $50 \Omega \rightarrow 75 \Omega$
MA1612A	Four-point Junction Pad	5 to 3000 MHz
MP721[]	Attenuator	DC to 12.4 GHz
B0395C	Rack Mount Kit	EIA/IEC
B0329G	Front Cover	3/4MW 4U
B0412A	Carrying Case	With casters and B0329G front cover
B0330B	Tilt Bail	3/4MW 450D

*1: Up to two units of Option 21, 22 or 23 can be installed.

Combinations

Option 21	Option 21	Analog modulation of two tones, such as a tone squelch test
Option 21	Option 22	FSK modulation by external data input and analog modulation
Option 21	Option 23	
Option 22	Option 23	FSK modulation by internal data pattern

*2: The following items must be provided by the user to use the MX364001B.

IBM PC/AT® PC	486DX4 (75 MHz or faster) with 32 MB RAM min. (recommended) running Windows 95® OS
GPIB interface	PCMCIA-GPIB or PCI-GPIB or equivalent GPIB interface manufactured by National Instruments Inc., supporting NI-488.2®

Microsoft Windows 95 is a registered trademark of Microsoft Corporation in the USA and other countries.

IBM AT is a registered trademark of International Business Machines.

NI-488.2 is a registered trademark of National Instruments Inc.

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