MARCONI INSTRUMENTS

2031

The Marconi Instruments 2031 is a high-performance RF signal generator covering a frequency range from 10 kHz to 2.7 GHz. Designed for versatile R&D and manufacturing testing, it offers comprehensive analog modulation capabilities, including AM, FM, and phase modulation, alongside excellent spectral purity and precision control via GPIB.

SPECIFICATIONS

Frequency

Minimum Frequency	10 kHz Hz
Maximum Frequency	2.7 GHz Hz
Frequency Resolution	0.1 Hz
Frequency Range	10 kHz to 2.7 GHz
Frequency Switching Speed	< 100 ms
External Reference Input Frequency	1 MHz or 10 MHz

Output

Maximum Output Power	+13 dBm dBm
Output Power Range	-144 dBm to +13 dBm
Phase Noise	-121 dBc/Hz (typical at 20 kHz offset, 1 GHz carrier)

Modulation

Modulation	AM, FM, Phase Modulation, Pulse (optional)
Sweep Modes	Linear and logarithmic frequency sweep, amplitude sweep
Pulse Modulation Rise/Fall Time (Option 005)	<15 ns
Pulse Modulation ON/OFF Ratio (Option 005)	>80 dB (frequency dependent)
FM Distortion	< 1% at 1 kHz rate
AM Distortion	< 1.5% at 30% depth (1 kHz rate)
Phase Modulation Distortion	< 1% at 1 kHz rate

General

Reference Oscillator	10 MHz
Interfaces	GPIB (IEEE-488.2)
Display	Monochrome graphics LCD with backlight
Memory Storage Capacity	100 complete instrument settings and 100 recall sequences
Display Technology	Backlit dot-matrix LCD

Physical

Power Supply	100 V to 240 V AC nominal (90 V to 265 V AC limits), 45 Hz to 440 Hz
Dimensions (W×H×D)	424 mm x 152 mm x 566 mm mm
Weight	16 kg kg

Amplitude

Minimum Output Power	-144 dBm
Amplitude Resolution	0.1 dB
Output Voltage SWR	< 1.25:1 for carriers < 1.35 GHz, < 1.4:1 for carriers < 2.7 GHz (for levels < -7 dBm)
Maximum Reverse Power	50 W from a 50 ohm source
RF Output Impedance	50 ohms nominal

Spectral Purity

SSB Phase Noise	<-115 dBc/Hz (typically -121 dBc/Hz) at 20 kHz offset from a 1 GHz carrier
Harmonics	<-30 dBc for output levels up to +6 dBm
Non-Harmonics (Spurious)	<-70 dBc at offsets > 10 kHz (for carrier frequencies up to 1.35 GHz)
Sub-Harmonics	None up to 1.35 GHz; <-40 dBc from 1.35 GHz to 2.7 GHz
Residual FM	< 4.5 Hz RMS (300 Hz to 3 kHz bandwidth at 1 GHz)
Residual AM	< 0.05% RMS (300 Hz to 3 kHz bandwidth)

Analog Modulation

AM Depth Range	0% to 99.9%
AM Resolution	0.1%
FM Maximum Deviation	Up to 1 MHz (carrier frequency dependent)
Phase Modulation Rate Range	10 Hz to 10 kHz (AC coupled)
Pulse Modulation	Available with Option 002 (Pulse Modulation)

System Connectivity and Interfaces

RF Output Connector Type	N-type female, 50 ohms
External Reference Input Connector	BNC female (rear panel)
Reference Output Connector	BNC female, 10 MHz (rear panel)

Physical and Environmental

Storage Temperature Range	-40 °C to +70 °C

Power Requirements

Line Voltage Range	90 V to 265 V AC (nominal 100 V to 240 V AC)
Line Frequency Range	45 Hz to 440 Hz

Hardware and Software Options

Option 001	High Stability Oven Reference Oscillator
Option 002	Pulse Modulation capability

Internal Modulation Source

Internal LF Generator Frequency Range	0.1 Hz to 100 kHz
Internal LF Generator Frequency Resolution	0.1 Hz
Internal LF Generator Waveforms	Sine, triangular, square
Internal LF Generator Output Level Range	0.1 mV to 5 V RMS

Memory & Storage

Non-Volatile Memory	100 store/recall locations

Options

Option 003	Second Internal Modulation Oscillator
Option 006	Avionics (VOR/ILS)
Option 008	RF Level Protection
Option 011	Electronic Attenuator
Option 012	Rear Panel Outputs
Option 009	Internal Pulse Generator
Option 010	High Power RF Output

Internal LF Generator

Internal LF Generator Harmonic Distortion	< 0.1% at 1 kHz (sine wave, 2 V RMS)

Sweep

Sweep Trigger Modes	Continuous, Single, External, Manual

Interfaces

GPIB Emulation Modes	Marconi 2018, Marconi 2019, Marconi 2022

Inputs & Outputs

External Modulation Input Connectors	Front panel BNC female (AM and FM/Phi-M)
LF Output Connector	Front panel BNC female

TECHNOLOGY

Synthesized RF Signal Generator

APPLICATIONS

RF testing, receiver characterization, and general laboratory stimulus

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.