MS1020 Digital Oscilloscope

Product Datasheet

The Tekneka MS1020 is a high-performance 100 MHz dual-channel digital storage oscilloscope engineered for engineers, technicians, and educators who demand precise, reliable signal analysis. Featuring a real-time sampling rate of 1 GSa/s and a maximum record depth of 20M points, it captures transient events and high-frequency signal detail with clarity on its 7-inch, 800×480 full-colour TFT display. With 30 automatic measurement parameters, built-in FFT analysis, USB connectivity. The MS1020 delivers professional-grade capability in a compact, field-ready chassis.

Features

- 100 MHz Bandwidth / 1 GSa/s Sampling – Dual-channel real-time acquisition with 8-bit vertical resolution.
- 20M Point Deep Memory – Captures long signal sequences without losing high-frequency detail.
- 7” TFT Color Display – 800×480 px, 65,536-color screen for clear multi-channel rendering.
- 30 Automatic Measurements – Frequency, period, RMS, rise/fall time, duty cycle, phase, and more.
- Built-in FFT Analysis – Six windows: Hamming, Rectangle, Blackman, Hanning, Kaiser, Bartlett.
- Waveform Math Operations – Addition, subtraction, multiplication, and division across CH1 and CH2.
- Three Acquisition Modes – Normal, Peak Detect, and Averaging (4 / 16 / 64 / 128 sweeps).
- Edge & Video Trigger – Single and Alternate modes; video supports NTSC, PAL, and SECAM.
- Waveform Persistence Display – Hold times of 1 s, 2 s, 5 s, or Infinity.
- XY Display Mode – Lissajous figures and phase comparison between two channels.
- 16-Slot Internal Waveform Storage – Recall plus USB/PC export in BIN, txt format.
- 6-Digit Frequency Counter – 2 Hz to full instrument bandwidth.
- USB 2.0 Host & Device Ports – Data export, BMP screen capture, and PC remote control (USBTMC).
- Optional Waveform Generator – Sine, square, ramp, pulse, arbitrary waveforms up to 25 MHz.
- Self-Calibration Routine – Maintains accuracy when ambient temperature shifts by 5°C or more.

Applications

The Tekneka MS1020 serves a broad range of industries and technical disciplines. In electronics design and R&D, it accelerates circuit verification through rapid signal characterisation, noise analysis, and two-channel comparison. Field technicians rely on its deep record memory and portable chassis to diagnose faults in power supplies, motor drives, and embedded control systems. In academic training, the clearly labelled control panel and rich auto-measurement suite allow students to build hands-on proficiency quickly. Its video trigger capability supports broadcast and display system servicing, while the optional waveform generator enables stimulus-response testing and sensor calibration without a separate bench instrument.

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General Specifications

Display	7" TFT, 800×480 px, 65,536 colors
Sample Rate (Real-Time)	1 GSa/s
Max. Record Length	20M points
Fuse	2 A, T class, 250 V
Output Voltage *(Probe Compensator)*	5 V (PK-PK voltage ≥1 MΩ)
Frequency	Square wave of 1 kHz
Power Supply	100~240 V AC, 50/60 Hz, <16 W
Dimensions (L×H×W)	301 × 152 × 70 mm

CONNECTIVITY	
USB Host	USB 2.0 – flash drive data/image export
USB Device	USB 2.0 – PC connectivity (USBTMC / virtual COM)
Probe Compensator	~5 V / 1 kHz square wave, ≥1 MΩ load

ENVIRONMENT	
Operating Temperature	0 °C to 40 °C
Storage Temperature	−20 °C to 60 °C
Relative Humidity	≤90% (non-condensing)
Operating Altitude	Up to 3,000m

Technical Specifications

BANDWITH	
Range	100 MHz
Channels	2
Mode	Normal, Peak, Detect, Averaging
Sample rate	1 GS/s

INPUT	
Input Coupling	DC, AC, Ground
Input Impedance	1 MΩ ±2%, // 12 pF ±5 pF
Max. Input Voltage	400 V (DC + AC, PK-PK)
Bandwidth Limit	20 MHz / Full bandwidth (selectable)
Probe Attenuation	1×, 10×, 100×, 1000×
CH~CH Isolation	50 Hz: 100:1 | 10 MHz: 40:1
CH Time delay	150 ps

TRIGGER	
Range	Internal | ±4 div from the screen center
Accuracy	Internal | ±0.3 div
Displacement	Record length and time base
Trigger Types	Single (Edge, Video), Alternate (Edge)
Video Standards	NTSC (1–525 lines), PAL, SECAM (1–625 lines)
Trigger Coupling	AC, DC
Trigger Holdoff	100 ns ~ 10 s

MEASUREMENT & MATH	
Auto Measurements	30 parameters (Period, Freq, RMS, PK-PK, Rise/Fall, Duty, Phase...)
Cursor Modes	Voltage, Time, Time & Voltage, Auto Cursor
Math Operations	+, −, ×, ÷, FFT
FFT Windows	Hamming, Rectangle, Blackman, Hanning, Kaiser, Bartlett
FFT Points	2048 input → 1024 output frequency points
Waveform Storage	16 internal slots; USB export: BIN, TXT, CSV
Frequency Counter	6-digit, 2 Hz to full bandwidth
Lissajous Figure	Full bandwidth; △ϕ: ±3°

HORIZONTAL SYSTEM	
Sampling Rate Range	0.5 S/s GS/s
Time Base Accuracy	±100 ppm
Interpolation	(sinx)/x
Max record Length	20M
Scanning speed	2 ns/div – 1000 s/div (1-2-5 sequence)

VERTICAL SYSTEM	
Vertical Sensitivity	2 mV/div – 10 V/div
Vertical Resolution	8 bits (both channels simultaneously)
Displacement	±1V (mmV.div - 100 mV/div) ±60V (200mV/div - 10V/div)
Rise Time (typical)	≤ 3.5 ns
DC Gain Accuracy	±3%
DC Accuracy (Avg.)	△V: ±(3% rdg. +0.05 div)

Package Includes

- Power Cord
- 2 × Probe (switchable 1:1 / 10:1)
- Probe Adjustment Tool
- USB Cable
- Quick Start Guide

Ordering Info

MS1020..... Digital Oscilloscope 100 MHz