

# Oscilloscope



## Features:

- 4 Channels and EXT trigger, 60MHz Bandwidth
- 200MSPS real time sampling rate, 10k-16M Memory depth per channel
- Frequency Counter, FFT Spectrum Analysis
- 8-36V Wide range of input voltage, suitable for vehicle power
- More than 20 kinds of automatic measurement function, PASS/FAIL Check function, is suitable for engineering application

## Specifications:

|             | Model                                      | 72-10177   |
|-------------|--|--|
| Acquisition | Sample Mode                                | Real-Time Sample   |
|             | Sample Rate                                | 200MSPS  |
|             | Average                                    | N acquisitions, all channels simultaneously, N is selectable from 2, 4, 8, 16, 64, and 128 |
| Input       | Input Coupling                             | DC, AC, GND  |
|             | Input Impedance                            | Resistance: 1MΩ; Capacitance: 25pF   |
|             | PP-80,PP-150,PP-200 Probe Attenuation      | 10X  |
|             | Support Current Measure                    | 1X, 10X  |
|             | Maximum Input Voltage                      | 400Vpk (DC + peak)   |
| Horizontal  | Scanning Speed Range(Sec/Div)              | 5ns/div ~ 1000s/div(1-2-5 sequences)   |
|             | Sample Rate and Delay Time Accuracy        | ±50ppm( any interval ≥1ms )  |
|             | Wave form Interpolation                    | Step, Linear, Sin(x)/x   |
|             | Memory Depth(Sample Points)                | 10K ~ 16M for each channel; 16M: 5ns/div-1000s/div   |
|             | Analog Bandwidth                           | 60MHz (-3dB)   |
|             | A/D converter                              | 8 bit resolution   |
| Vertical    | Vertical Scale(Volt/div) Range             | 10mV ~ 5V/div @ x1 probe(1,2,5 sequence);<br>100mV ~ 50V/div @ x10 probe                   |
|             | Position Range                             | ±4division   |
|             | Selectable Analog Bandwidth Limit(typical) | 20MHz  |
|             | Lower Frequency Response(-3dB)             | ≤ 10Hz(at input BNC)   |
|             | Rise Time at BNC(typical)                  | ≤5.8ns   |
|             | DC Gain Accuracy                           | ±3%  |



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|                                     |   |   |   |
|-------------------------------------|---|---|---|
| <b>Trigger</b>                      | Trigger Source  | CH1,CH2, CH3, CH4, EXT  |   |
|                                     | Trigger Mode  | Auto, Normal and Single   |   |
|                                     | Trigger Type  | Edge, Pulse, Video, Alternative   |   |
|                                     | Trigger Sensitivity   | 0.02 div increments   |   |
|                                     | Trigger Level Range   | ±4V   |   |
|                                     | Trigger Level Accuracy                                      | ±4 division   |   |
|                                     | Edge Trigger Slope  | Rising, Falling   |   |
|                                     | Pulse Width Trigger   | Trigger Condition: Trigger when <, >, =, or ≠; Positive pulse or Negative pulse   |   |
|                                     |   | Pulse Width Range: Selectable from 20ns to 10s  |   |
|                                     | Video Trigger Type (Signal Formats and Field Rates)         | Supports NTSC, PAL and SECAM broadcast systems for any field or any line  |   |
| Alternative Trigger                 | CH1/CH2/CH3/CH4: Internal Trigger, Edge, Pulse Width, Video |   |   |
| <b>Measurement</b>                  | Cursor Measure  | Amplitude difference between cursors ( $\Delta V$ ); Time difference between cursors ( $\Delta t$ );<br>Reciprocal of $\Delta t$ in Hertz ( $1/\Delta t$ ) (Cross, Trace, Horizontal, Vertical) |   |
|                                     | Auto Measure  | Voltage   | Vp-p, Vmax, Vmin, Vmean, Vamp, Vtop, Vbase, Vmid, Vrms, Vcrms, Preshoot, Overshoot                    |
|                                     |   | Time  | Frequency, Period, Rise Time(10%~90%), Fall Time(10%~90%), Positive Width, Negative Width, Duty Cycle |
| <b>Arbitrary Waveform Generator</b> | Waveform Frequency  | DC ~ 25MHz  |   |
|                                     | DAC clock   | 2K ~ 200MHz adjustable  |   |
|                                     | Frequency Resolution  | 0.10%   |   |
|                                     | Waveform Depth  | 4K Sample   |   |
|                                     | Vertical Resolution   | 12 bit  |   |
|                                     | Frequency Stability   | <30ppm  |   |
|                                     | Wave Amplitude  | ±3.5V Max.  |   |
|                                     | Output Impedance  | 50Ω   |   |
|                                     | Output Current  | 50mA ,Ipeak=50mA  |   |
|                                     | System BW   | 25MHz   |   |
|                                     | Harmonic Distortion   | -50dB(1KHz), -40dB(10KHz)   |   |
| <b>Environmental</b>                | Temperature   | Operating: 0°C to 40°C<br>Non-operating: -20°C to +60°C)  |   |
|                                     | Cooling Method  | Forced air  |   |
|                                     | Humidity  | Below +35°C, ≤90% relative humidity; +35°C to +40°C, ≤60% relative humidity   |   |
|                                     | Altitude  | Operating: 3,000m or below; Non-operating: 15,000m or below   |   |



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|                    |                 |   |
|--------------------|-----------------|---|
| <b>Mechanical</b>  | Size            | 190mm(L)×100mm(W)×35mm(H)   |
|                    | Heavy           | Without Packaged 0.29kg; Packaged 0.9kg;  |
| <b>Accessories</b> | Probe           | X1, X10 two passive probes. The passive probes have a 6MHz bandwidth (rated 100Vrms CAT III) when the switch is in the X1 position, and a maximum bandwidth (rated 300Vrms CAT II) when the switch is in the X10 position. Each probe consists of all necessary fittings. |
|                    | Adapter         | A power adapter special for this product. In addition to the power adapter shipped with your instrument, you may purchase another one certified for the country of use.   |
|                    | USB Line        | A USB A-B line, used to connect external devices with USB-B interface like a printer or to establish communications between PC and the oscilloscope.  |
|                    | Installation CD | A software installation CD and it also contains the user manual for the Tenma Oscilloscope.   |

## Part Number Table

| Description                        | Part Number |
|------------------------------------|-------------|
| Oscilloscope, PC, 4 CH, 60MHz, AFG | 72-10177    |

תיאור פריט: אוסילוסקופ מבוסס מחשב – 4 ערוצים – 60MHZ

יצרן: TENMA

דגם: 72-10177

מק"ט טלמיר: 7656412

מיקום באתר: ציוד בדיקה ומכשירי מדידה / אוסילוסקופים / אוסילוסקופים מבוססי מחשב

יבואן: טלמיר אלקטרוניקה בע"מ

