Jaycar QC1938

Jaycar Digitech QC1938 100MHz Digital Oscilloscope User Manual

1. Introduction

This manual provides detailed instructions for the safe and effective operation of your Jaycar Digitech QC1938 100MHz Digital Oscilloscope. Please read this manual thoroughly before using the device to ensure proper setup, operation, and maintenance. Retain this manual for future reference.

2. Safety Information

Observe the following safety precautions to prevent injury and avoid damage to the instrument or any products connected to it.

- **Power Source:** Connect the oscilloscope only to the power source specified in this manual.
- **Grounding:** Ensure the instrument is properly grounded to prevent electric shock.
- **Probes:** Use only probes supplied or recommended by the manufacturer. Ensure probes are rated for the voltage being measured.
- **Ventilation:** Do not block ventilation openings. Ensure adequate airflow around the instrument.
- **Environment:** Operate the oscilloscope in a dry environment. Avoid exposure to moisture, dust, or extreme temperatures.
- **Servicing:** Refer all servicing to qualified service personnel. Do not attempt to repair the instrument yourself.

3. Package Contents

Verify that all items listed below are present in your package:

- Jaycar Digitech QC1938 Digital Oscilloscope
- 10:1 Passive Probe with 1.5m lead
- 2 x BNC to Clip Test Leads
- USB Cable
- Power Lead
- User Manual (this document)

4. Product Overview

The Jaycar Digitech QC1938 is a 100MHz Digital Oscilloscope designed for precise electronic measurements. It features a 7-inch color LCD screen, two independent channels, and a built-in waveform generator.

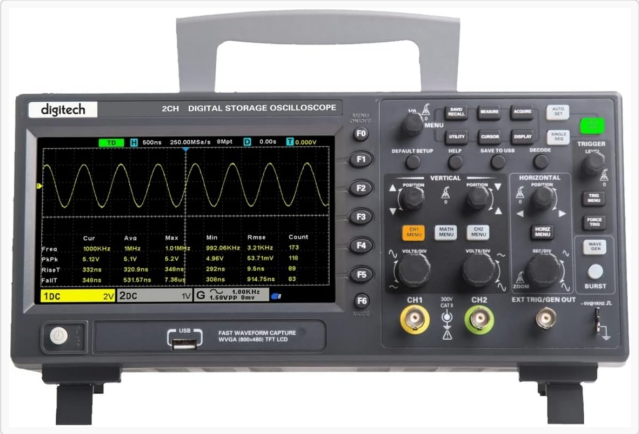


Figure 4.1: Front view of the Digitech QC1938 Digital Oscilloscope. This image shows the main display, control knobs, function buttons, and input connectors for channels 1 and 2, along with the USB port.

Figure 4.2: Angled view of the Digitech QC1938 Digital Oscilloscope. This perspective emphasizes the robust build, integrated handle for portability, and side ventilation grilles.

Figure 4.3: Another angled view of the Digitech QC1938 Digital Oscilloscope. The screen displays a different waveform, demonstrating the device's capability to visualize various signal

types.

Key Features:

- 7-inch TFT color LCD screen with 800 x 480 pixel resolution
- Two independent input channels
- 100MHz bandwidth and 1GSa/s sampling rate
- 8M memory depth (single channel)
- Integrated 25MHz waveform generator (Sine, Square, Ramp, Exponential, Noise, DC)
- Auto scale function for automatic sine and square wave detection
- 14 trigger modes including Edge, Pulse, Video, Slope, Overtime, Window, Pattern, Interval, Under Amp, UART, LIN, CAN, SPI, and IIC
- 5 serial protocol triggers and decodes: RS232/UART, I2C, SPI, CAN, and LIN
- Two 3-digit digital voltmeters and a 6-digit hardware frequency indicator
- 32 types of auto measurements with real-time statistics
- USB Host/Device interface for computer control and data storage

5. Setup

5.1 Power Connection

1. Connect the supplied power lead to the power input on the rear panel of the oscilloscope.
2. Plug the other end of the power lead into a grounded AC power outlet.
3. Press the power button on the front panel to turn on the oscilloscope.

5.2 Probe Connection

1. Connect the BNC connector of the passive probe to either Channel 1 (CH1) or Channel 2 (CH2) input on the front panel.
2. Attach the ground clip of the probe to the circuit's ground point.
3. Connect the probe tip to the test point in your circuit.
4. Ensure the probe's attenuation setting (e.g., 1X or 10X) matches the setting on the oscilloscope for accurate readings.

6. Operating Instructions

6.1 Basic Operation

- **Auto Scale:** Press the 'AUTO SET' button to automatically adjust vertical, horizontal, and trigger settings for a stable waveform display. This function detects sine and square waves automatically.
- **Vertical Controls (VOLTS/DIV, POSITION):** Use the VOLTS/DIV knobs to adjust the vertical scale (voltage per division) for each channel. The POSITION knobs shift the waveform vertically.
- **Horizontal Controls (SEC/DIV, POSITION):** Use the SEC/DIV knob to adjust the horizontal scale (time per division). The horizontal POSITION knob shifts the waveform horizontally.
- **Trigger Level:** Adjust the 'TRIGGER LEVEL' knob to set the voltage level at which the oscilloscope captures a waveform.

6.2 Advanced Functions

- **Waveform Generator:** Access the waveform generator menu to select and configure output waveforms such

as Sine, Square, Ramp, Exponential, Noise, and DC. Connect the 'WAVE GEN' output to your circuit.

- **Trigger Modes:** Utilize the 14 available trigger modes (Edge, Pulse, Video, Slope, Overtime, Window, Pattern, Interval, Under Amp, UART, LIN, CAN, SPI, IIC) to capture specific events. Select modes via the 'TRIGGER' menu.
- **Serial Protocol Decoding:** The oscilloscope supports decoding for RS232/UART, I2C, SPI, CAN, and LIN protocols. Configure these settings in the 'DECODE' menu to view decoded data.
- **Measurements:** The device offers 32 types of automatic measurements with real-time statistics (maximum, minimum, standard deviation, etc.). Access these via the 'MEASURE' menu.
- **USB Connectivity:** Connect a USB thumb drive to the USB Host port to save oscilloscope setups, waveforms, reference waveforms, CSV files, and images. The USB Device port allows for remote control from a computer using SCPI commands.

7. Maintenance

7.1 Cleaning

To clean the instrument, use a soft cloth dampened with a mild detergent solution. Do not use abrasive cleaners or solvents that could damage the casing or screen. Ensure the device is powered off and unplugged before cleaning.

7.2 Storage

When not in use, store the oscilloscope in a dry, dust-free environment away from direct sunlight and extreme temperatures. Use the original packaging or a suitable case for protection during transport.

8. Troubleshooting

If you encounter issues with your oscilloscope, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No power	Power cable not connected; Power outlet faulty; Power button not pressed	Check power cable connection; Test power outlet; Press power button firmly
No waveform displayed	Probe not connected; Incorrect input channel selected; Vertical/Horizontal scale incorrect; Trigger level too high/low	Connect probe to CH1/CH2; Select correct channel; Adjust VOLTS/DIV and SEC/DIV; Adjust TRIGGER LEVEL or use 'AUTO SET'
Unstable waveform	Incorrect trigger settings; No stable trigger source	Adjust trigger level; Select appropriate trigger mode; Ensure a stable signal source
USB drive not recognized	USB drive formatted incorrectly; Drive not fully inserted	Ensure USB drive is FAT32 formatted; Re-insert USB drive firmly

If the problem persists after attempting these solutions, please contact customer support.

9. Specifications

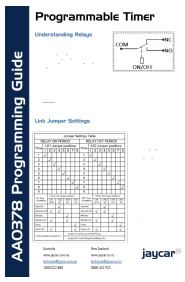
Parameter	Specification

Parameter	Specification
Display	7 inch TFT Color LCD
Resolution	800 x 480 pixels
Display Type	Point, Vector
Channels	2
Bandwidth	100 MHz
Sampling Rate	Up to 1 GSa/s
Memory Depth	8M (single channel)
Vertical Range	2mV/div ~ 10V/div
Vertical Resolution	8 bit
Waveform Generator	Sine, Square, Ramp, Exponential, Noise, DC
Interface	USB Host, USB Device
Weight	1.9 kg
Dimensions (L x H x W)	318mm x 150mm x 110mm

10. Warranty and Support

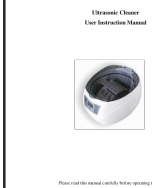
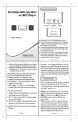
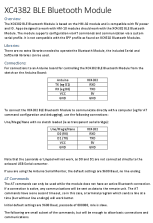
For warranty information and technical support, please refer to the documentation provided at the time of purchase or contact your retailer. Keep your proof of purchase for warranty claims.

Related Documents - QC1938

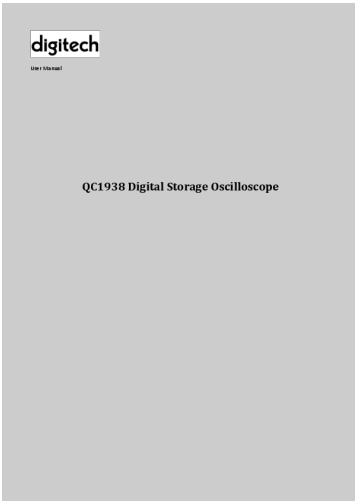


Jaycar AA0378 Programmable Timer Programming Guide

This guide details the programming of the Jaycar AA0378 Programmable Timer module, explaining relay functions, jumper settings, and providing practical examples for setting ON and OFF periods.

	[Ultrasonic Cleaner User Instruction Manual - YH5408] Comprehensive user manual for the YH5408 Ultrasonic Cleaner, covering important safety guidelines, parts description, operation instructions, cleaning methods, and maintenance tips.
	[Jaycar QC3150 Smart Ring Quick Start Guide] A concise guide to setting up and using the Jaycar QC3150 Smart Ring with its charging case. Learn about its features and basic operation.
	[XC3800 ESP32 Main Board with WiFi and Bluetooth - Technical Overview and Setup] Detailed information on the XC3800 ESP32 Main Board, a dual-core microcontroller with WiFi and Bluetooth. Includes setup guides for Arduino IDE and MicroPython development environments.
	[Jaycar XC5176 Rechargeable Speaker with MP3 Player User Manual] User manual for the Jaycar XC5176 rechargeable speaker and MP3 player. Learn how to operate your device safely and effectively.
	[XC4382 BLE Bluetooth Module: Technical Guide and AT Command Reference] Comprehensive guide to the XC4382 BLE Bluetooth Module by Jaycar. Covers overview, libraries, connection diagrams for Arduino and computers, and detailed AT commands for configuration and communication. Includes Baud rate settings, device naming, role selection, scanning, and connection procedures.

Documents - Jaycar – QC1938



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