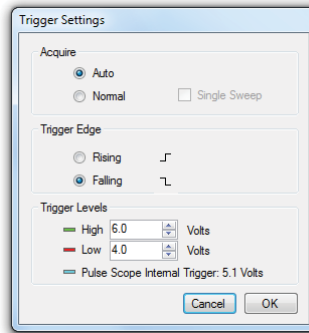
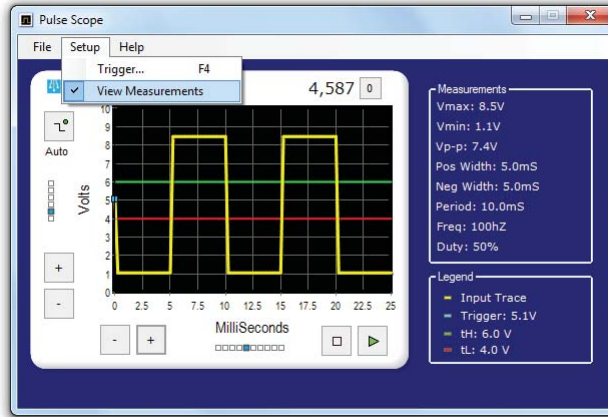


# Pulse Scope

101-0012

## Description

Pulse Scope is a USB oscilloscope that turns your laptop into a powerful diagnostics tool. It can be used by field service technicians and engineers to help with troubleshooting pulse or frequency related equipment. Pulse scope cost significantly less than a portable oscilloscope and is easier to use. It is so small and lightweight that you can keep it with your laptop and have it ready to use in seconds – just plug in the USB cable and run the software. Power is provided by the USB port so there is no external power supply or batteries to worry about. Use Pulse Scope to test PLC digital inputs and outputs, flow meters with pulsed outputs, speed sensors, and more. Pulse Scope’s simplicity and portability allows you to quickly visualize and measure waveform features. Actually seeing the waveform can help locate possible voltage level or pulse width issues, making your system more reliable. All digital inputs have a specific voltage level that must be crossed before the input can be determined as a “1” or a “0”. Pulse Scope software allows you to enter these voltage levels (shown as the red and green lines in the graph) so that you can instantly see if the measured pulse’s amplitudes will produce 1’s and 0’s. If you have a pulse that only occurs rarely, you can set Pulse Scope to wait for the pulse, and then record it for measurement (single sweep). Pulse Scope also includes a counter to keep a total pulse count over extended time periods. Included is a 6 feet USB cable and 3 feet test leads with changeable tips.



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## Applications

- PLC Digital Inputs and Outputs (DC)
- Digital Encoders
- Frequency Output Flow Meters
- Speed Sensors
- Limit Switches
- Hall Effect Sensors
- Proximity Sensors
- Pulse Width Modulation Drivers
- Frequency I/O Modules
- Flow Detectors
- Level Detectors

## Specifications

### Scope Input

Leads.....3 Feet Test Lead Wire  
Termination ...probes or alligator clips or spades  
Input Voltage Range.....0 to 30 Volts  
Input Frequency Range.....DC to 10 KHz  
Vertical Resolution ..... 8 bits  
Accuracy ..... ±5% of Scale  
Input Impedance .....> 500KΩ

### Pulse Counter

Maximum Count.....4.2 billion  
Pulse Count Rate.....0 to 100K PPS

### Enclosure

Molded ABS Plastic  
Weight ..... 5 ounces  
Pulse Scope Dimensions.....1.38" x 2.36" x 0.8"



## Features

- Instantly Measure...
  - Maximum Voltage
  - Minimum Voltage
  - Peak-Peak Voltage
  - Positive Pulse Width
  - Negative Pulse Width
  - Cycle Period
  - Frequency
  - Percent Duty Cycle
- Visually compare pulse amplitudes to digital high and low trigger levels
- Count pulse events over extended time periods with a maximum count of over 4 billion, up to 100 kHz count rate
- 0 to 30 Volt input range
- 10µs to 10mS sample interval
- Can be set to wait for a pulse event before acquiring waveform data
- Single sweep waits for a pulse event and then stops after one update
- Trigger on rising or falling edges
- Uses HMI USB drivers that are built in to Microsoft Windows - no additional drivers are required
- Power taken from the USB port, no external power supply or batteries
- Changeable probe tips for added flexibility
- Small and lightweight for maximum portability
- Compatible with Windows 7, Vista and NT

# Pulse Scope Screen Shots

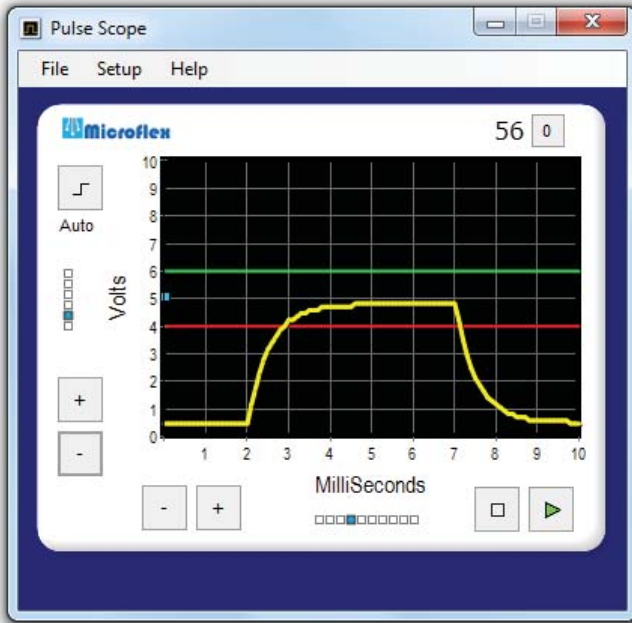


Figure 1: This pulse was measured where a long cable and a barrier block between the sensor and digital input attenuated the pulse amplitude. At the digital input, the pulse peak is lower than the 6 volt upper trigger level (green trace). The digital input will never detect a high level from this sensor.

Pulse Scope allows you to set the upper and lower trigger levels to match your digital input so that you can quickly compare the measured input pulse to the digital input trigger levels.

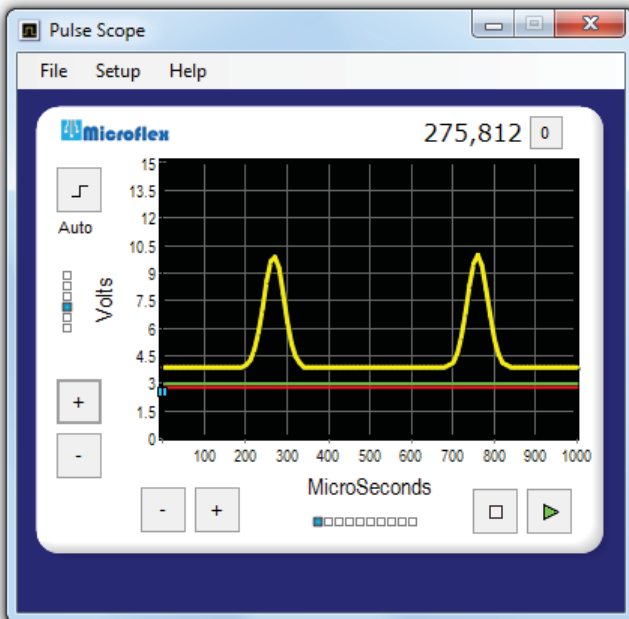


Figure 2: These speed sensor pulses have a high DC offset, raising the pulses above the digital input's trigger levels. If you were trouble shooting this with a digital voltmeter it would be hard to identify why pulses were not being measured. If you set your DVM to measure frequency or Hz you would display what looks like a good signal from the speed sensor but the DC offset, which is the problem, would not be revealed. Pulse Scope allows you to quickly see what's going on.

## Software Requirements

- Windows®, Vista, or XP
- Windows .NET Framework 2
- 3MB Disk Space
- USB Port
- CD/DVD Drive to install the software

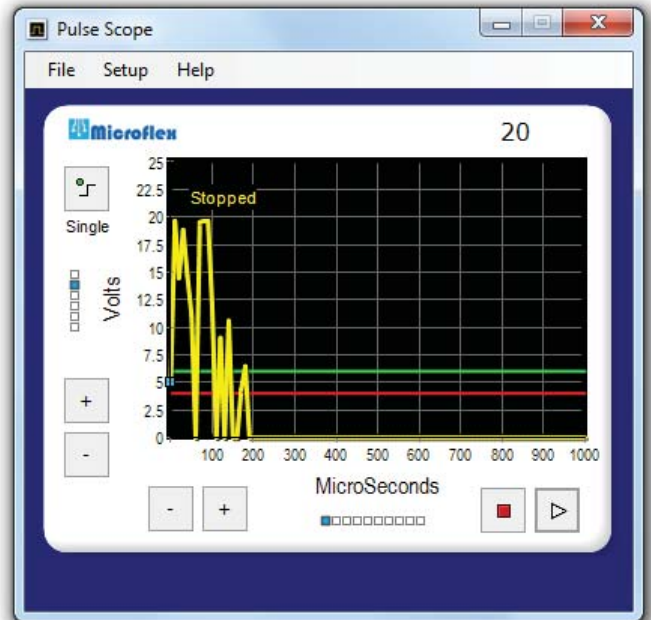


Figure 3: Switch bounce is a common source of errors for digital inputs. It is caused by the switch or relay contacts physically bouncing when they are closed - resulting in a series of narrow pulses at the digital input. This waveform was taken by setting Pulse Scope to the Single Sweep mode. When the relay contacts closed, a single sweep of data collection was taken. This advanced trigger setting is useful for capturing a pulse that is narrow with a long delay between pulses. Setting the trigger edge to positive will capture a positive pulse and the trigger edge set to negative will capture a negative pulse.