

GM82009 Tunable Laser Source Sweep Module User Manual



Description

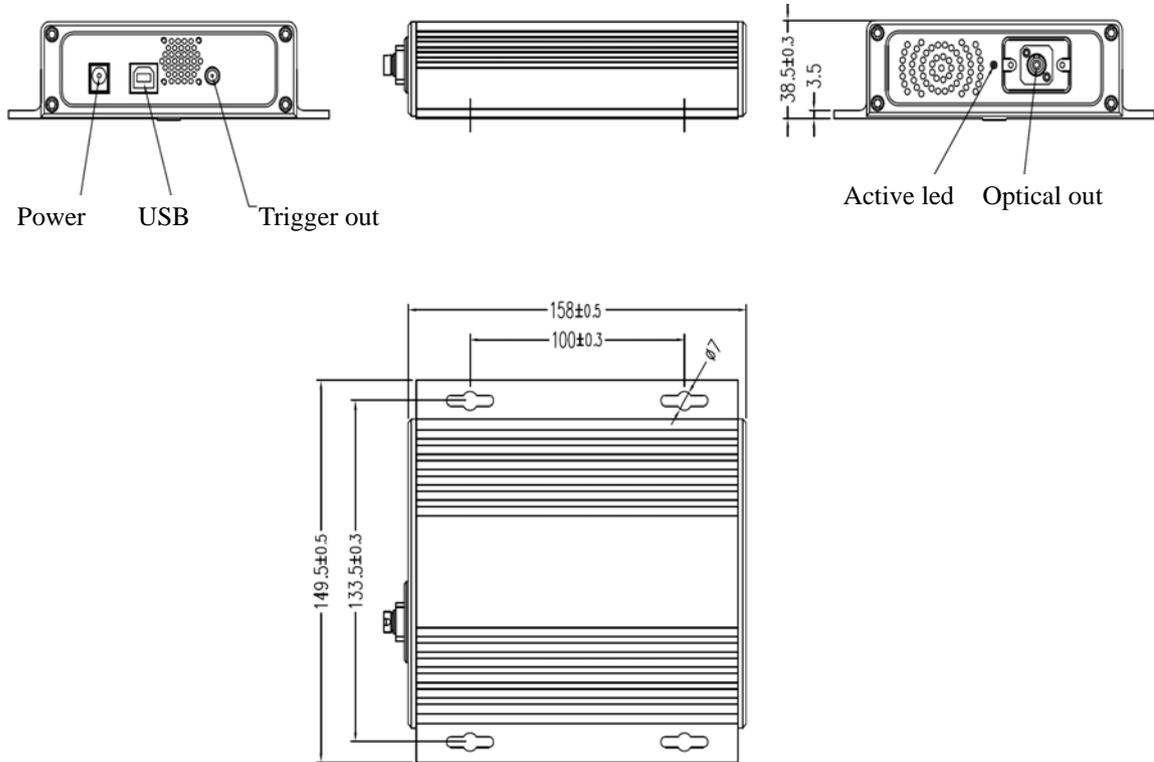
UC INSTRUMENTS' GM82009 is a high power fast and continued tuning tunable laser source module. The output can be tuned to any wavelength within C band or L band or C+L band. The GM82009 is also capable of fast sweeping for any specified wavelength/frequency range.

The GM82009 module is compact in size, powered by a 3.3v external DC supply. The control of the module is made through a USB connection and can be readily integrated into various test and measurement systems. The module is suitable for tests and measurements of high dense wavelength division multiplexing devices, waveguide grating arrays, planar lightwave circuits, Erbium-doped optical fiber amplifiers and other fiber optic components. It can also be applied in fiber grating and other fiber optic sensors. The GM82009 is the first of its kind that combines high performances, compact size, and cost effectiveness.

Applications

- CWDM, DWDM, Fiber, Components, Module, System testing
- OPM, Interleaver, DPSK, WSS, PLC, AWG components, Modules testing
- Fiber Grating Sensor Testing
- Fiber Optic Test Equipments Inspection and Testing
- Laser Sweep Optical Spectrum Analysis
- R & D and lab application
- Passive components light path adjustment monitor
- Easy to be integrated into customers' system

Physical Dimensions



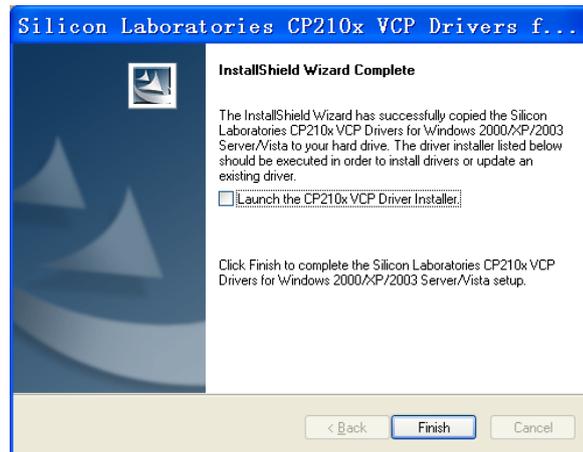
Specification

MODEL#	GM82009C	GM82009L	GM82009CL
Wavelength range	1525.00 to 1566.00 nm	1566.00 to 1610.00 nm	1525.00 to 1610.00 nm
Output Power	≥ 13 dBm	≥ 10 dBm	≥ 7 dBm
Wavelength resolution	1.0 pm		
Absolute wavelength accuracy	+/- 10 pm, tpy. < 5 pm		
Relative wavelength accuracy	+/- 5 pm, Typ. +/- 2 pm		
Wavelength repeatability	+/- 2 pm, typ. +/- 1 pm		
Wavelength stability	\leq +/- 2 pm (24 hrs at constant temperature)		
Tuning speed	≤ 2 ms per step		
Power stability	+/- 0.05 dB, 1 hour. Typ., +/- 0.1 dB, 24 hours.		
Power repeatability	+/- 0.05 dB		
Power linearity	+/- 0.3 dB		
Power Over wavelength Ripple	0.3 dB typ., 0.5 dB max.		

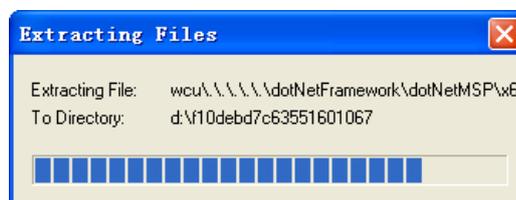
Side-mode Suppression ratio	≥ 45 dB
Relative intensity noise	< -135 dB typical
Output optical interface	PM, FC/PC connector
interface	RS232 or USB
Output trig port	BNC trig
Power	3.3 V; 3 A
Dimensions	40 mm H, 150 mm W, 170 mm D
Weight	0.5 kg

Software Installation

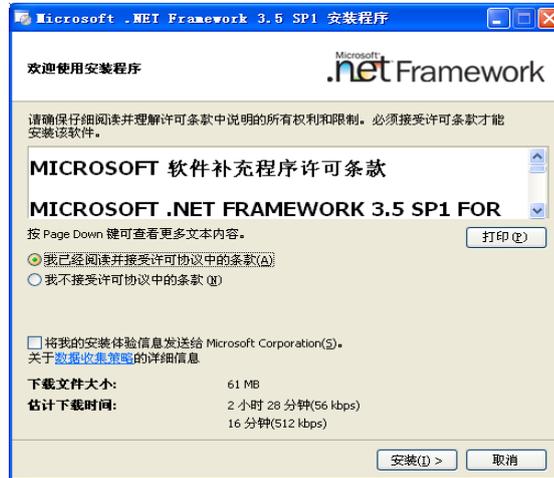
1. First install the USB driver. Double click the CP210x_VCP_Win_XP_S2K3_Vista_7.exe file to install USB driver according to the system prompt.



2. Next, install the .NET 3.5 by double clicking DotNET_Framework35.exe. This will unpack the file. Make sure you have internet connection when performing this step. Please note this step can be skipped for Windows 7.
- Double click the DotNET_Framework35.exe file to unpack it



- After unpacking, be ready to install the program for operating environment. First download the program, during downloading the pc must be connected with INTERNET. When the downloading operation ends, begins the installation.

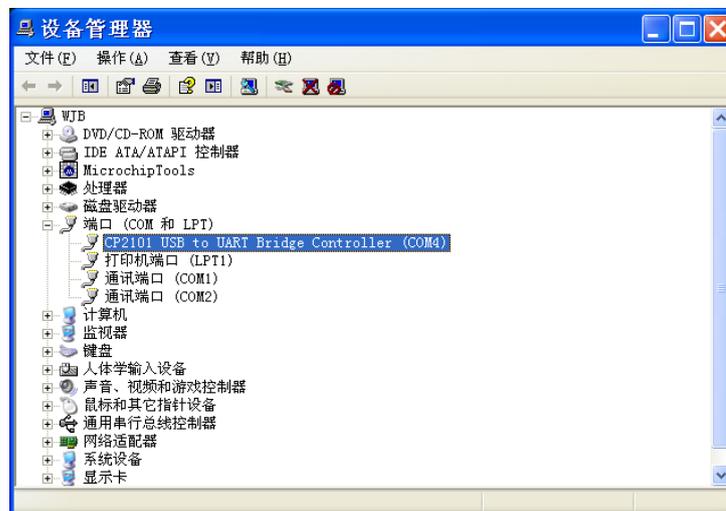


- The program installation for operating environments is finished.



System set up

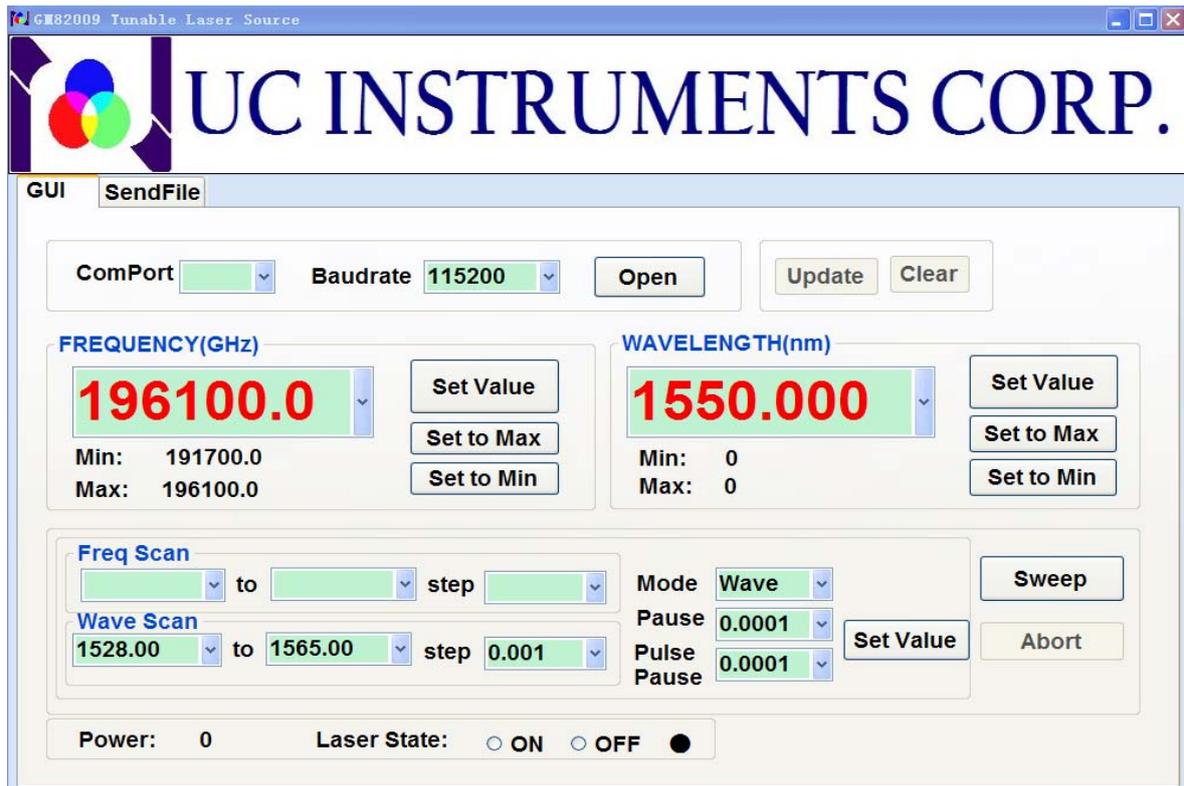
1. Connect the provided 3.3V power supply to the “Power” connector.
2. Connect the PC to the GM82009 with the supplied USB cable, the PC will prompt for installing the hardware automatically. After completing the installation, open the windows device manager, and look for added comport under ‘comport (COM and LPT)’. The PC assigns a com port number automatically.



3. Run the demonstration program, select the above comport (COM4 in this example), baud rate is set to 115200, press ‘open’ button to establish the communication between the PC and the GM82009.

Operation

When the module communicates with pc, the interface is shown below. The user may use this test program to set the current output frequency/wavelength, perform sweep operation and turning laser on/off.



- **Open/ Close communication port:** Use the [Open] and [Close] button to open or close the communication port.
- **Control laser output state:** set the laser state to 'ON' to enable the laser output. Set it to 'OFF' to turn laser output off.
- **Current frequency setting:** select frequency value on frequency drop-down box, then click [set value] button, the frequency setting will be sent to module. If click the [Set to Max] or [Set to Min] button, the current frequency will be set to maximum or minimum laser frequency of the module.

- **Current wavelength setting:** select wavelength value on wavelength drop-down box, then click [set value] button, the wavelength setting will be sent to module. If click [Set to Max] or [Set to Min] button, the current wavelength will be set to maximum or minimum laser wavelength of the module.

- **Sweeping mode**

Frequency sweep – specify the beginning and end values, step and pause in seconds for frequency sweeping, and select ‘Freq’ on mode drop-down box, then click the [set value] button to enable this setting. When ready, click [Sweep] button to start the sweeping operation. Use [Abort] button to stop the sweeping in progress.

Wavelength sweep – wavelength sweep can be accomplished through steps similar to those for frequency sweep.

- **Sweep parameters description**

Frequency sweep parameter – beginning value, end value and step value in GHz, the setting minimum is 1.0GHz.

Wavelength sweep parameter – beginning value, end value and step value in nm, the setting minimum is 0.001nm (1pm).

Pause – there is a delay between two sweeping steps, during this delay, the trigger output port of GM82009 will output a negative pulse. The delay time is in second.

Pulse pause – the time width of the negative pulse from the trigger output port. In the pause, the trigger output is 0V, otherwise the trigger output is +3.3V.

Caution

- There are many accurate optical components in the module, caution for static in the condition of storage, removing and operation.
- If the environmental temperature is less than 15 centigrade, then before operating the module, powers the module and waits for about 10 minutes for pre-heat.

**Caution: Invisible Laser Radiation****Do not view directly with optical instruments.**

Viewing the laser output with certain optical instruments (e.g., eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Laser power up to 100Mw at 1.55 um could be accessible if optical connector is open or fiber is broken. Use of controls, adjustments, and procedures other than those specified herein may result in hazardous laser radiation exposure.

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