



Canadian Nuclear Society – Société Nucléaire Canadienne CNS Geiger Kit Computer Interfaces and Driver Software

The CNS Geiger Kit includes an Aware Electronics RM-80 Radiation Monitor with a computer interface/adaptor, connecting cables, and software including the associated drivers for use with an “IBM PC”.

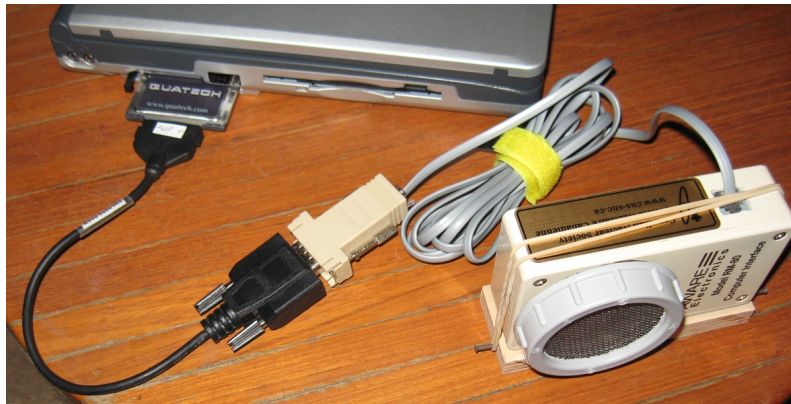
There are three types of interfaces in use:

1. Classic Serial Port:

Older desktop and laptop computers include a conventional serial port. An example is shown having a “DB-9 Male” connector (some had 25-pin connectors).

Most modern desk top (or tower case) computers do not have a serial interface although one may be added as a PCI Buss card at very low cost.

Other more recent laptop computers do not have an internal serial port, but do include a “PCIA” slot that will accept a plug-in serial port adapter as shown (partially inserted).



In either case, the RM-80 connects via a 4-conductor (grey) cable with RJ-11 connectors (telephone cable) to an adapter that mates with the DB-9 connector supplied by Aware Electronics.

The connector shown is beige while newer ones are red.

2. USB Serial Port Adapter:

Modern laptop or netbook computers lack the options above and may use a USB serial port adapter. The green adapter shown may require an extension cable to plug into some laptops due to its size. A red cable adapter is supplied by Aware Electronics that includes a “Divide by two” function that is required to address the subtleties of the USB serial port implementation.

The green adapters use a “Prolific” chip. There appear to be 3 versions of this adapter available at this time:

- a) All of the adapters that the CNS has provided to date are usable with computers running MicroSoft Windows® versions through to Vista with the appropriate driver.
- b) We have one sample that is functional with a 2009 version of a Windows 7 driver

- c) There is a 2010 driver available for the latest chip version that is claimed to be compatible with all versions of Windows. (We haven't tested one to date.)

The majority of the CNS Geiger Kits have been supplied with “type 2-a” adapter above and some teachers have requested the type 1 adapter. If you have the 2-a configuration and will be migrating to Windows 7 ®, please contact the CNS and we will supply an updated interface.



These interfaces will generate a different “COM PORT” number for each USB port they are plugged into. The Aware program will identify all the COM ports available but will not automatically select the corrector port. It is simplest to always use the same USB port.

As described in the Workshop Notes, “type 2-a” adapters have demonstrated significant numbers of missing counts at rates of 5000 counts per minute and higher. The more recent “type 2-b” adapter demonstrated much improved performance as shown in Workshop Notes Revision 6 with all Windows driver versions tested.

3. USB-MSP - 2010

Aware Electronics also supply a microprocessor based interface that performs the counting function and reports the data to the Aware program via an “emulated serial port interface” using an FTDI chip. The driver available from the chip manufacturer’s website has been tested with Windows XP, Vista, and Windows 7 ®.

Each USB-MSP interface has a unique identity (that you can’t see). It doesn’t matter which USB port is used for this type of interface.

The cable winder works like a roll-up blind. Pull the cable on each side to extend and allow it to roll up.

The USB-MSP interface has an internal LED that will flash once when it is connected to the computer.





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4. USB-MSP – 2011

In 2011 Aware Electronics supplied the CNS with a new implementation of the USB-MSP interface V2.4.

The photo at right shows the USB-MSP assembly is enclosed with clear heat shrink tubing. This allows the user to view the 4 LEDs – 2 Red and 2 Blue.

The LEDs near the mini-USB connector flash on initiation. At mid-length a blue LED flashes when a Geiger pulse is detected, and a red LED lights when the count rate exceeds the alarm threshold.

