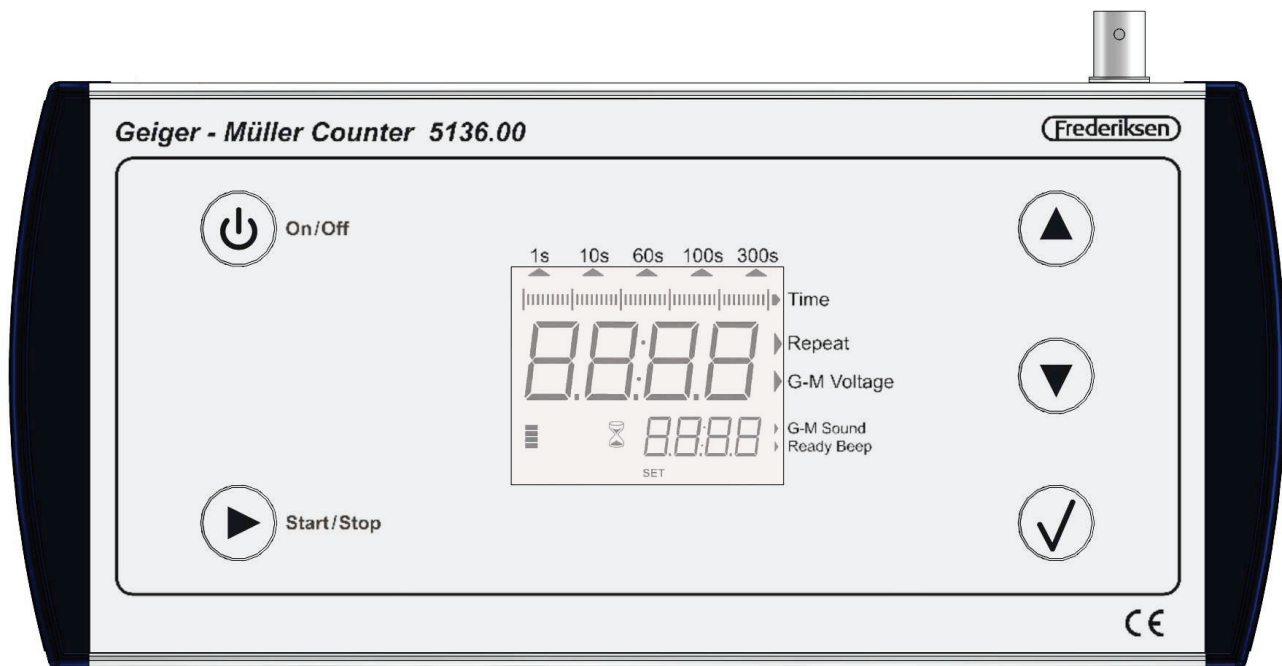


Manual for Geiger Counter 5136.00

04.01.12

AC 5136.00



- 5 fixed counting periods (*Time* = 1, 10, 60, 100 or 300 seconds) - plus manual start and stop
- Optional *Repeat Mode* – repeat measurements without interruption. The main display shows every completed measurement result, while the current count is displayed in an auxiliary display
- *GM tube voltage* can be adjusted between 300 and 700 V, while still reading the counts
- *GM Sound* gives a click from a loudspeaker for each pulse recorded
- *Ready Beep* signals end of measurement period – especially handy in repeat mode
- Very flexible regarding the GM tubes used
- May be controlled from a PC. Digital pulse output. (Special cables required - option)

Quick Guide

Connect: The counter accepts tubes with BNC connectors or with ¼" Jack. Connect only one tube.

Power On: Press to turn on and off.

Right after the counter is switched on it is ready for single measurements with a measurement time of 10 s.

Navigation: Find the parameter you want to set using the buttons and . The parameter is marked with a flashing arrow in the display: *Time*, *Repeat*, *GM Voltage*, *GM Sound*, *Ready Beep*.

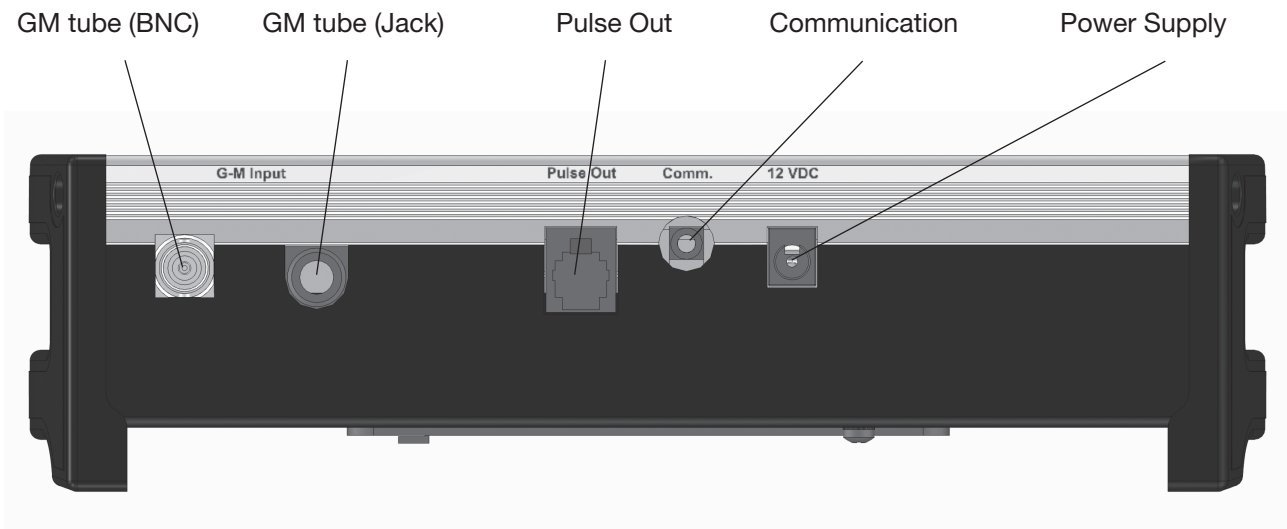
Setting: Press to select the current parameter. Then set the parameter with and .

Accept: Press to accept the new value.

Measurement: Start a measurement by pressing . This also resets the display.

The measurement stops when the selected time expires. If an infinite period is chosen – or if you just want to stop prematurely – press again to stop.

Description
Connections



You can connect either a GM tube (BNC connector) or a GM sensor with integrated electronics (1/4" Jack). An ordinary GM tube is the natural choice, but if you have a GM sensor, it may also be used.

The counter's GM voltage adjustment has only effect for the BNC input. A GM sensor with 1/4" Jack has its own high voltage supply.

Pulse Out delivers an approximately 50 μ s long 5 volts pulse when the counter detects a GM pulse. The matching cable (option) ends up in a 1/4" Jack, which can be connected to counter 2002.50 or Pasco digital adapter PS-2159.

The communication port requires a special USB cable (option) and an associated driver.

See section **Communication with a Computer**.

The power supply input may be connected to a DC adapter (option) if you want to save the batteries.

Time

As described in the **Quick Guide**, set the measurement period by using the buttons \blacktriangle and \blacktriangledown , until the arrow next to *Time* flashes. Press \checkmark and set the time with \blacktriangle and \blacktriangledown . A small arrow at the top of the display shows the time to be selected when you finish with \checkmark .

Pressing \blacktriangle when at 300 s or \blacktriangledown when at 1 s, the arrow disappears - this means manual start and stop.

The current measuring period is **not** changed before the final \checkmark press. Any ongoing counting continues in the background.

If possible, an ongoing measurement will continue after pressing \checkmark until the **new** period expires. This will fail when you choose a time that has already

expired. If the measurement in this way is invalid, the display will be reset.

When a measurement with fixed time is under way, the horizontal bar next to *Time* will show the amount of time that has elapsed. The bar remains at its maximum when the measurement is completed. In repeat mode, however, the bar is reset immediately as the next measurement begins.

Until a valid measurement is available, a small hour-glass is shown on the display. This applies when a single measurement is started, and during the first measurement period in repeat mode.

G-M voltage

The voltage to the GM tube is set by using the buttons \blacktriangle and \blacktriangledown , until the arrow next to *GM Voltage* flashes. Press \checkmark and set the voltage with \blacktriangle and \blacktriangledown . The voltage change immediately – not at the final press on \checkmark .

The voltage is shown in the main display and can be adjusted in the range from 300 to 700 V.

When counting simultaneously with adjusting the voltage, the counts are displayed in the auxiliary display. This is handy if you want to measure the GM tube characteristics. Set the counter to single measurements to read the results easier.

There is a certain, short reaction time when the voltage increases – and one a little longer when the voltage is lowered. If you wish to systematically study the effect of changing voltage, it is most practical to start at a low voltage and increase it in small steps.

As mentioned earlier, this setting only applies for tubes connected to the BNC input.

Cancel

You can exit navigation mode by "travelling too far": Press \blacktriangle when *Time* is selected – or press \blacktriangledown when *Ready Beep* is selected. Pressing \checkmark twice gives the same result - you choose to set a parameter, and accept the old, unchanged value.

If you have changed a parameter, there is no "escape button". However, apart from the GM-voltage, everything can be reset by turning off and on again. The GM voltage should be set at 500 V when using Frederick's GM tubes.

Battery Saver Function

The unit turns off automatically after an hour - but only if it is inactive.

Communication with a computer

Communication requires a cable with built-in adapter (5125.65). The adapter has an associated driver that must be installed on your computer. Find information about downloading this driver on the packaging for the adapter or on our website.

The adapter is recognized as a *virtual serial port*. Communication parameters can be set in Windows' Control Panel.

Communication protocol

Commands to the unit consist of one letter, eventually followed by a number.

The possible responses from the device depend on the command.

C: Read Company Information

Returns the string "(c) Copyright 2010 A/S S. Frederiksen"

D: Read register values

Returns the current values of secondary and primary data registers

E: Send results or not

When used alone, it returns status. When used with parameter 0-1, the status will change according to the following:

- 'e0' → counts not automatically sent
- 'e1' → counts sent automatically when each count period has finished

F: Counting time

When used alone, it returns the actual counting time in seconds. When used with parameter 0-5, counting period is changed according to the parameter:

- 'f0' → Infinitely
- 'f1' → 1 s
- 'f2' → 10 s
- 'f3' → 60 s
- 'f4' → 100 s
- 'f5' → 300 s

Other counting periods are invalid. Display icons are updated accordingly.

J: GM voltage

When used alone, it returns the current GM voltage in volts. When used with parameter 300-700, the GM voltage is modified according to the parameter. Example:

'j520' → GM voltage set to 520V

O: Single / Repeat Mode

When used alone, it returns status. When used with parameter 0-1, mode is changed accordingly:

- 'o0' → Single
- 'o1' → Repeat

S: Start / Stop counting

When used alone, it returns the status. 0 means stopped. When used with parameter 0-1, counting is started or stopped:

's0' → Stop counting.
(No function if counting is stopped)

's1' → Start counting.
(No function if counting is in progress)

D: Speaker on / off

Used alone, the command returns the current speaker status. Used with a parameter, the speaker will be connected or disconnected according to this table:

- 'U0' → GM sound off - Ready Beep off
- 'U1' → GM sound on - Ready Beep off
- 'U2' → GM sound off - Ready Beep on
- 'U3' → GM sound on - Ready Beep on

V: Version number returned

'GM counter. Firmware version xxxxxxxx'

W: Read finished counts

Reads a register that holds a copy of the primary register. The value is copied each time a count period expires. The register is erased when it is read. If the register is empty when this command is received, a value of "-1" is returned.

To ensure that all values are transferred to the PC, this register should be read on intervals not longer than the counting time.

Examples of the use of communication

If 5136.00 is to be used for automatic logging of data on a PC, you can choose whether to receive data when each counting period expires (streamed mode) or to poll 5136.00 for data with a given interval (polling mode).

The following is an example of how communication takes place in two modes:

Polling mode

'e0' → do not send counts automatically

'o0' → Enable single mode

's1' → Start counting

Wait an appropriate time (until the counting period has ended)

'w' → poll finished count

5136.00 sends the count.

Alternatively you may in polling mode choose to activate repeat mode, thus removing the need to start counting ('s1') before each counting period.

Streaming mode

'e1' → Send counts automatically

'o1' → Enable repeat mode

's1' → Start counting

Now 5136.00 will send the finished counts after each counting period.