Biomarker Analytical Laboratories

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SOP for shutting down and turning on the GC Q – Exactive
Date: 1.12.2021
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Summary

This section describes how to use shut down the system for a maintenance or service procedure.

- **IMPORTANT:**
- When turning Off the GC: first turn off the temperature and then turn off the carrier gas flow
- When turning ON the GC: first turn on the carrier gas flow
- For cooling Front Inlet, Oven and X-line 1 and X-line 2 don't use > Maintenance **>** Cool for maintenance. After turning On software will automatically load values from last used instrument method. Before turning off the instrument load instrument method for cooling (cool_down_before_shutdown_PK.meth) or set the temperature of Front Inlet, Oven and X-line1 and X-line 2 to 20°C manually and then put to off mode
- Before turning off move the injector to position 1

To turn off the GC Q – Exactive

1. Turn off autosampler (see Figure 4)
2. Move the TriPlus RSH autosampler Head to the position 1 (see Figure 2 position 1)

NOTE: After turning off LS Tool (Injector) could fall down, position 1 prevents to destroy LS Tool (Injector)

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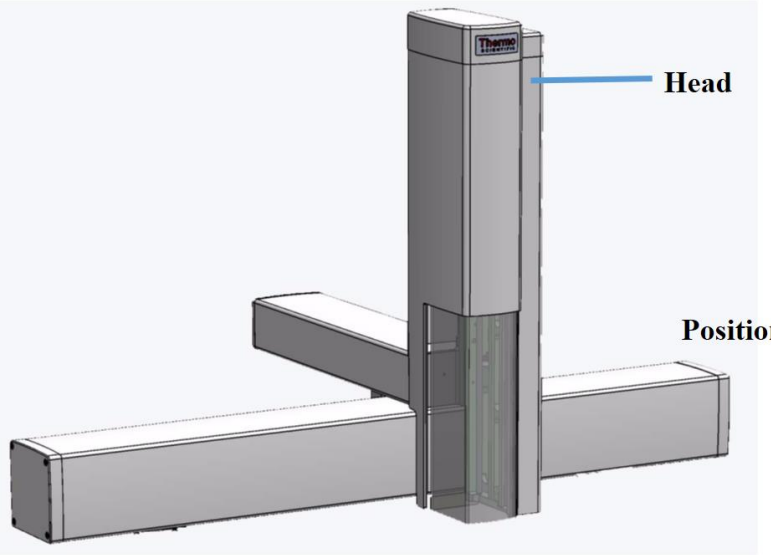

Figure 1 TriPlus RSH autosampler

3. Load instrument method for cooling the instrument. Go to D:\data\GC methods in use> sent cool_down_before_shutdown_PK.meth. Wait until temperatures are (120 - 80°C) ~ 60-90 min

2) Turn the carrier gas flow of front inlet Off (Instrument Control > Front Inlet (SSL) > Column flow > Off)

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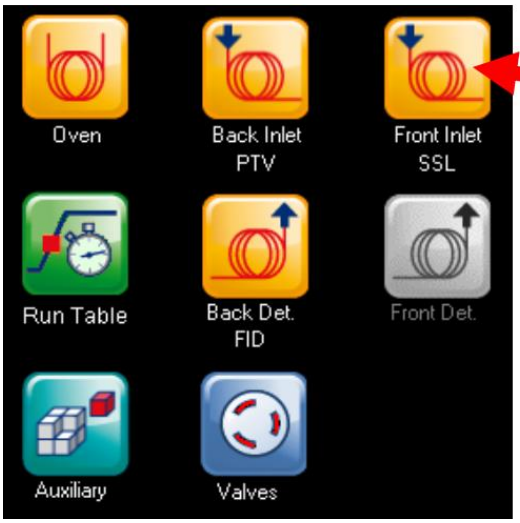

3) Click the **Off** button to take the mass spectrometer to Off mode

4) Turn off the carrier gas Helium (small valve)

5. Push down the power switch (breaker) for Electronic Boards, located at the back of the instrument, to the position **O** (down) and unplug the power cable from AC Input (see Figure 2)

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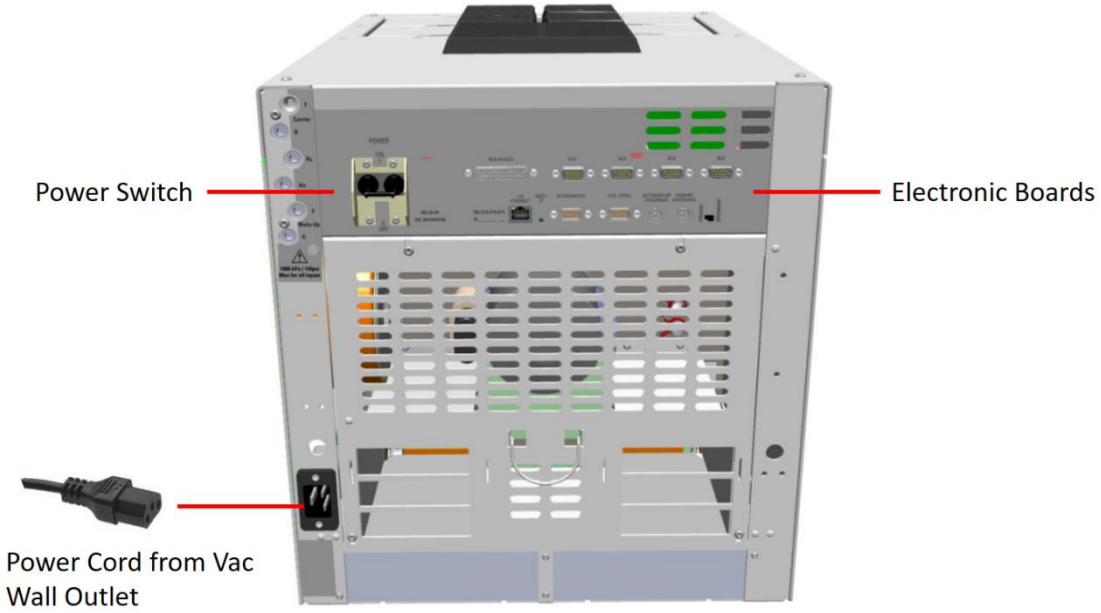

Figure 2. Main power of Electronic Board

2) Power off the GC:

   a. Push down the power switch (breaker), located at the back of the instrument (transfer line) and unplug the power cable from AC Input (see Figure 3)

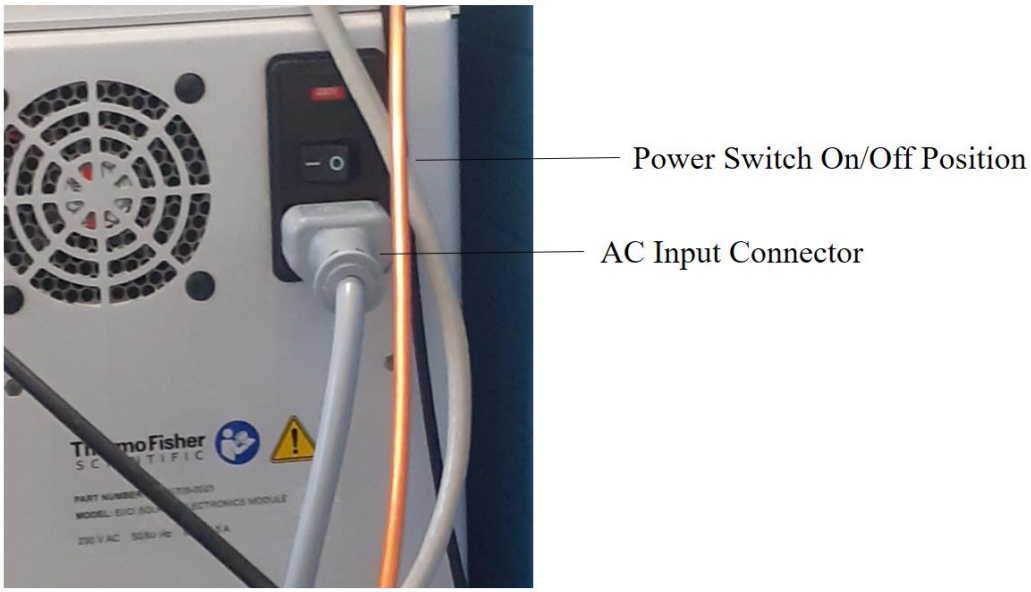

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Figure 3 Main power of GC transfer-line

b. Unplug the power cable from AC Input located at the back of the instrument (see Figure 4)

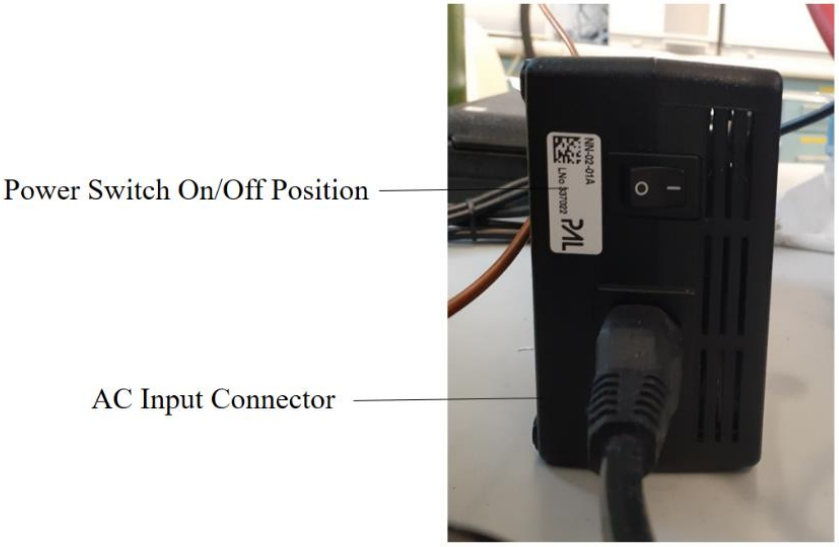

Figure 4 Main power of the autosampler

3) Turn off the Nitrogen (cylinder)
4) Turn off the Thermo Q - Exactive GC software to Off mode
5) Push down the power switch (breaker) to take the Electronics to **Servis mode**
6) Push down the power switch (breaker) to take the Q - Exactive to **Off** mode
7) Turn off the computer and unplug the power cable
8) Turn off the pump and remove the power cable

To turn on the GC Q – Exactive

1) Plug the power cable from pump on and turn on the pump
2) Plug the power cable and turn **On** the computer
3) Turn on the carrier gas Helium
4) Turn on the Nitrogen
5) Plug the power cables (1 and 3) from AC Input (see Figure 5)

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Figure 5 Main power AC input of Q - Exactive

6) Push the Main power switch (beaker) to the position On (see Figure 6)

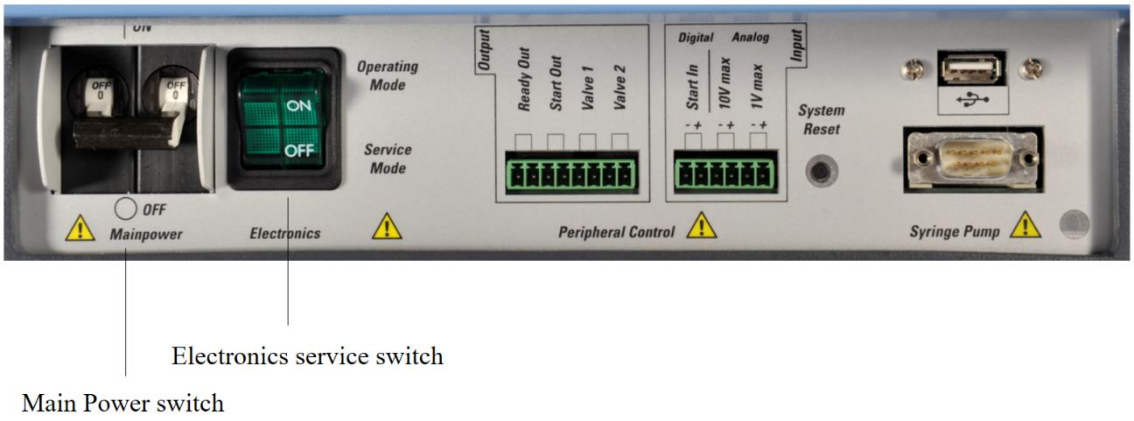

Figure 6 Main power switch Q - Exactive

NOTE: The pumps switch on automatically and the device waits for connection. Wait 10 minutes for switching pumps to on mode.

7) Push up the power switch (breaker) to take the electronics of Q - Exactive to on mode
8) Push up the Electronic Boards to **On** mode (see Figure 2)

NOTE: Electronic Boards (inside the Electronic module) generates voltages to supply the electronics boards, injector and detectors modules, motors, fans, and oven heater.

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9) Power on the GC:
    a. Plug the power cable to AC Input and push up the power switch (breaker), located at the back of the instrument (transfer-line) (see Figure 3)
    b. Plug the power cable to AC Input located at the back of the instrument (autosampler) (see Figure 4)
10) Turn the carrier gas flow (0.8 ml/min) of front inlet On (Instrument Control > Front Inlet (SSL) > Column flow > On) and wait 10 minutes. Go to Thermo Q - Exactive GC software > EI/CI source > MS transfer line temp. (°C) 150, Ion source temp. (°C) 150 and oven to 70-80 (°C) and set the temperature of X-line 1 and X-line 2 to 150 (°C) at the same time

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NOTE: Check if the gas flow gradually increases and then is constant > in system is no leak

11) Increase the carrier gas flow to 1.2 ml/min and wait 10 minutes

12) Set temperature of Front Inlet (SSL) to 280 (°C) and wait 30 minutes

NOTE: Wait until the Instrument Status > Vacuum system is Ok – HV enabled; Ultra High Vacuum at least 1e-08 mbar. GC Q Exactive should go automatically to **Standby mode** (in Thermo Q Exactive GC software)

13) Bakeout the system > go to Thermo Q Exactive GC software > Off mode > Vacuum/Bakeout > set Bakeout time (h) 12 > set Enter standby after Bakeout > Start

NOTE: After Bake out Ultra High Vacuum should reach at least 1e-10 mbar (ideally up to 1e-11 mbar)

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