



Power-up

Safety units ON
Backing pumps ON
Main PC START

Windows programs running

Pre-flight energy saving

Low power mode ON

Overheat check active?

Overheat detected?

Take-off timer active?

Altitude check active?

Timeout?

Safe altitude reached?

Low power mode OFF

Particle detection ON
Ablation laser ON
HV power supply ON
DAQ units ON
Main PC RESTART

Sampling activation after take-off

All units ready?

Data acquisition

TMPs STOPPED
Inlet valve CLOSED
HV interlock ON

TMPs RUNNING

Inlet valve CLOSED
HV interlock ON

Vacuum < 5x10⁻⁶ mbar?

Low power mode?

Inlet valve OPEN

HV interlock ON

Vacuum < 3x10⁻⁶ mbar?

Barrel pressure > 800 mbar?

HV interlock OFF

Continuous pressure monitoring and control