

Chapter 7 – Manual Control

Manual control is only available to users logged in to the control software with Supervisor status. Users with Operator status can only operate the system using the automatic sequences. If the user has only Operator status, all of the manual controls for the system components will be greyed out and not selectable with the exception of shutter control on the Source Detail and Shutter Control page. An Operator is unable to change any of the system setpoints for pressure or time.

Manual control is active when any automatic sequence is not currently executing.

System Components Operation and Interlocks

All of the components available to the user for manual control are protected by interlocks. This is designed to prevent even the most experienced user from making a mistake. These interlocks are in place primarily to safeguard the user, and to increase system up time.

The manual component functions and their associated interlocks are outlined in the following section in point form for simplicity.

Chamber Vent Valve

To be able to access the manual controls:

- No automatic sequence must be executing.
- A Supervisor or higher level user must be logged in.

To open the vent valve:

- Conditions to access manual controls must be met as above.
- The chamber door must be closed.
- The vent valve must be closed.
- The turbo foreline valve must be closed.
- Turbo rotation is stopped

To close the vent valve:

- Conditions to access manual controls must be met.

Turbo Foreline Valve

To be able to access the manual controls:

- No automatic sequence must be executing.
- A Supervisor or higher level user must be logged in.

To open the foreline valve:

- Conditions to access manual controls must be met as above.
- The chamber door must be closed.
- The vent valve must be closed.

- The rough pump must be on.

To close the foreline valve:

- Conditions to access manual controls must be met.

Turbo Pump

To be able to access the manual controls:

- No automatic sequence must be executing.
- A Supervisor or higher level user must be logged in.

To start the chamber turbo pump:

- The conditions to access the manual controls must be met.
- The rough pump must be on.
- The foreline valve must be open.

To stop the chamber turbo pump:

- The conditions to access the manual controls must be met.
- A sequence must not be running.

NOTE: The turbo pump will automatically turn off if:

- The turbo fails to achieve the up to speed setpoint of 85% rotational speed in 20 minutes from when it was turned on.
- If the turbo up to speed setpoint is lost for more than 5 seconds after being achieved.
- The turbo pump faults (direct signal from the turbo controller).
- The rough pump overloads and faults.
- The pneumatic gas pressure faults (air needed to open the foreline valve).
- The chamber pressure exceeds the safety pressure setpoint.

Rough Pump

To be able to access the manual controls:

- A sequence must not be running.

To turn on the rough pump:

- The conditions to access the manual controls must be met.
- The rough pump is not overloaded
- The chamber door is closed

To turn off the rough pump:

- The conditions to access the manual controls must be met.