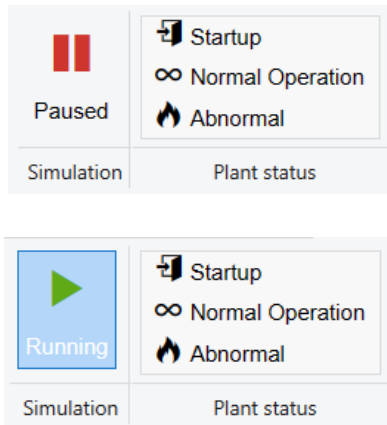


## Operation of the control system

### Navigation

To start simulations, first select the mode (Startup/Normal Operation/Abnormal) and then click the "pause" button (the system defaults to "Paused") to change the application mode (the simulation status will change to "Running").



### Mode Descriptions

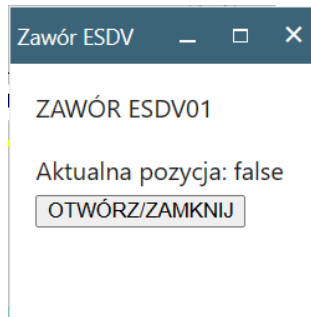
- Startup - the installation is in the "cold state" mode, i.e. there is no medium or pressure. In this case, you need to manually start the process.
- Normal Operation - the installation is in normal operation mode, stable.
- Abnormal - a situation close to emergency shutdown (process failure).

### Operating the system

#### Valve control close/open (ESD)

To override the valve, the valve window must be opened. The valve window will appear when you click on the valve.

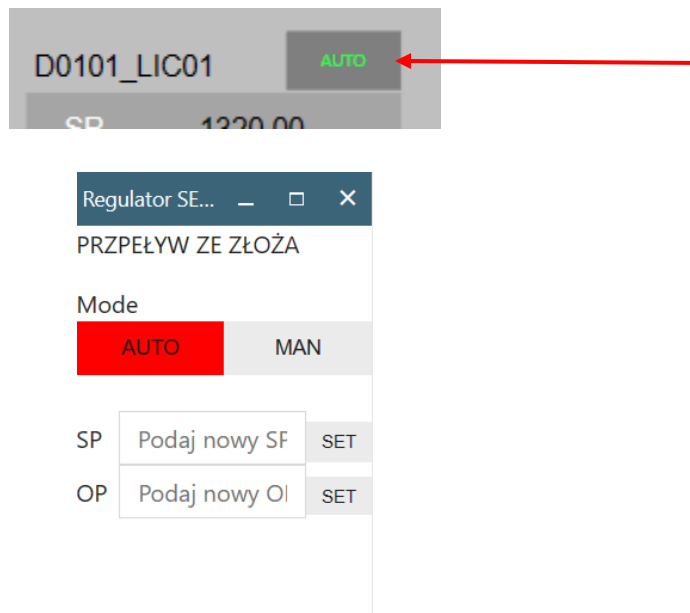
The valve can be controlled with a single button ("OPEN/CLOSE"). After clicking on the button, the change of the valve position will be visible on the main mimicry. When you have finished working on a given valve, close the window.



Drawing 1. Valve window open/close.

### Control valve control

In order to override the control valve, the regulator window must be opened. The regulator window will appear after clicking on the operating mode block (AUTO/MAN).



### Regulator in AUTO mode (automatic operation)

By changing the SP (setpoint value) the regulator will start the work itself, override the control valve by changing the OP value of the regulator.

The SP will be changed after entering the new value in the text field and clicking the CHANGE button. The window will announce the change by displaying "SP CHANGED".

It may happen that the controller will be in the wrong mode in relation to the target operation (e.g. changing the SP when the controller is in MAN mode) - in this case the change will not be accepted and the controller window will return the message "WRONG CONTROLLER MODE".

### Controller in MAN mode (manual mode)

By changing the OP in manual mode, the Operator has the ability to control the valve manually. The change is done by entering the new OP value into the text field and clicking the CHANGE button. The change will be communicated through the window by displaying "OP CHANGED".

NOTE: the OP value for this application is in the range 0 - 100, which means that a full open can be achieved by entering 100 as an OP.

As for the control in automatic mode, an identical lock has been implemented for changing the OP in AUTO mode. Such overdrive will not be possible, the controller window will return the message "WRONG CONTROLLER MODE".

### **ESD Operation**

In the ESD tab you will find a summary table with the interlocks implemented in the control system. The table allows you to view the current process parameters along with the status of the blockage in the ESD system and, if required, to install maintenance override switches (MOS).

Punkt pomiarowy	Live Value	Status	MOS
PAHH03 - SEPARATOR HH PRESSURE	50.00	HEALTHY	<input type="checkbox"/> MSS_PAHH03
LAHH03 - SEPARATOR HH WATER LEVEL	1320.00	HEALTHY	<input type="checkbox"/> MSS_LAHH03
LAHH04 - SEPARATOR HH OIL LEVEL	1320.00	HEALTHY	<input type="checkbox"/> MSS_LAHH04
PALL04 - SEPARATOR LL PRESSURE	50.00	HEALTHY	<input type="checkbox"/> MSS_PALL04

### Reset

ESD reset is possible after removing the reason for the shutdown (HEALTHY status, for each signal) and clicking at the top of the window - ESD RESET.

**ESD STATUS: HEALTHY**

**RESET**

### Statuses

HEALTHY - means that the signal does not generate a switch-off signal for the given ESD.

PAHH03 - SEPARATOR HH PRESSURE	50.00	HEALTHY
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TRIPPED - means that the signal generates a shutdown signal for the given ESD.

LAHH03 - SEPARATOR HH WATER LEVEL	1736.24	TRIPPED
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MOS ACTIVE - means that the signal is omitted by the ESD system (forced signal "1", which means that the system treats this signal as HEALTHY).

The use of MOS allows the installation to work or operate valves despite the interlock signal. This function is useful when starting a system (levels below LL signals) or restoring a system after a failure due to various process reasons. On real industrial installations, it allows service work to be performed on the transducers responsible for process shutdown, without affecting the process/production.

### MOS

MOS - maintenance override switch - can be activated by clicking on the switch in the table. Assuming MOS, as described above, causes the signal to be set to HEALTHY, even though the value for emergency shutdown is exceeded.