

## **PRIMUS PRI-MATIC® (PSS9) ALARMS - BASIC OVERVIEW**

---

### **Introduction**

This is the fourth in a series of Did You Know? bulletins that will cover various topics concerning the operation of PRIMUS' Pri-Matic® PSS9 control system.

The PRIMUS Pri-Matic® control system provides different alarms representing the various conditions which can cause the sterilizer to deviate from its normal operating conditions.

Alarm conditions will display a red alarm banner screen on top of the HMI current screen and will sound an audible alarm. Alarms are always annotated on the printout.

The red alarm banner screen will have a text message area which will identify the type of alarm, the date and time. The screen will have three buttons available to the user: **CLOSE ALARMS, SILENCE ALARM, and END CYCLE** (refer to Figure 1 E-stop Alarm Banner Screen on page 6).

If an alarm condition has occurred at any point during a cycle, the printout will end with the warning message: "Cycle May Be Compromised." This does NOT mean the cycle is automatically unacceptable, but it indicates that the operator must look at the tape and decide whether or not to accept the cycle as valid.

### **Alarm Priority**

The following table (Table1 Alarm Priority) presents the alarm priority as they are presented to the user.

If during a specific alarm, a higher priority alarm occurs, the lower priority alarm will be replaced by the higher priority alarm and the user is required to service that higher priority alarm before the lower alarm is re-presented (if it is still active).



# DID YOU KNOW?

NO: 287

DECEMBER 10, 2014

## PRIMUS PRI-MATIC® (PSS9) ALARMS - BASIC OVERVIEW (CONTINUED)

Alarm Priority	Alarm
1	Emergency Stop
2	Loss of Power
3	Rupture Disk
4	Sensor Failure
5	Max Chamber Pressure
6	Door Gasket
7	Door Switch
11	Water-in-Drain
12	Under Temperature
13	Over Temperature

**Table 1 Alarm Priority**

Not all alarms are available at every phase of the sterilizer's operation. The following table (Table 2 Alarms Enabled During Normal Operations) identifies which alarms are enabled during the different phases of a sterilizer cycle.

ALARM MODE/PHASE	Emergency Stop	Rupture Disk	Sensor Failure	Max Chamber Press	Door Gasket	Door Switch	Water -In- Drain	Under Temp	Over Temp
Idle	X	X	X						
Maintenance	X	X							
Gasket Charge	X	X	X						
Purge	X	X	X	X	X	X			
Pre-Charge	X	X	X	X	X	X			
Pre-Vacuum	X	X	X	X	X	X			
Charge	X	X	X	X	X	X	X		
Sterilize	X	X	X	X	X	X	X	X	X
Exhaust & Dry	X	X	X	X	X	X			
Air In	X	X	X	X	X	X			
Cycle Complete	X	X	X	X	X	X			
Sterilize Filter	X	X	X						
Vacuum & Hold	X	X	X		X	X			
Vacuum Test	X	X	X		X	X			

**Table 2 Alarms Enabled During Normal Operations**



PRIMUS

# DID YOU KNOW?

NO: 287

DECEMBER 10, 2014

## PRIMUS PRI-MATIC® (PSS9) ALARMS - BASIC OVERVIEW (CONTINUED)

---

When an alarm occurs, all processing stops and outputs are de-energized except for the Under Temperature alarm.

### Clearing an Alarm

Once an alarm occurs, the user will have to take some action to clear the alarm. Most alarms will halt the cycle and prevent the sterilizer from continuing until the condition causing the alarm is resolved.

The three buttons on the red alarm banner screen provide the mechanism for the operator to take action. The **CLOSE ALARMS** button returns to the screen active before the alarm was raised. The **SILENCE ALARM** button turns off the audible alarm notification. The **END CYCLE** button advances the cycle to **EXHAUST & DRY** or **AIR-IN** or **STERILIZE FILTER COMPLETE** for the **STERILIZE, VACUUM LEAK TEST**, or **STERILIZE FILTER** cycle, respectively.

### Alarm Operation

The following table (Table 3 Alarm Operation) provides the operational information specific to each type of alarm. When an alarm occurs, all processing stops and outputs are de-energized except for the Under Temperature alarm. A subsequent Sterilizer Reset can then be performed.



# PRIMUS

STERILIZER Company, LLC • 6565 South 118th Street • Omaha, NE 68137 • Phone (402) 344-4200 • Fax (402) 344-4242

# DID YOU KNOW?

NO: 287

DECEMBER 10, 2014

## PRIMUS PRI-MATIC® (PSS9) ALARMS - BASIC OVERVIEW (CONTINUED)

ALARM	Comments
Emergency Stop	Emergency Stop is disabled by deactivating the E-stop button.
Loss of Power	When loss of electrical power occurs, user interaction is required when power is restored.
Rupture Disk	Rupture Disk alarm requires maintenance personal. The repair must be made before the alarm can be cleared.
Sensor Failure	Disabling sensor alarms with the Maintenance Key will not automatically provide the correct temperature/pressure reading. A false chamber pressure reading due to a pressure sensor failure alarm will lockout door gasket retraction. Subsequent Sterilizer Reset can be performed after disabling this alarm. In order to retract the door gasket, the pressure sensor must reflect within + 1.0 PSI of atmospheric pressure.
Max Chamber Pressure	This alarm should be set in the Cycle Parameters to occur below the Rupture Disk rating.
Door Gasket	Touching the END CYCLE button will abort the cycle.
Door Switch	Touching the END CYCLE button will abort the cycle.
Water-In-Drain	Subsequent Sterilizer Reset can be performed after disabling this alarm with the Maintenance Key.
Under Temperature	This alarm will not suspend processing.
Over Temperature	Over Temperature will suspend all processing.

**Table 3 Alarm Operation**

Once closed, the red alarm banner screen cannot be re-opened by the operator. If a new alarm comes in, depending on its priority, the red alarm banner screen may or may not re-appear. If several alarms have occurred, each red alarm banner

Page 4 of 6



# PRIMUS

STERILIZER Company, LLC • 6565 South 118th Street • Omaha, NE 68137 • Phone (402) 344-4200 • Fax (402) 344-4242



## PRIMUS PRI-MATIC® (PSS9) ALARMS - BASIC OVERVIEW (CONTINUED)

---

screen will have to be closed. Because the red alarm banner screen always appears in the same place, it is possible to have more than one red alarm banner screen, but the second and subsequent screens will not be visible until the highest priority alarm condition is dealt with first.

### Note

**Even if the red alarm banner is closed accidentally before being able to use the other buttons, there are END CYCLE and SILENCE ALARM buttons available on many of the HMI screens which the operator can use in lieu of the buttons on the alarm banner screen.**

### The E-stop

The Emergency stop (E-stop) is not strictly considered to be an alarm, but is included in this section because of the tie to alarm priorities. The E-stop is unique in that it is available throughout all phases of sterilizer operation.

Activating the E-stop will remove electrical power from the PRIMUS Pri-Matic® PLC output module and provide the PRIMUS Pri-Matic® PLC with a discrete input which will cause the E-stop alarm banner to be displayed. Since the E-stop removes all outputs including buzzer, the buzzer will not sound. The door gasket(s) will remain charged during the E-stop and/or loss of power.

The Figure 1 E-stop Alarm Banner Screen illustrates the E-stop alarm banner. Because all power is removed, the **SILENCE ALARM** and **END CYCLE** buttons will have no function in this instance and are grayed out.

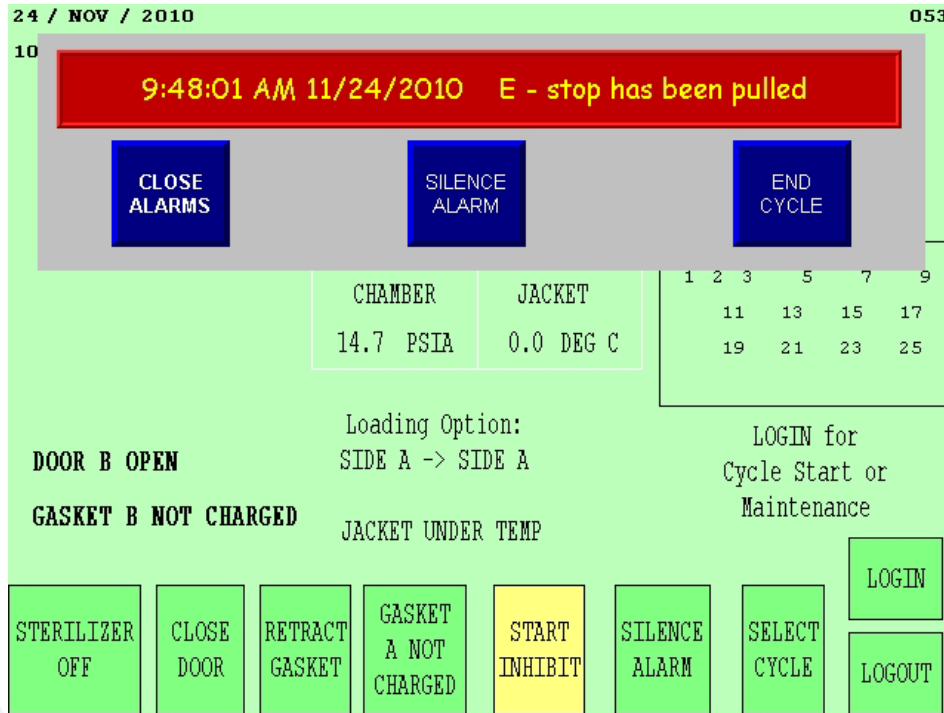


# DID YOU KNOW?

NO: 287

DECEMBER 10, 2014

## PRIMUS PRI-MATIC® (PSS9) ALARMS - BASIC OVERVIEW (CONTINUED)



**Figure 1 E-stop Alarm Banner Screen**

If the user closes the alarm using the **CLOSE ALARMS** button, the red alarm banner screen will close and the previous screen will be displayed. The sterilizer will remain stopped until the E-stop is deactivated.

