

Sechrist Millennium Technical Bulletin 001

Cannot Reset "A01: Low / Loss of Inlet Gas Pres" Alarm

Understanding A01 Alarm

The "A01: Low / Loss of Inlet Gas Pres" alarm can be activated if either or both of the following conditions do not meet:

1. **The air or oxygen inlet supply pressure must be above 30 PSIG threshold (2.11 kg/cm², 206.8 kPa);**
2. **The differential pressure between air and oxygen inlet supplies must be less than 20 PSI (1.41 kg/cm², 137.9 kPa).**

When the alarm is activated, the "A01: Low / Loss of Inlet Gas Pres" alarm message is displayed on the LCD display panel. The red visual indicator and the audible alarm are also activated. You cannot reset the alarm if it is still active. If the alarm condition is corrected, both the alarm message and the red visual indicator remain, but the audible alarm is turned off automatically. The user can press the Alarm Reset button to clear both the alarm message and the red visual indicator.

NOTE: An exclamation mark (!) after the alarm message indicates that the alarm is still active and cannot be reset using the Alarm Reset button.

NOTE: An exclamation mark with dots (!.) after the alarm message indicates that there are more than one alarms occurring at the time.

Example 1:

If both air and oxygen inlet supplies are initially set at 60 PSIG (4.22 kg/cm², 413.7 kPa), and if the air inlet supply drops *below* 40 PSIG (2.81 kg/cm², 275.8 kPa), i.e. the differential pressure is *greater* than 20 PSI (1.41 kg/cm², 137.9 kPa), the A01 alarm is activated. At the same time, the gas "bypassing" or "cross-over" function from the air-oxygen mixer will start to replace the lost air with oxygen to continue balancing the mixer. If the air inlet supply rises above 50 PSIG (3.52 kg/cm², 344.7 kPa) with a pneumatic "hysteresis" of approximately 10 PSIG (0.70 kg/cm², 68.9 kPa), the gas "bypassing" or "cross-over" function ceases, and the A01 alarm can then be reset.

NOTE: The higher the gas inlet pressure, the higher the pneumatic "hysteresis" pressure is to be overcome to reset A01 alarm. The pneumatic

"hysteresis" pressure range is typically 8 ~ 18 PSIG (0.56 ~ 1.27 kg/cm², 55.2 ~ 124.1 kPa).

Example 2:

If both air and oxygen inlet supplies are initially set at 40 PSIG (2.81 kg/cm², 275.8 kPa), and if the oxygen inlet supply drops below its low threshold of 30 PSIG threshold (2.11 kg/cm², 206.8 kPa), the A01 alarm is activated. No gas "bypassing" or "cross-over" function from the air-oxygen mixer will take place because the differential pressure is *less* than 20 PSI (1.41 kg/cm², 137.9 kPa). If the oxygen inlet supply pressure is restored above 31 PSIG (2.18 kg/cm², 213.7 kPa) with a relatively small "hysteresis" pressure, the audible alarm is reset automatically. The visual indicator and A01 alarm message remain until user presses the Alarm Rest button.

A01 Alarm Can Be Caused By:

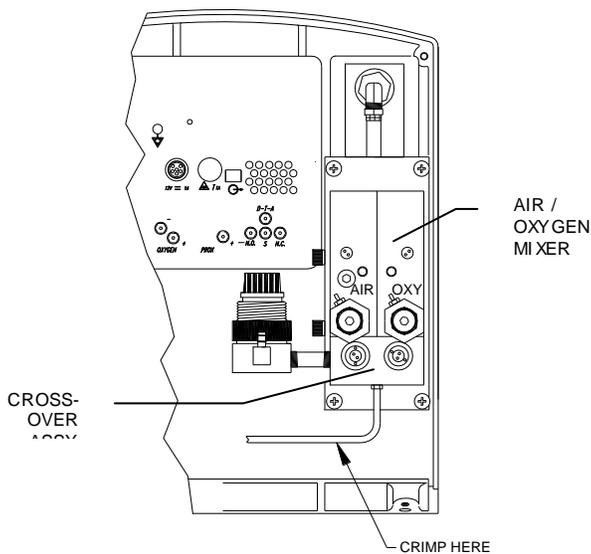
- a) Low or loss of air inlet supply
- b) Low or loss of oxygen inlet supply
- c) Clogged inlet filter
- d) Hospital gas supply regulator malfunction
- e) Excessive pressure drop between hospital gas supply source and the ventilator gas inlets
- f) Unbalancing of air-oxygen mixer, i.e. differential pressure between air & oxygen is greater than 20 PSI (1.41 kg/cm², 137.9 kPa)
- g) Air-oxygen mixer malfunction
- h) Inlet air pressure transducer malfunction
- i) Inlet oxygen pressure transducer malfunction

Inlet Gas Supply Requirements

- a) Air: 30 to 60 PSIG Medical Grade
2.11 to 4.22 kg/cm²
206.8 to 413.69 kPa
- b) Air Fitting: No. 1160A (Male), CGA-DISS with
Filter & Water-trap
- c) Oxygen: 30 to 60 PSIG Medical Grade
2.11 to 4.22 kg/cm²
206.8 to 413.69 kPa
- d) Oxygen Fitting: No. 1240 (Female), CGA-DISS

Verify If Air-Oxygen Mixer / Cross-Over Assembly Malfunctions

- Open the Millennium back cover to expose the air-oxygen mixer.
- Set both air and oxygen inlet supplies to 50 PSIG.
- If A01 alarm is activated and cannot be reset...
- Crimp off the 1/16" tubing immediately from output port of the cross-over assembly residing below the air-oxygen mixer (see figure below).
- If audible alarm is reset automatically, press Alarm Reset button.
- If visual indicator and A01 alarm message is cleared, then Air-Oxygen Mixer/Cross-Over assembly is malfunctioned and should be serviced by authorized personnel.



Verify If Air Or Oxygen Pressure Transducer Malfunctions

- Setup the test system as shown in figure below.
- Adjust both regulators to 0 PSIG.
- Connect the Test Fixture directly to the DC Power input.
- Hold down the Calibration button (CAL) on the Test Fixture and turn the Power (I/O) toggle switch to ON.
- Millennium will enter pressure transducer calibration mode.
- Verify that both air & oxygen pressure transducers @ 0 PSIG are between 6 and 95 raw counts (51 nominal).
- Adjust air inlet regulator to 30 PSIG (2.11 kg/cm², 206.8 kPa), verify that the raw counts are between 98 and 250 (181 nominal).
- Adjust oxygen inlet regulator to 30 PSIG (2.11 kg/cm², 206.8 kPa), verify that the raw counts are between 98 and 250 (181 nominal).
- If both air and oxygen pressure transducers are within specifications, then the transducers are functioning normally.
- Otherwise, the failed transducer should be replaced by Sechrist service technician.

IMPORTANT: The above procedure is for verification only. DO NOT PRESS ANY FRONT PANEL PUSH-BUTTONS (As it might change the calibration settings). Once verification of air or oxygen is completed, make sure to turn the Power (I/O) toggle switch of the Test Fixture to OFF to exit the pressure transducer calibration mode.

