

# Hydrogen Sulfide Analyzer

## TAC-H<sub>2</sub>S Two Stream Switching Analyzer



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**TAC**

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**ALARM DELAY:** Time in minutes before the alarm will activate.

**ALARM LATCHING:** Must manually acknowledge to reset after reading has dropped below the set point.

**ALARM NON-LATCHING:** Will automatically reset when reading drops below set point.

**COUNTS:** A digital representation of current or voltage. This PLC 20mA or 10VDC equals 32,000 counts.

**PUMP FAIL:** Insufficient or no clearing air supplied by the pump to the analyzer.

**LOOP POWER:** The device is passive and must have a power source (DC voltage) in order to operate.

**SELF POWERED:** The device is active and is powered by the PLC with a DC voltage.

**OVER-RANGE:** Reading has exceeded the maximum range of measurement.

**H<sub>2</sub>S SENSOR SATURATION:** Has absorbed the absolute maximum and usually takes time to dissipate (clear).

**SENSOR FAIL:** Did not have sufficient span to calibrate for reliable readings.

**SENSOR WEAK:** Calibration has calculated sensor is approaching fail condition and will soon need replacement.

## 2 Installation

### 2.1 Safety Requirements

Operators are responsible for performing their own testing and analysis, as well as meeting all safety requirements during installation and operation.

#### Safety Checklist

- Do not exceed 20 psig. This can damage the analyzer.
- Ensure that all connections are leak tight. This is important for analyzer effectiveness and safety.
- Before sampling, verify that the analyzer and sampling system are installed securely.
- Do not use any solvents or cleaners in the analyzer and sample-conditioning systems.
- DUE TO HIGH CONCENTRATIONS OF H<sub>2</sub>S, A FILTER MUST BE ADDED BY THE END USER TO ABSORB THE H<sub>2</sub>S THAT IS VENTED FROM THE ANALYZER.

### 2.2 Mounting the Instrument

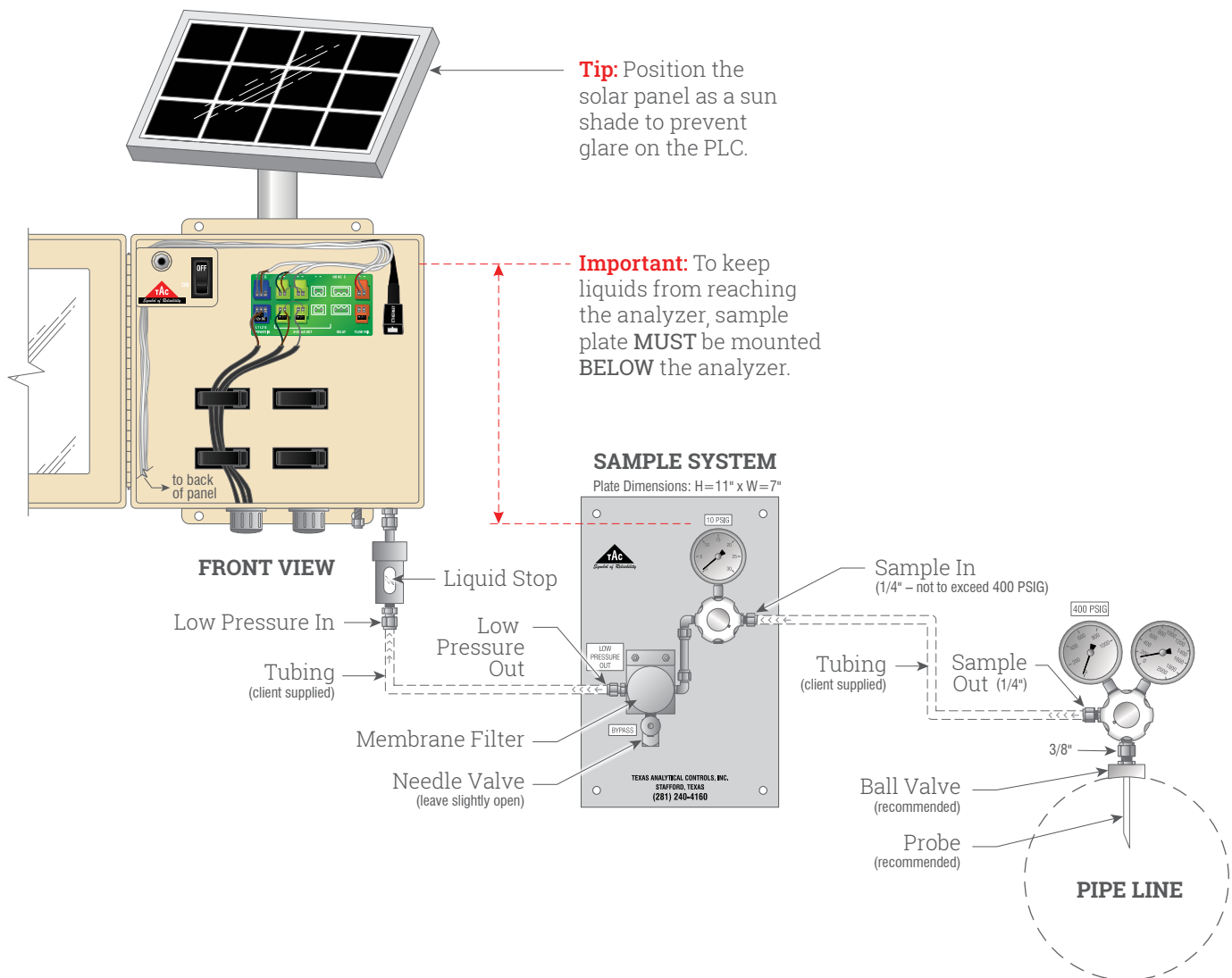
Mount the analyzer in shade. Strong, direct sunlight can overheat the instrument, causing improper operation. If necessary, make a roof of some sort to shade the instrument. Use stainless steel tubing (316 ¼" O.D.) from the sample point to the analyzer, minimizing the distance to increase response time. For proper function, apply a constant pressure of approximately 10 psig. Sample pressure may require multiple pressure drops. You can purchase a sample-conditioning system from TAC.

**NOTE:** Sample plate must be mounted below the analyzer to keep liquids from reaching the analyzer.

## 2.3 Sample Conditioning System

The sample-conditioning system ensures a clean, regulated sample for the analyzer. Sample-gas composition and pressure, along with other factors, may require modifying the conditioning system for a specific application. Mount the sample-conditioning system below the analyzer if possible. The typical system may consist of a sample probe, drip pot, one or two regulators, and a membrane filter. Some samples require an additional pressure regulator at the sample tap. One to three pressure drops may be necessary to ensure that the analyzer receives a sample that is free of liquids. A typical system is illustrated below.

**NOTE:** Configuration may be different pending the analyzer ordered.



## 2.4 Electrical Connections

The input power and the 4-20mA connections are in the analyzer's enclosure. The power switch is in the upper left-hand corner of the enclosure. Use it to recycle the power as needed.

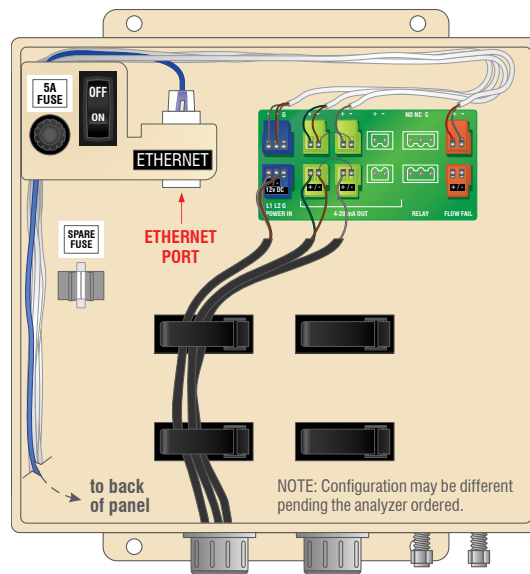
Power the instrument with a source that is not likely to fail or to be accidentally turned off. The analyzer will begin operating as soon as the power is connected, drawing approximately 1 AMP at 110 VAC. Use at least an 18 AWG wire.

### For AC-Powered Units

- Use three wires.
- Connect them to the BLUE connector labeled L1, L2, and GND.

### For DC-Powered Units

- Use two wires.
- Connect them to the BLUE connector labeled 12VDC or 24VDC.
- Red wire to "+," and black wire to "-".



If ordered, Alarm 1 and Alarm 2 are single-pole, double-throw, form C (dry contact— requires external power). The contacts are rated for 2 amps at 125 volts AC and 4 amps at 30 volts DC. The customer connection board includes three terminals for each relay: common (C), normally open (NO) and normally closed (NC). These relays are fail-safe connected: When the analyzer is off or in an alarm condition, C and NC are connected. When the analyzer is on, and no alarms are activated, C and NO are connected.

Each analyzer comes standard with an orange, 2 pin connector for flow fail signal. A 5 AMP fuse is included to protect the analyzer from an overload. A spare fuse is also provided.

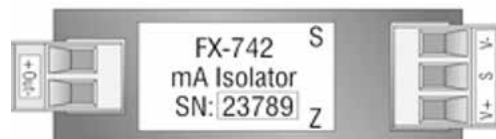
The analyzer draws approximately 1 amp, depending on its configuration. If the analyzer is powered by solar panels, the size of the solar panel and battery is extremely important. If the analyzer's power requirements are not met, the controller may lose its program.

## 2.5 Communication Outputs

X7 Series analyzers come, standard, with a self-powered 4-20mA, Modbus via RTU serial port MJ1/2, and RS232/485 via LAN. The Ethernet connector is used for the RS 232/485. Consult tech support to change to the RTU port.

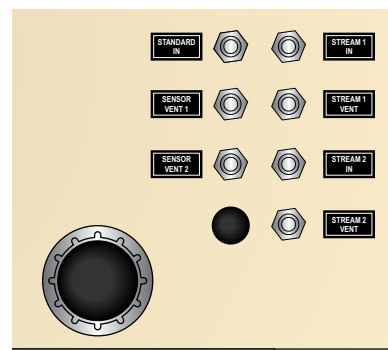
### 2.5.1 Optional Isolated 4-20 mA

An optional isolated 4-20 mA output is available, offering linear users definable current output that is proportional to the gas concentration. It typically is connected to a recorder or similar instrument, such as an analog input to a remote SCADA unit. The connections are labeled "+" and "-". Its power is provided internally/self-powered. You can purchase an isolated, loop-powered device (Part # FX-742) from Texas Analytical Controls.



## 2.6 Tubing Connections & Instructions

The sample flows into the analyzer through STREAM 1 IN and STREAM 2 IN and sweeps out of the instrument through the STREAM 1 VENT, STREAM 2 VENT and SENSOR VENTS 1 and 2. The calibration standard is connected to the STANDARD IN bulkhead. All analyzer in/out connections occur through bulkhead fittings on the bottom of the enclosure. These are compression (ferrule) fittings for 1/4-inch OD tubing. Connect all fittings as explained below. The Sample Vent does not connect via tubing. **Read and follow the below instructions carefully, otherwise, the instrument may not operate accurately.**



Bottom of Enclosure– configuration may be different pending the analyzer ordered.

### Sample In

- The samples to be analyzed enter the unit through STREAM 1 IN and STREAM 2 IN bulkheads.
- Use a regulator or probe in the sample line to maintain a constant pressure.
- The instrument's accuracy drops when the inlet pressure varies. Therefore, we recommend maintaining a constant pressure of 10 psig.
- The inlet pressure drives the sample through the instrument. The pressure should be high enough to maintain the desired flow, yet low enough to reduce the accumulation of liquids in the analyzer.
- The instrument allows the sample gas to flow continuously through the SAMPLE VENT outlet.
- Use 1/8" tubing on inlet piping to speed response times.

### Standard In

- The calibration standard is temporarily connected during analyzer calibration.

### Sample Vent

- **DUE TO HIGH CONCENTRATIONS OF H<sub>2</sub>S, A FILTER MUST BE ADDED BY THE END USER TO ABSORB THE H<sub>2</sub>S THAT IS VENTED FROM THE ANALYZER.**
- While the analyzer is measuring gas in the stream, its constantly venting gas while its switching back and forth from STREAM 1 and STREAM 2 and back and forth through SENSOR 1 AND 2 VENTS.
- Remember: To keep it flowing, the sample's discharge point always must be at a lower pressure than that of the sample inlet.
- To reduce back pressure, use pipe or tubing large enough to carry 2 SCFH of sample gas appropriately.

TAC Model X7-M-2-H is designed to switch between sample streams to provide individual hydrogen sulfide readings. The PLC sends a signal to a pneumatic valve automatically switching between the 2 streams. The factory default is set to read stream 1 for 25 minutes and then switch to stream 2. The PLC will hold and display the last reading while the other stream is being monitored. The minimum amount is 10 minutes per stream and the maximum amount is 720 minutes per stream. To make any necessary changes, press the MENU button and then press SAMPLE SETTINGS.

Texas Analytical Controls is constantly striving to make improvements to the programs used in our analyzers. Depending on when your analyzer was purchased some of the features illustrated in our manuals may or may not be included. For an updated program call TAC at 281-240-4160.

The analyzer uses a 7-inch touchscreen programmable logic controller (PLC), with a removable microSD card that data logs and stores the TAC program.

We describe below what happens inside the instrument at various stages of operation. Because the H<sub>2</sub>S sensors are proprietary devices, we don't describe their operation, but we do describe how the sensors measure the H<sub>2</sub>S in a flowing gas stream.

The current delivered by the H<sub>2</sub>S sensor is fed to an analog device, which converts it to DC voltage. The voltage is delivered to a microprocessor that measures the H<sub>2</sub>S in the flowing stream.

## 3.1 Function of the Microprocessor

### For H<sub>2</sub>S Measurement

- The microprocessor controls the pneumatic valve to switch between Stream 1 and Stream 2.
- The microprocessor controls three electric solenoid valves— two sensor valves and one stop valve.
- The microprocessor allows an inert (air) portion of the unit to purge a sample line to the sensor; this normally takes about 75 seconds.
- Next, the microprocessor activates the electric solenoid valve, which passes the process gas over the sensor for approximately 15 seconds.
- The microprocessor records the reaction rate of the sensor to the process gas, comparing it to the established rate of the calibration gas.
- The microprocessor then switches to Sensor 2 and repeats the above steps, averaging the two sensor readings and displaying the averaged reading. This completes the measuring cycle.
- During calibration, turn the manual valve from the sample stream to the calibration standard. Each sensor is calibrated twice.

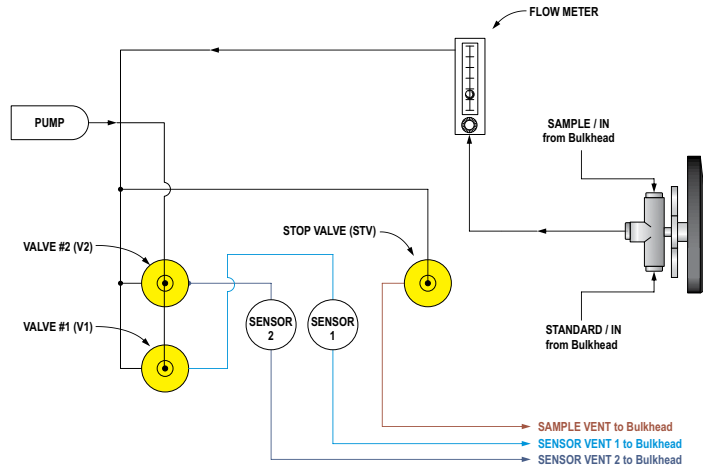
Sample In



Standard In

**NOTE:** Depending on the configuration, the analyzer may use four valves; two sensor valves, one stop and one calibration valve. Or three valves and one manual calibration valve.

## 3.2 Typical H<sub>2</sub>S Flow Diagram



## 4.1 Screen Display

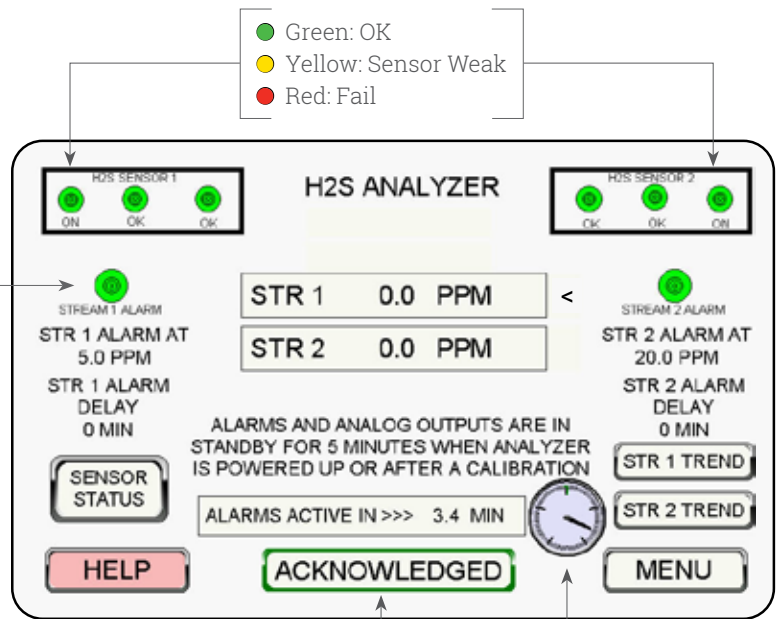
After the analyzer is powered up, it displays warm-up screens, then the TAC address and phone number, then the main screen. On subsequent screens, press the READINGS button at any time to return to the main screen.

### The Main Screen Displays:

- H<sub>2</sub>S readings for STREAM 1 and STREAM 2 (++++ signifies "over range").
- > Signifies which stream is active.
- Alarm 1 and 2 setpoints: When in alarm mode, these are red.
- Alarm delay.
- SENSOR STATUS buttons.
- Timer countdown to activation of alarms and 4-20.
- Pump conditions.
- ACKNOWLEDGED button

Changes to Red and Flashes During Alarms

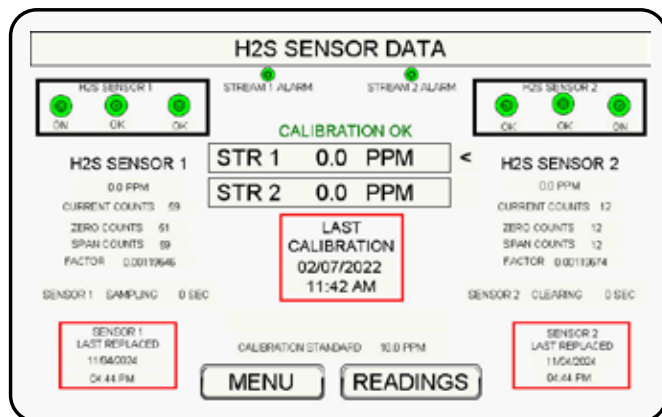
- Sensor Weak = H<sub>2</sub>S sensors are approximately 75% used and should be replaced soon.
- H<sub>2</sub>S Saturation = H<sub>2</sub>S levels exceed the analyzer's range.



To clear alarms and pump, press ACKNOWLEDGED.

Timer countdown for alarms/4-20.

The sensor status screen provides this information.



### Tips

- To return to the main screen, press READINGS.
- To return to the menu screen, press MENU.
- To show the trend, press TREND.
- Press the MENU button at any time to return to the sub-screens.
- Press the READINGS button at any time to return to the main screen, showing current readings.

## 4.2 Calibration and Start-Up of the Analyzer

The analyzer does not require calibration at start-up because it is calibrated at the factory. TAC recommends calibration two weeks after gas is flowing and on a monthly basis.

The 4-20 and alarms are inactive at start-up. The timer on the main screen displays a countdown until they are active. The timer is set for 5 minutes. The 4-20 and alarms also are inactive during the calibration process and for 5 minutes after calibration.

The main screen shows “+++ Over range.” Pressing the Sensor Status button will reveal current counts of approximately 32,000 = over range.

### Analyzers with 4-20mA Output:

If an analyzer displays “over range,” it will show 20mA in the control room.

### Analyzers with Ethernet via TCP/IP:

If an analyzer displays “over range,” it will show 10<sup>6</sup> in the control room.

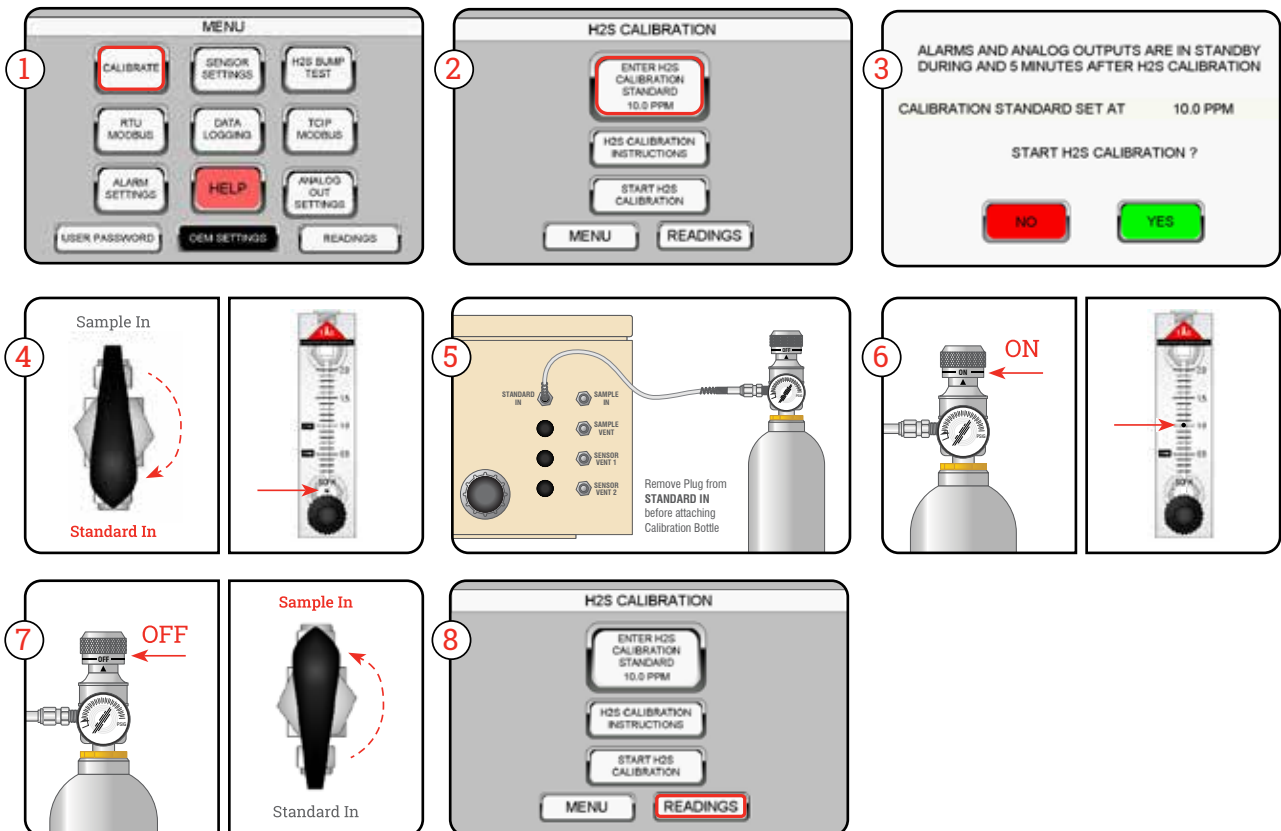


## 4.3 Calibrate Menu

### To Calibrate H<sub>2</sub>S

- 1 From the menu screen, press the CALIBRATE button to start calibration.
- 2 Verify or change the H<sub>2</sub>S-calibration standard as necessary. Use the keypad to enter the correct value. Press Enter to save.
- 3 Press YES to start calibration.
- 4 Turn the manual calibration valve to STANDARD IN. Press YES the calibration process will start. Observe the flow meter. It should drop to zero. (This confirms that the valves are switching properly.)
- 5 Connect the calibration bottle to the STANDARD IN port on the bottom of the enclosure.
- 6 Turn ON the calibration gas and adjust the flow meter to 1.0 SCFH.
- 7 Turn OFF the calibration gas and turn the manual calibration valve back to the SAMPLE IN position. Verify the flowmeter has returned to .5 scfh if not adjust accordingly.
- 8 To return to the main screen, press the READINGS button.

**Tip:** All the calibration instructions can be found by pressing the HELP Menu button.



## 4.4 H<sub>2</sub>S Sensor Settings Menu

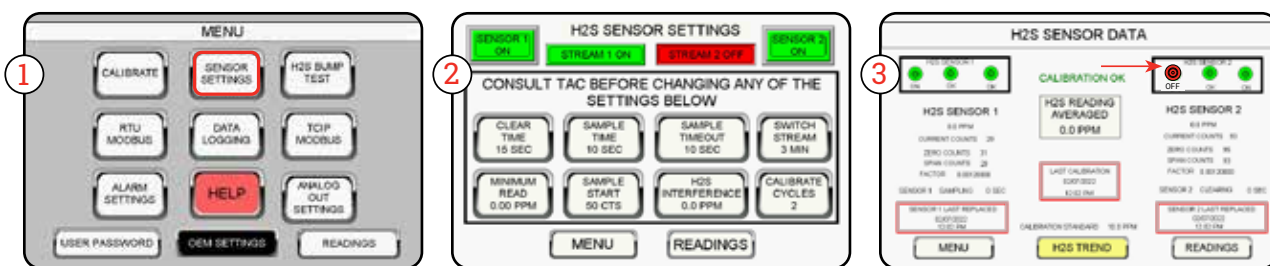
The H<sub>2</sub>S Sensor-setting button enables you to turn on or off one of the H<sub>2</sub>S sensors, turn sampling of stream 1 or 2 on or off, as well as adjust the sample time of stream and 2, and clearing times. **DO NOT CHANGE CLEARING TIME WITHOUT CONSULTING TAC TECH SUPPORT.**

If either H<sub>2</sub>S sensor is too weak to operate properly it can be turned off. The analyzer will continue to operate on one H<sub>2</sub>S sensor.

### To Turn Off a Sensor or Stream Sampling

- 1 From the menu screen, press the SENSOR SETTINGS button.
- 2 Press the respective sensor or stream to turn it off.
- 3 The main screen will show, in red, that the sensor or stream is off or disabled.

**NOTE:** Both Sensors and Both Streams can not be turned OFF.

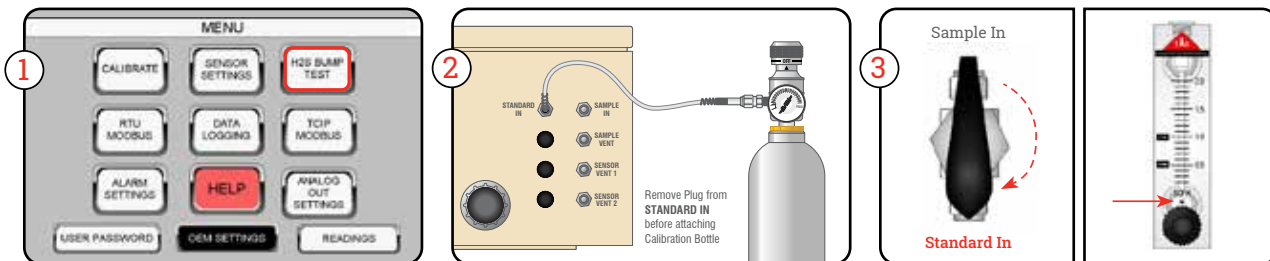


## 4.5 H<sub>2</sub>S Bump Test

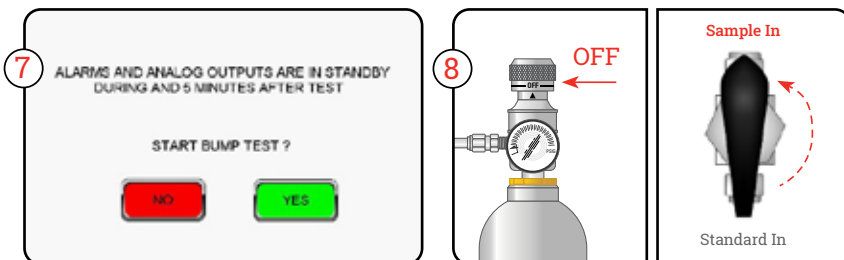
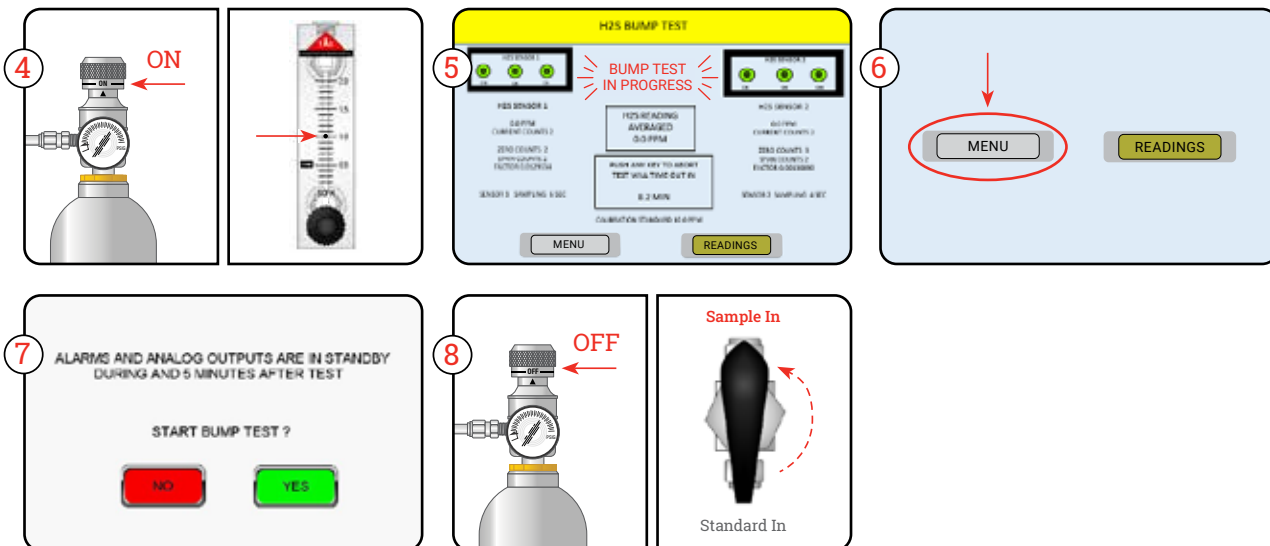
To verify the readings without removing the sample line, perform a bump test. The alarms and 4-20 are disabled during the bump test, as well as for 5 minutes after its completion.

### To Perform a Bump Test

- 1 From the menu screen, press the BUMP TEST button.
- 2 Connect the calibration gas to the STANDARD IN port. (Do not turn on the bottle gas yet.)
- 3 If there is a manual calibration valve, turn to STANDARD IN. If there is not a manual cal valve, when you press YES the calibration process will start. Observe the flow meter. It should drop to zero. (This confirms that the valves are switching properly.)
- 4 Turn on the calibration bottle and adjust the flow meter to 1.0.
- 5 The display will flash "Bump Test in Progress", and the countdown will begin.
- 6 To abort the bump test, press the MENU or READINGS button.
- 7 The display should read the same as the calibration standard.
- 8 Turn off the bottle gas and return the manual valve to SAMPLE IN.



*continued >*



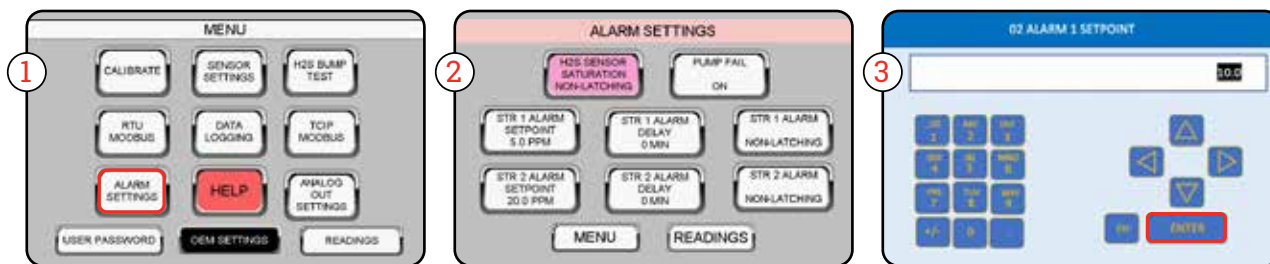
## 4.6 Alarm Settings Menu

### To Change the Alarm Settings

- From the menu screen, press the ALARM SETTINGS button.
- The alarm settings menu will be displayed. Select the button for the setting you wish to change.
  - Set/change the alarm setpoints.
  - Set an alarm delay.
  - Turn on or off the pump-fail warning.
  - Set sensor saturation to latch or non-latch.
- Use the keypad to enter the desired alarm setpoints and delays and Press ENTER to save.

### Tips

- Press the MENU button at any time to return to the alarm settings menu.
- Press the READINGS button at any time to return to the main menu screen.

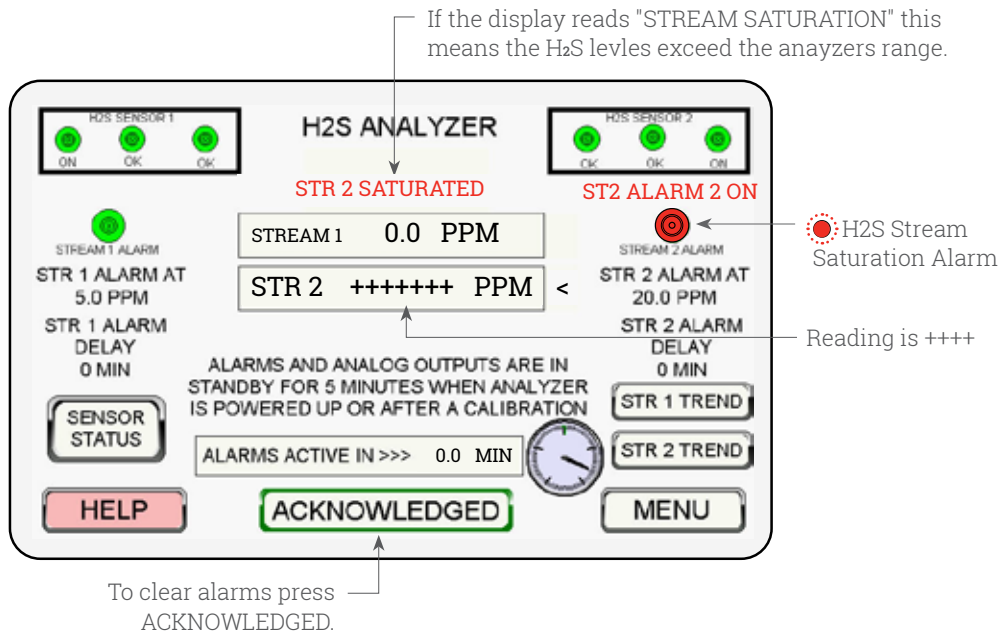


## 4.6.1 H<sub>2</sub>S Sensor Saturation Alarm

The default for sensor saturation is “non-latch.” However, continuous saturations occurring in non-latch mode may decrease sensor life. The analyzer may require recalibration. Sensor saturation means the H<sub>2</sub>S levels exceed the analyzer’s range. Saturate mode can be changed to “latch.”

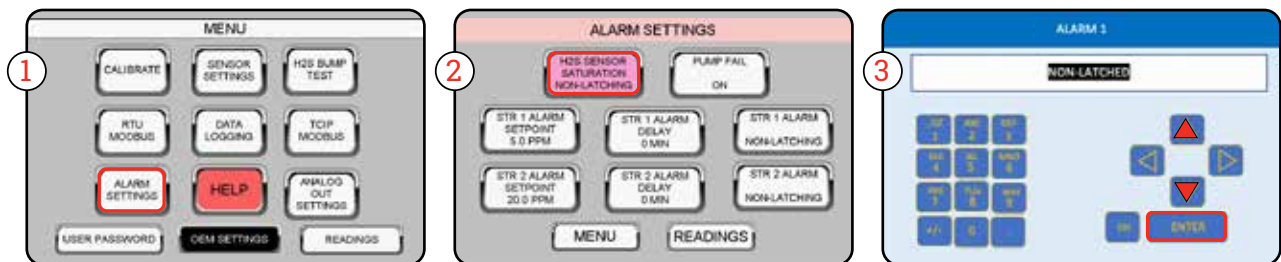
If the sensors are in saturation mode, **the analyzer remains in clearing mode.** The sample bypasses the sensors until the operator presses the ACKNOWLEDGED button to clear the latch. If the analyzer re-latches, it signifies that the H<sub>2</sub>S levels remain higher than the range. The analyzer may require purging.

**During H<sub>2</sub>S sensor saturation, the main screen displays the following:**



### To Change the Latch Setting

- 1 From the menu screen, press the ALARM SETTINGS button.
- 2 The alarm settings menu will be displayed. Select the H<sub>2</sub>S SENSOR SATURATION LATCHING button.
- 3 Press the UP/DOWN ARROWS to toggle between latched and non-latched. Press ENTER to save.

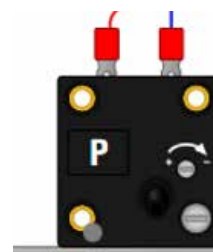


## 4.6.2 Pump Fail Alarm

There is a pressure sensors in each analyzer, for the internal pump.

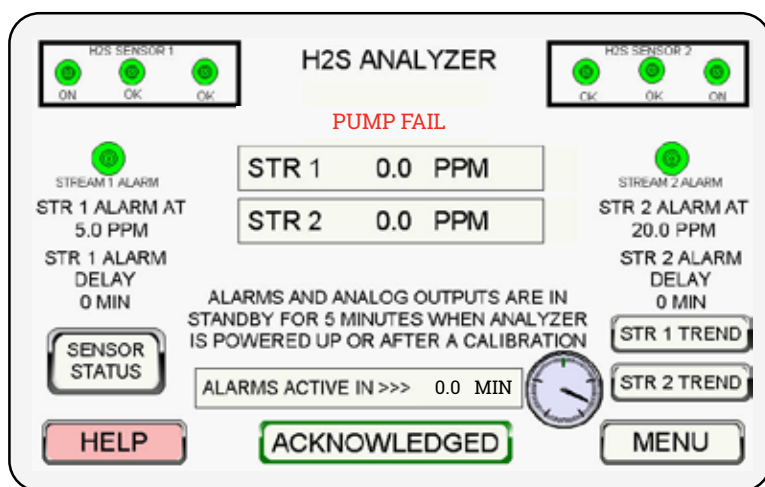
The internal pump that clears the H<sub>2</sub>S sensors between cycles typically lasts 3-5 years. If it fails, the main screen will flash "PUMP FAIL."

If the fail alarm re-occurs, and you suspect a **false failure**, the pressure sensor can be adjusted. If the sensitivity has been adjusted to the maximum level and the pump fail warning returns, then the pump fail warning can be disabled until they the pressure sensor can be replaced.



Pump Fail Assembly  
12v or 24v

**During a pump fail, the main screen displays the following:**



**Tip:** The following instructions are also available by pressing the HELP button on the menu screen.

### To Clear Pump Fail

- 1 Touch the pump to verify that it is still vibrating and, therefore, working properly.
- 2 Press the ACKNOWLEDGED button on the main screen to clear alarm.

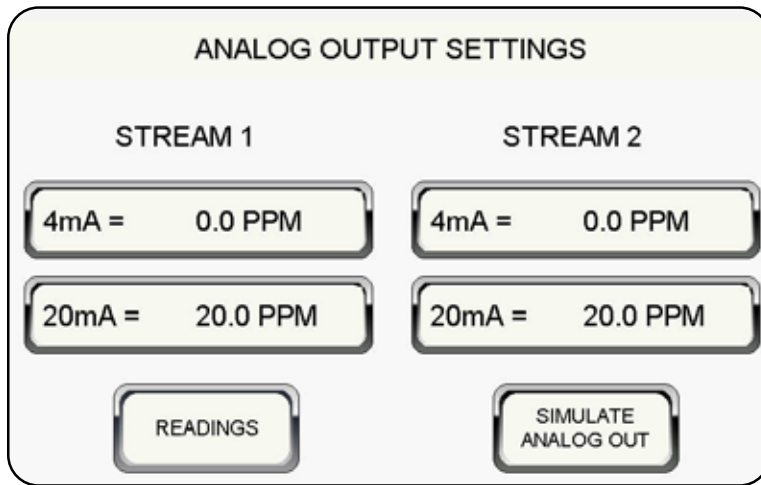
### To Turn Off Fail Warnings

- 1 From the alarm setting menu, press the pump-fail button to display the settings screen.
- 2 Press the UP/DOWN ARROWS to toggle between "on" and "off" and press ENTER to save.

### To Adjust the Pressure Sensors

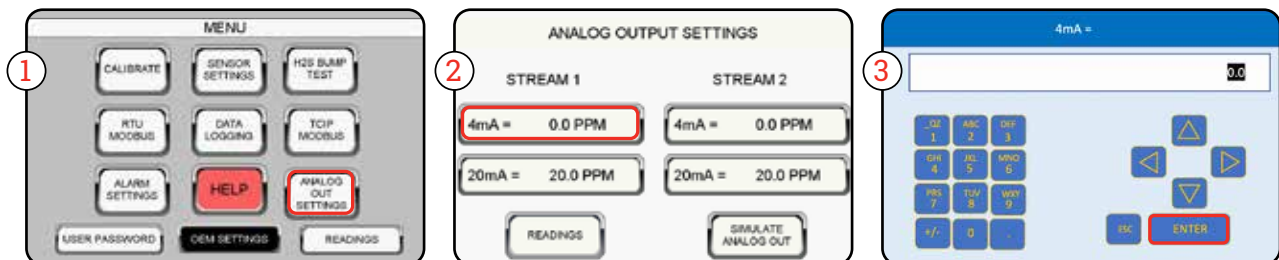
- 1 Using a flat head screwdriver turn the potentiometer clockwise a ½ turn.
- 2 Press the ACKNOWLEDGED button on the main screen to clear alarm.
- 3 Wait approximately 2 minutes to make sure the flow or pump fail doesn't return. Repeat the process if necessary.

## 4.7 Analog-Out Settings Menu



### To Change Analog-Out Settings

- 1 From the menu screen, press the ANALOG OUT SETTINGS button.
- 2 The analog output settings menu will be displayed. Pressing the desired buttons allows you to set/change the 4-20 mA.
- 3 Use the keypad to enter the values and press ENTER to save.
- 4 Press the MENU button to return to the menu screen. Press the READINGS button to return to the main screen.



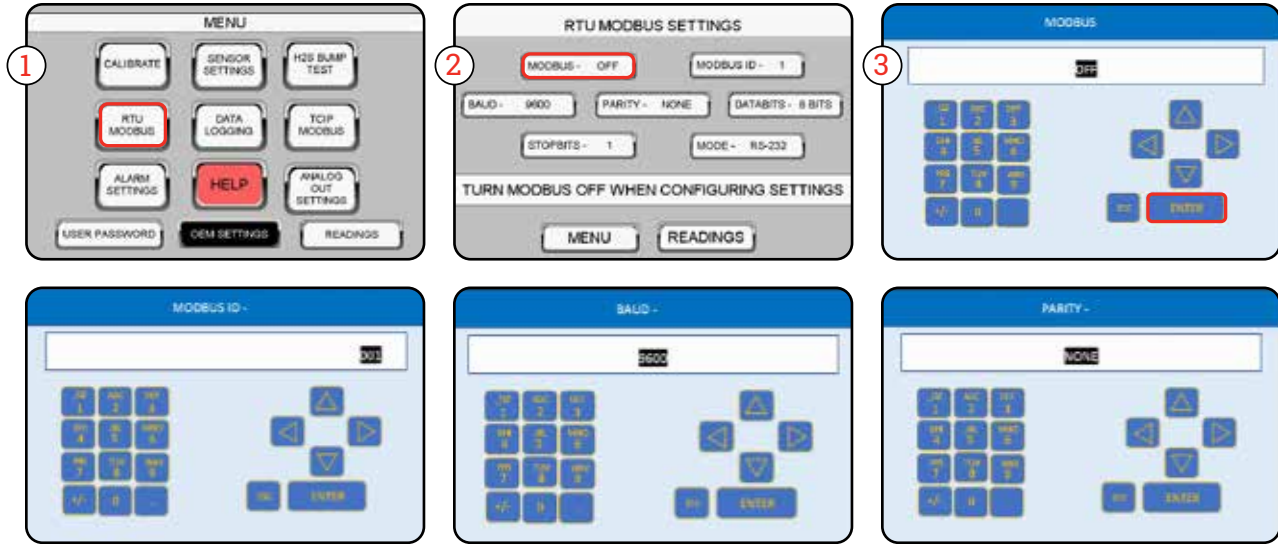
### The 4-20mA can be simulated to verify proper output

- 1 Press the SIMULATE ANALOG OUT button.
- 2 Adjust your multimeter to mA mode.
- 3 The value you enter on the controller should match the display on the multimeter.
- 4 Press the MENU button to return to the menu screen. Press the READINGS button to return to the main screen.

## 4.8 RTU/Modbus Menu

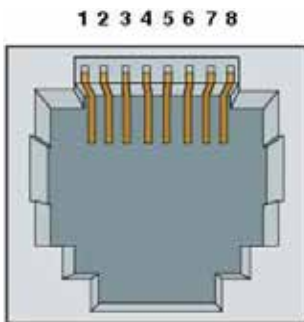
### To Change the RTU/Modbus Settings

- 1 From the menu screen, press the RTU MODBUS button.
- 2 Turn MODBUS OFF when configuring settings. Press the desired button(s) to set/change the modbus settings.
- 3 Use the keypad to enter the values and press ENTER to save.
- 4 Press the MENU button to return to the menu screen. Press the READINGS button to return to the main screen.



### 4.8.1 Pin Outs

Pin	Signal	Direction
1	RX+/ TX+	IN/OUT
2	RX-/ TX-	IN/OUT
3	CTS	IN
4	RTS	OUT
5	+5v 60mA*	OUT
6	0V	GROUND
7	RXD	IN
8	TXD	OUT



### MODBUS REGISTERS

%R2001 REAL STREAM 1 READING	%R2020.1 BOOL WATCH DOG
%R2003 REAL STREAM 2 READING	%R2020.2 BOOL CURRENT STREAM
%R2005 REAL SENSOR 1 READING	%R2020.3 BOOL STREAM 1 ALARM
%R2007 REAL SENSOR 2 READING	%R2020.4 BOOL STREAM 2 ALARM
%R2009 REAL ST1 ALARM SETPOINT	%R2020.5 BOOL STR 1 SATURATED
%R2011 REAL ST2 ALARM SETPOINT	%R2020.6 BOOL STR 2 SATURATED
%R2013 REAL SENS 1 CAL FACTOR	%R2020.7 BOOL PUMP FAIL
%R2015 REAL SENS 2 CAL FACTOR	%R2020.8 BOOL NOT USED
	%R2020.9 BOOL H2S SENSOR 1 OFF
<b>WRITE</b>	%R2020.10 BOOL H2S SENSOR 2 OFF
%R2050.1 BOOL ALARM RESET	%R2020.11 BOOL SENSOR 1 WEAK
	%R2020.12 BOOL SENSOR 2 WEAK
	%R2020.13 BOOL SENSOR 1 CAL FAIL
	%R2020.14 BOOL SENSOR 2 CAL FAIL
	%R2020.15 BOOL STREAM 1 DISABLE
	%R2020.16 BOOL STREAM 2 DISABLE

\*\*\* ADDRESS OFFSET 3000  
EXAMPLE TO POLL %R2001  
ENTER %R5001

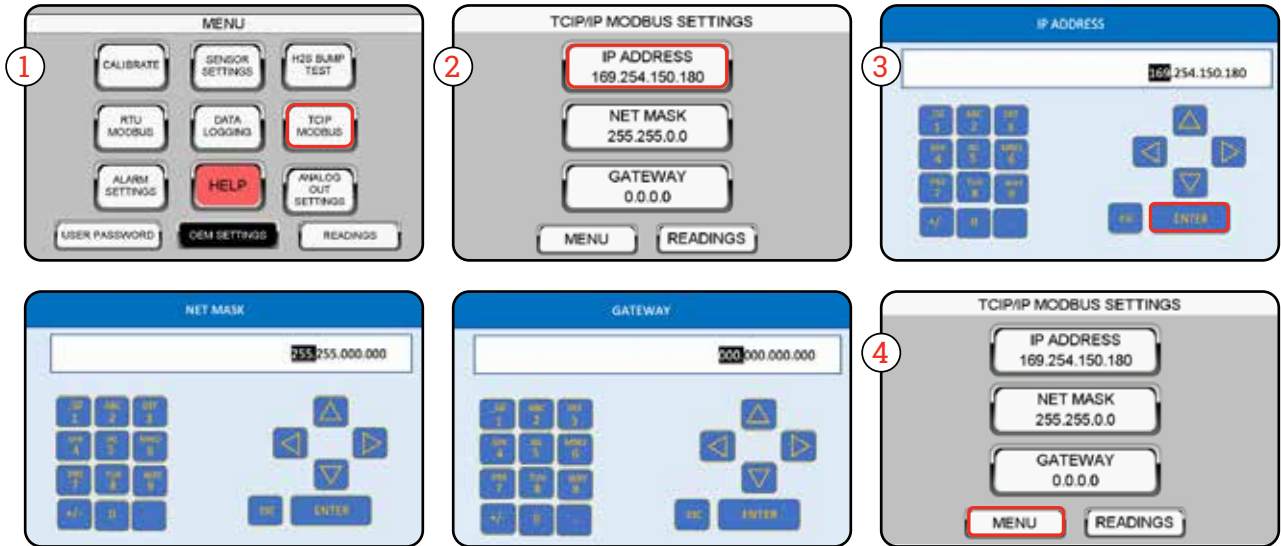
MENU
READINGS

**Tip:** The Modbus registers are also under the HELP button.

## 4.8.2 TCP/IP Menu

### To Change the TCIP Settings

- 1 From the menu screen, press the TCIP MODBUS button.
- 2 Press the desired button(s) to set/change the settings.
- 3 Use the UP/DOWN ARROWS or keypad to enter the required data and press ENTER to save.
- 4 Press the MENU button to return to the menu screen. Press the READINGS button to return to the main screen.

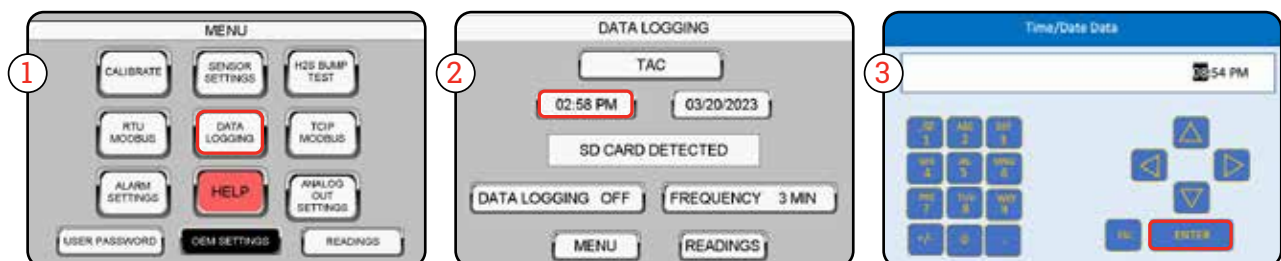


## 4.9 Data-Logging Menu

The data-logging screen allows you to set the date and time, turn data logging on and off, and verify that the SD card is inside the controller.

### To Change the Data-Logging Settings

- 1 From the menu screen, press the DATA LOGGING button.
- 2 Press the desired button(s) to set/change the settings.
- 3 Use the keypad to enter the required data and press ENTER to save.
- 4 Press the MENU button to return to the menu screen. Press the READINGS button to return to the main screen.



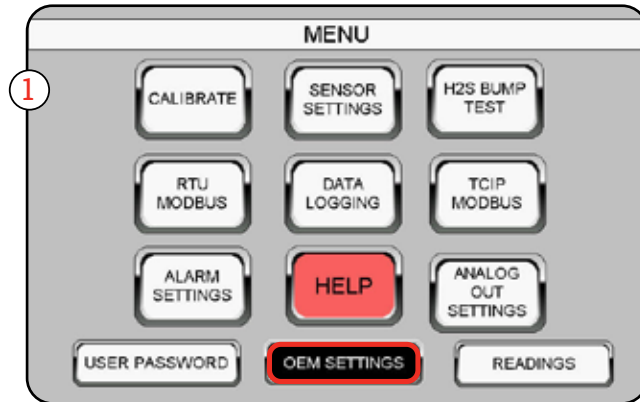


## 4.10 OEM Settings Menu

Approval by TAC tech support is required to enter this screen.

### To Change the OEM Settings

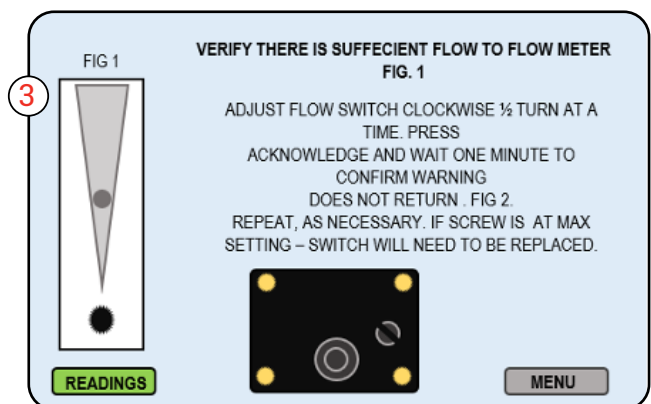
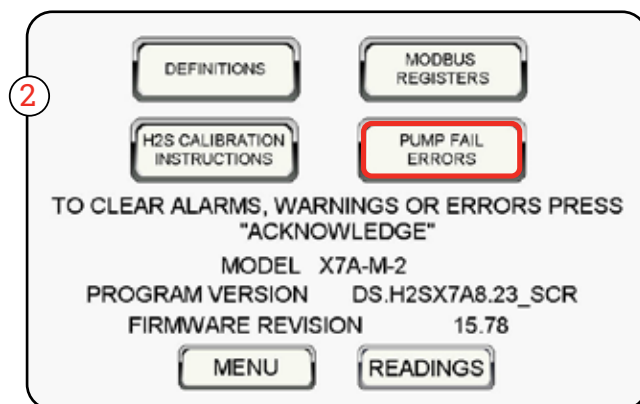
- 1 From the menu screen, press the OEM SETTINGS button.
- 2 Enter the password and follow the steps.
- 3 Press the MENU button to return to the menu screen. Press the READINGS button to return to the main screen.



## 4.11 Help Menu

### To Access the Help Menu

- 1 From the menu screen, press the HELP button.
- 2 The help screen provides the following information. Press each button for additional information.
- 3 For example, by pressing the FLOW FAIL button the below troubleshooting information is available.

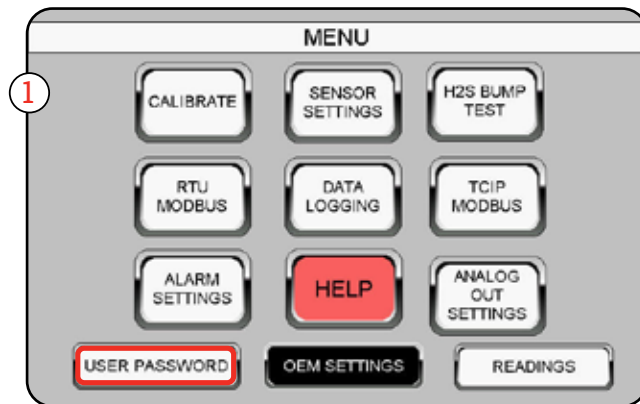


## 4.12 Password Protection Feature

A new feature has been added to our analyzers. Program Version: 4.22 allows you to password protect various settings of your analyzer. For example to start calibration: if the password protect feature has been enabled; the operator will be required to enter the 4 digit code to gain access to this screen.

### To Change Password Protection Settings

- 1 From the menu screen, press the USER PASSWORD button.
- 2 Press PASSWORD ENABLED or DISABLED to set. The Password is set to 2030.  
To change the default password consult the TAC Support team.



## 5.1 Occasional External Inspection

To be sure the analyzer is operating properly, conduct the following two (external) visual checks. **Do not make internal adjustments without consulting a technician or the troubleshooting guide. Do not adjust any operating parameters through the operator interface. Do not adjust the needle valves unless you carefully follow the prescribed calibration procedures.**

### Sample Gas Pressure

- Read the sample-gas pressure at the sample-pressure gauge.
- As mentioned in the installation section, set this pressure to maintain the correct flow rate as determined during installation.
- Adjust the sample pressure with the sample-pressure regulator on the sample line. (Adjust any pressure during zero-flow conditions.)

### Vents Not Blocked

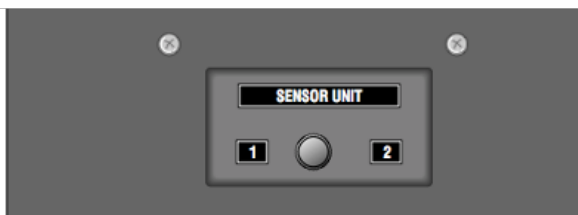
- The vent lines terminate at the bottom of the analyzer housing. Check the vent openings for obstructions and clear them.
- The instrument's accuracy depends on keeping vent lines perfectly clear, and bug screens on the vents help with this. You may purchase additional bug screens from TAC.

## 5.2 Replacing H<sub>2</sub>S Sensors

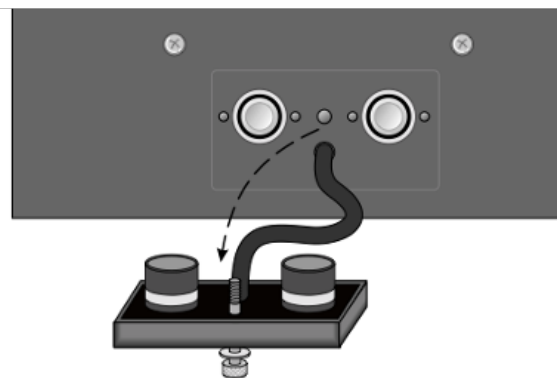
Replace both sensors at the same time. Allow them to warm up for 10 minutes, then calibrate.

### To Replace the H<sub>2</sub>S Sensors

- Remove wing nut.
- Gently pull blue sensor plate.
- Gently pull-out old sensor (don't twist).
- Insert new sensors into the printed circuit board.
- Replace plate and thumbscrew.

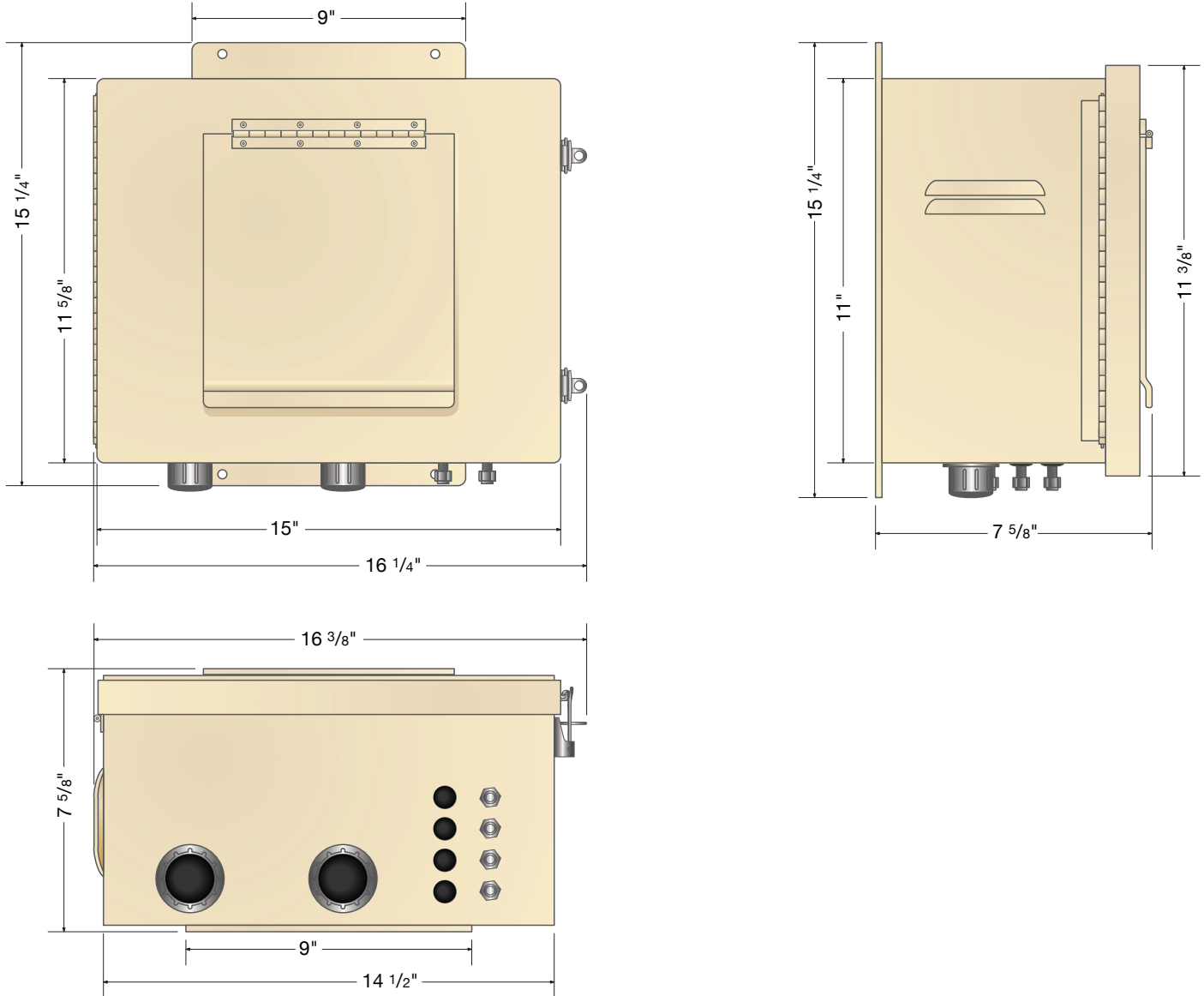


**SENSOR UNIT COVER SECURED IN PLACE**



**SENSOR UNIT COVER DETACHED**

## 5.3 Analyzer Enclosure Dimensions

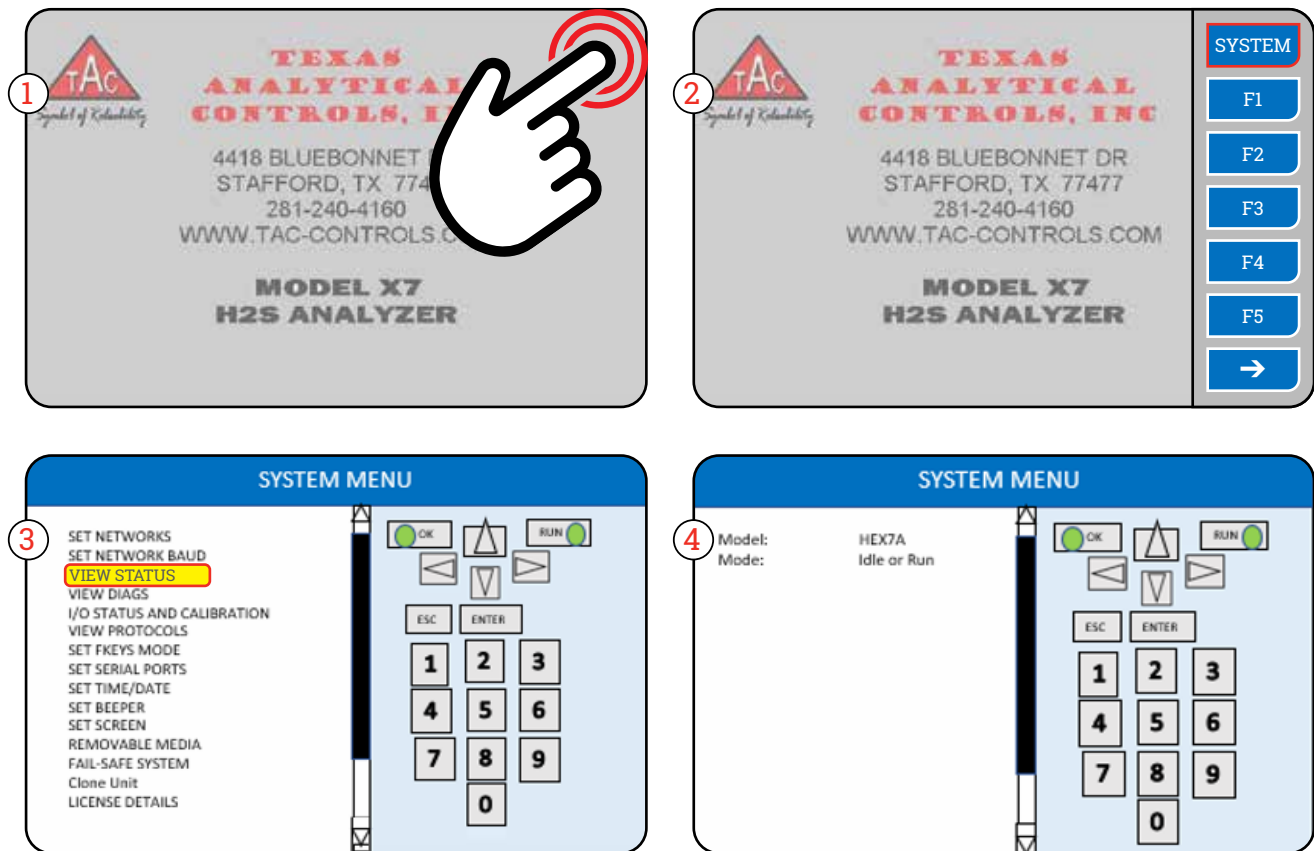


## 6.1 Frozen Screen – Run/Idle Mode

If the PLC freezes or gets stuck on the TAC Logo screen it maybe in the Idle mode.

### To Change to Run Mode

- 1 Press the right corner of the touch screen to bring up the System Menu
- 2 Press the SYSTEM button.
- 3 Press the VIEW STATUS.
- 4 Press ENTER to change to RUN mode.



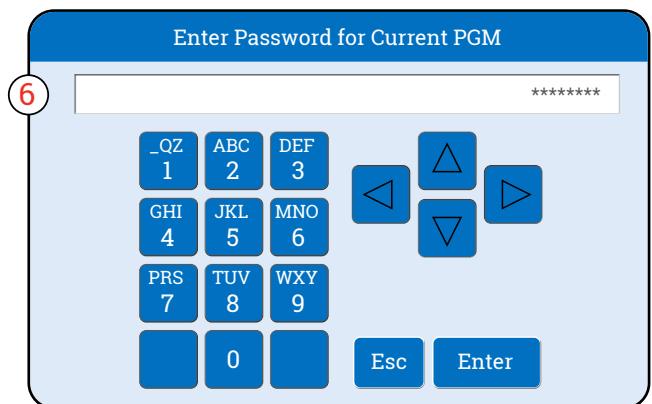
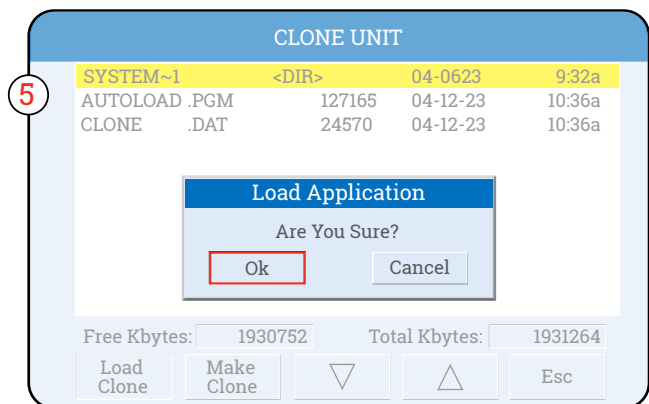
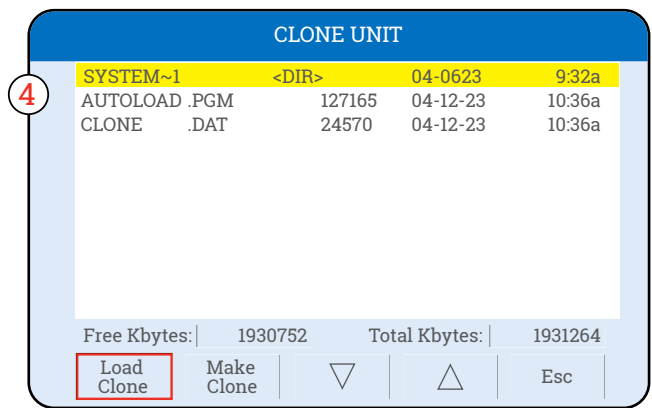
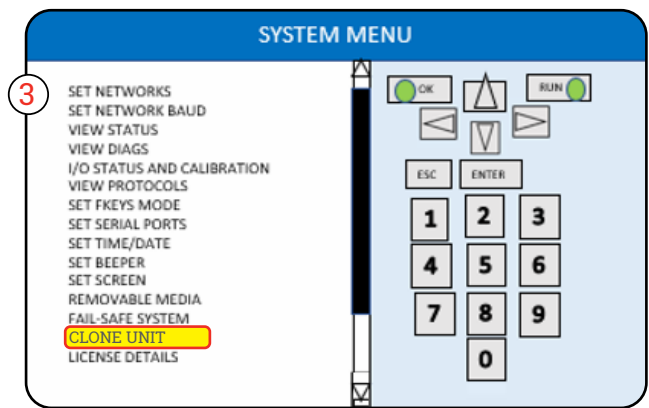
## 6.2 PLC Loses Program – Reload Program

If the PLC loses the program, it can be reloaded.

### To Reload Program

- 1 Press the right corner of the touch screen to bring up the System Menu
- 2 Press the SYSTEM button.
- 3 Press CLONE UNIT and then press ENTER.

- 4 Press LOAD CLONE.
- 5 Press OK.
- 6 Enter password 5625 and press ENTER.  
The display will read "Loading Program" after a few minutes the load is complete and will return to the main screen.



## Thank you for purchasing one of our analyzers.

Since 1975, TAC has been supplying analyzers to the oil field industry.

We have always had three main objectives:

- To provide instruments of the highest quality
- To continue to improve our systems and add features and capabilities
- To protect the workers, the environment and costly equipment

We highly value our relationships with each customer. Please rest assured, we want you to be totally satisfied with our products and service.

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