//AMI
ADVANCED MICRO INSTRUMENTS
— An ENPRO Company —

MODEL 1000BX

PORTABLE OXYGEN ANALYZER

Operator Manual

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METHOD OF MEASUREMENT: ELECTROCHEMICAL OXYGEN SENSORS

The **MODEL 1000BX** is designed to work exclusively with AMI's **T-SERIES TRACE OXYGEN SENSORS** and **P-SERIES PERCENT OXYGEN SENSORS**. These electrochemical sensors are manufactured in our state-of-the-art factory in Costa Mesa, California, USA, using an innovative, proprietary design, enabling them to achieve the fastest upscale and downscale response times in the industry.

AMI offers **OXYGEN SENSORS** that are resistant to trace amounts of hydrogen sulfide (H_2S). They can also tolerate gas streams with up to 100% CO_2.

AMI Model Number	T-2	T-4	P-3	P-5
Type	**Trace**	**Trace**	**Percent**	**Percent**
Recommended O_2 Measurement	0 – 10,000 ppm	0 – 10,000 ppm	0 – 25%	0 – 25%
Sensitivity	0.05 ppm	0.05 ppm	100 ppm	100 ppm
Special Conditions	< 10 ppm H_2S Up to 100% CO_2	< 500 H_2S ppm Up to 100% CO_2	Up to 100% CO_2	< 500 ppm H_2S Up to 100% CO_2

NOTES: Any sensor can be used in oxygen (O_2) applications above its recommended operating range. However, it may shorten the sensor's lifespan.

Sensitivity is the minimum change in O_2 in the gas stream that will be detected by the sensor.

The **MODEL 1000BX** Analyzer is configured for the oxygen sensor that is selected at the time of purchase. The Analyzer must be configured for the specific oxygen sensor that is installed in the unit. If the type of oxygen sensor is changed from the originally selected sensor, please contact the AMI factory for information on how to configure the Analyzer for a different sensor.

Consult with the factory for use in CO_2 background gas above 50%.

END OF METHOD OF MEASUREMENT: ELECTROCHEMICAL OXYGEN SENSORS

KEY INNOVATIONS

AMI has developed proprietary technologies that enable our Analyzers to deliver the highest levels of **PERFORMANCE, RELIABILITY** and **EASE-OF-USE**. These technologies are utilized by the **MODEL 1000BX** and are not available on any competitive offering.

Eliminator Cell Block
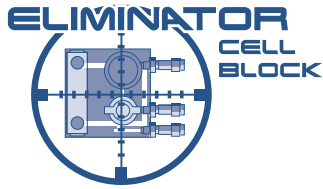
Our proprietary **ELIMINATOR CELL BLOCK** provides a unique sample system approach that virtually eliminates all potential leak paths while optimizing flow efficiencies. The sample system and flow-efficient sensor pocket are machined directly into a solid metallic block and interconnected with precision-drilled, intersecting gas passages eliminating the need to use long lengths of tubing and leak-prone compression fittings. Additionally, a special engineered four-way selector valve, metering valve, pressure sensor, and flow meter are all integrated into the machined block.

This approach is far superior to the designs of traditional sample systems that use multiple off-the-shelf components, numerous compression fittings, and long lengths of tubing that join everything together. The traditional, outdated approach requires a great deal of space and is prone to leaks.

The **ELIMINATOR CELL BLOCK** even provides the user with direct front panel access for installing and replacing sensors, as well as an air calibration feature without the need for disassembly or tools.

COMMAND CENTER Interface Software

This powerful software platform comes standard with every **MODEL 1000BX** purchase and provides users with access to a full suite of advanced features, including:
– Data logger that records measurement readings, temperature of the cell block, and power voltage over a period of fifteen (15) days at one-minute intervals (data can be displayed on a graph or in tabular format)
– Security settings to prevent unauthorized adjustments to the Analyzer via the front panel

Proprietary Sensor Technology

The production of AMI's electrochemical **OXYGEN SENSORS** uses proprietary technology and manufacturing processes that make them superior to competitive offerings. AMI **OXYGEN SENSORS** deliver extremely fast response times, high reliability, and a long life. They also provide resistance up to 500 ppm of H_2S.

END OF METHOD OF KEY INNOVATIONS

SYMBOL TABLE

⚠	Warning - Risk of Danger or Harm to the User or Risk of Damage to the Product. Consult the operator manual.

⏚	USB Symbol

END OF SYMBOL TABLE

SAFETY, WARNINGS & CAUTIONS

A **WARNING** identifies conditions or procedures that can be dangerous to the user.

A **CAUTION** identifies conditions or procedures that can cause damage to the Product.

⚠ WARNING

Make sure no hazardous gas is present in the area before and during charging.
Violation of the National Electrical Code requirements (especially Article 500 that deals with hazardous areas) may cause a fire or explosion with the potential for serious injury or loss of life.

⚠ WARNING

Drilling any holes in the enclosure will violate the safety approval and may create risk of harm.

⚠ WARNING

SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

LE REMPLACEMENT DE COMPOSANTS PEUT COMPROMETTRE LA SECURITE INTRINSEQUE.

⚠ WARNING

Any use of this equipment in a manner not specified in this manual or approved AMI documentation may impair the protection provided by the equipment.

Toute utilisation de cet équipement d'une manière non spécifiée dans ce manuel ou dans la documentation AMI approuvée peut altérer la protection fournie par l'équipement.

⚠ CAUTION

The product is rated to IP20. The enclosure does not protect against the ingress of dust or fluids. Electronics are conformally coated to provide protection in outdoor environments. Conformal coating is a protective layer consisting of a specially engineered polymeric film-forming product. This coating protects circuit boards and components from harmful environmental conditions such as moisture, thermal shock, static, vibration, and contamination.

This product is not designed for use in environments where condensation or dust may accumulate on or around the device. Use only in environments free from condensation, dust, and excessive humidity. It is recommended to limit exposure by not using the product in humid or dusty conditions.

Do not clean Analyzer by spraying it down with a cleaner. Cleaner should be sprayed on a clean cloth which is used to wipe the Analyzer as needed.

⚠ CAUTION

The voltage rating of the Analyzer is 5 VDC.

–   Voltages outside this range may cause the Analyzer to malfunction.

⚠ WARNING

WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS

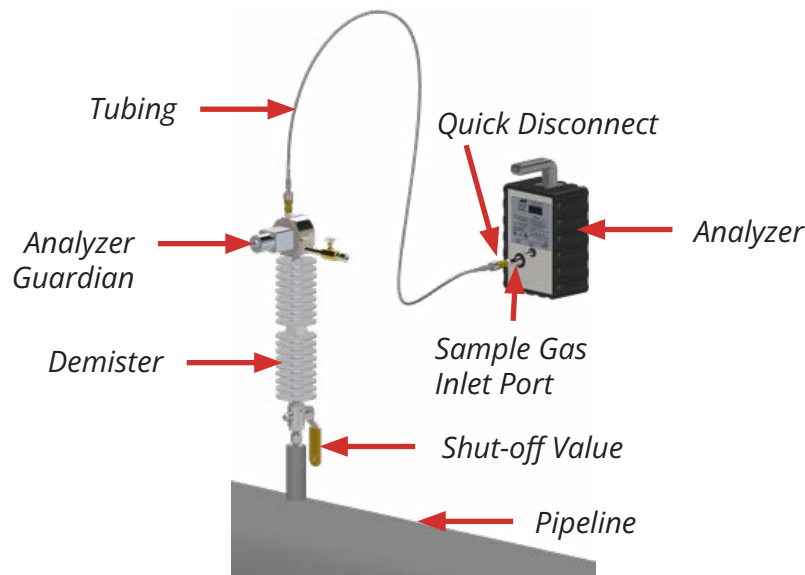AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES – VOIR INSTRUCTIONS

END OF SAFETY, WARNING & CAUTIONS

ANALYZER OPERATION

Analyzer Connection

Portable Analyzer Connections

Key Points
–   The Analyzer should only be used in an environment, where the ambient temperature remains between 25 °F (-3.9 °C) and 115 °F (46.1 °C)

⚠ WARNING
The Analyzer weighs 6 lbs (2.7 kg) and can pose a risk to the user if dropped.

Steps (refer to figure Portable Analyzer Connections)
1.   Turn the Shut-off Valve on the pipeline to the off position.
2.   Connect one end of the flexible tubing with the supplied quick disconnect to the SAMPLE GAS INLET PORT on the back of the Analyzer.
3.   Connect the other end of the flexible tubing to the Sample Tap of the pipeline.

⚠️ CAUTION

Do not use Teflon tubing or other plastic tubing. It will diffuse oxygen into the sample stream and provide inaccurate readings. Only use non-diffusive tubing like stainless steel or other specialty flexible tubing.

NOTE: AMI offers non-diffusive flexible tubing as an accessory for purchase. See Accessories Section for available options.

*If the pipeline gas contains liquids, water, oil, or glycol vapors, we recommend installing AMI's **DEMISTER** and **ANALYZER GUARDIAN** or equivalent protection to prevent damaging the Analyzer.*
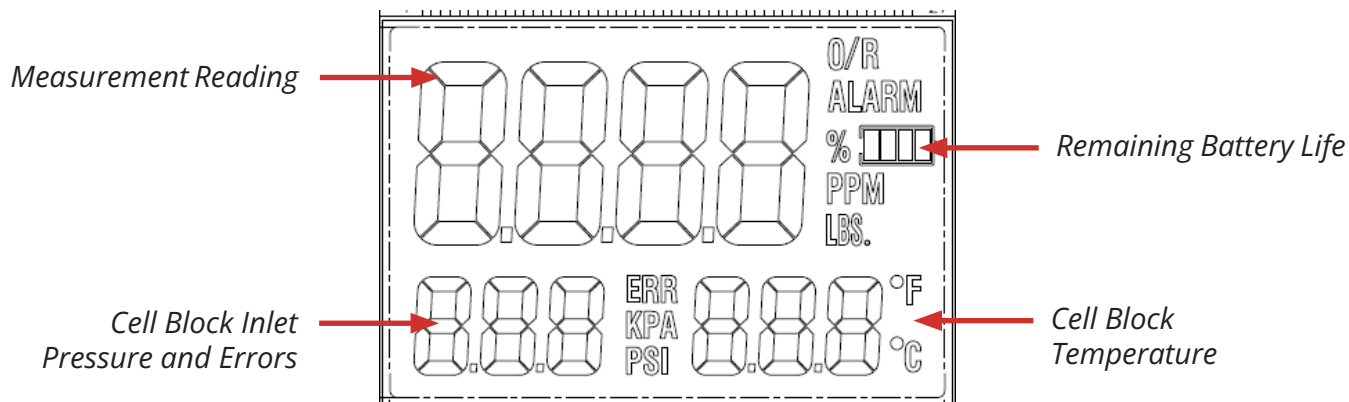
Powering-up the Analyzer

Analyzer ON/OFF Button

ON/OFF Button

To turn on the Analyzer, press the ON/OFF Button on the front panel.

Analyzer LCD Display

Measurement Reading

Remaining Battery Life

Cell Block Inlet Pressure and Errors

Cell Block Temperature

The LCD will take a few seconds to stabilize once the Analyzer is turned on. The LCD has a backlight that will turn on when the analyzer is powered up or when any button on the front panel is pressed. The backlight will turn off after twenty (20) seconds if no buttons are pressed. The backlight can be turned on again by pressing any button on the front panel.

Initiation of Sample Flow & Performing Measurements

Analyzer Flow Controls

Flow Meter (always shows the flow rate in real-time)

Four-way Selection Valve

Metering Valve

⚠ CAUTION

DO NOT OVERTIGHTEN THE METERING VALVE or you will damage it. It is not ON/OFF VALVE! Use the FOUR-WAY SELECTION VALVE for shutting off the gas flow to the sensor.

Key Points:

When the FOUR-WAY SELECTION VALVE is in the SAMPLE OFF position, it serves a dual purpose:

1. It seals the critical oxygen sensor compartment from exposure to air (209,000 ppm of oxygen)
2. It serves as a gas bypass valve, allowing you to flush the sample gas line during the connection process.

We suggest flowing pipeline gas while the FOUR-WAY SELECTION VALVE is in the SAMPLE OFF position for approximately two (2) minutes prior to rotating the FOUR-WAY SELECTION VALVE to the SAMPLE ON position for a faster measurement response time.

To increase the flow rate during the flushing process, rotate the METERING VALVE, located in the center of the FOUR-WAY SELECTION VALVE, counterclockwise. In the SAMPLE OFF position, the display will only indicate the oxygen value in the sealed sensor compartment.

The FOUR-WAY SELECTION VALVE should always be turned to the SAMPLE OFF position when the Analyzer is not in use to preserve the sensor.

Sample Gas Flow
To increase the flow rate, turn the METERING VALVE knob counterclockwise. To decrease the flow rate, turn the METERING VALVE knob clockwise.

Steps (refer to figure Analyzer Flow Controls)
1. The Analyzer should already be connected to the pipeline and powered-up from following the instructions in the sections Analyzer Connection and Powering-up the Analyzer.
2. Open the Shut-Off Valve on the pipeline. The sample gas pressure must be in the range of 0.5 – 150 psig (3 – 1,034 kPa).
3. While the FOUR-WAY SELECTION VALVE is in the SAMPLE OFF position, adjust the flow rate to 1 – 2 SCFH using the METERING VALVE.
4. Purge the Analyzer sample line for two (2) minutes.
5. Once the sample line has been purged (flushed), turn the FOUR-WAY SELECTION VALVE to the SAMPLE ON position.

   NOTE: *The analyzers should stabilize and provide an accurate reading in about two (2) minutes. If the measurement response is slow or sluggish it is possible that the sensor and analyzer were not properly stored when not in use.*

   The FOUR-WAY SELECTION VALVE must be in the SAMPLE OFF position when the analyzer is not in use. Failure to do so will expose the sensor to ambient air, which shortens the life of the oxygen sensor and degrades the analyzer response time.

6. Record the oxygen reading. Once completed, turn the FOUR-WAY SELECTION VALVE to the SAMPLE OFF position. This will preserve the sensor life and maintain the sensor's fast response time for the next measurement.
7. Turn the Analyzer off by pressing the ON/OFF button.
8. Turn the Shut-Off Valve on the pipeline to the off position.
9. Disconnect the Analyzer and flexible tubing from the Sample Tap.

⚠ CAUTION:
NEVER USE the METERING VALVE to shut off sample flow to the Analyzer. Instead, use the FOUR-WAY SELECTION VALVE switched to the SAMPLE OFF position.

Measurements Over Extended Period of Time
The **MODEL 1000BX** Analyzer may be used to record measurements over an extended period of time. The Analyzer data log will start recording when turned on and will record continuously until the analyzer is powered off. The data log can be downloaded when the Analyzer is connected to the *COMMAND CENTER* Interface Software.

Verify that the Analyzer date and time are configured correctly in order for measurement values to be time stamped correctly. The Analyzer date and time can be updated by connecting the Analyzer to the *COMMAND CENTER* Interface Software. When using the Analyzer to measure over an extended period of time, the Analyzer should be left in a secure

area away from moisture, dust, and direct sunlight. The temperature must remain within the operational temperature range of the Analyzer.

Sensor Installation

Analyzer Sensor Cell Block Cap

ELIMINATOR CELL BLOCK Cap

Four-way Selection Valve

SPAN Button

⚠ WARNING

Do not use a sensor that is leaking. The sensor contains an acidic electrolyte. If the sensor is leaking, use protective gloves to properly dispose it according to local regulatory guidelines. If the electrolyte comes into contact with your skin, immediately flush the affected area for a minimum of fifteen (15) minutes and refer to the Safety Data Sheet for the sensor.

NOTE: A new Analyzer ships from the AMI factory with the oxygen sensor installed.

⚠ CAUTION

Only use AMI Oxygen Sensors with AMI Analyzers. Sensors from other manufacturers will degrade Analyzer performance, result in accuracy errors, and void the warranty.

Sensor Replacement
1. Press the ON/OFF Button to turn the unit on.
2. Turn the FOUR-WAY SELECTION VALVE to the SAMPLE OFF position.
3. Remove the ELIMINATOR CELL BLOCK CAP by turning it counterclockwise.
4. Remove the expired sensor.
5. Open the bag containing the new oxygen sensor.

NOTE: Do not remove the stainless-steel shorting clip yet.

NOTE: Once the bag has been opened, you should strive to complete steps 6 to 8 in less than one (1) minute to achieve the fastest come down times.

6. Using the plastic handle, quickly install the sensor into the sensor pocket and carefully push it all the way to the back.
7. While holding the sensor in place, pull out the stainless-steel shorting clip.
8. Quickly replace and tighten the ELIMINATOR CELL BLOCK CAP by turning clockwise until 'hand-tight'.
9. Perform a sensor calibration. Reference Calibration information in Analyzer Operation section of this manual.
10. Dispose the old sensor in accordance with local, state, and federal regulations.

NOTE: Do not attempt to calibrate with a low ppm (less than 1,000 ppm) oxygen gas standard until sample gas has been flowing for a minimum of forty-five (45) minutes or the oxygen reading is less than 2 ppm.

Change Sensor Type in Analyzer

The **MODEL 1000BX** Analyzer is configured at the factory for the AMI oxygen sensor selected at purchase. If another type of sensor is installed, the Analyzer will not read correctly. However, the Analyzer can be reconfigured for another sensor type. If you want to change the sensor type installed in the Analyzer, please contact the AMI factory for instructions on how to update the Analyzer to recognize the new sensor type.

Calibration

NOTE: Every **MODEL 1000BX** unit undergoes rigorous internal quality tests prior to shipping. This includes a complete electronics and in-depth gas test.

For the best accuracy, calibrate your Analyzer every thirty (30) to forty-five (45) days using a calibration gas standard in the range of 80 ppm oxygen in a background of nitrogen if using a trace oxygen sensor or with air if using a percent oxygen sensor.

There are two (2) methods for calibration:
– Calibration with a Span Gas. Come down time is shorter using this method.
– Calibration with Air. Come down time is longer using this method.

NOTE: It is recommended for the best accuracy to calibrate the Analyzer with a Span Gas when the unit is primarily used to measure trace amounts of oxygen.

Calibration with a Span Gas
We encourage you to view our calibration video at www.amio2.com before starting.

Required Components:
– Certified span gas with approximately 80 ppm oxygen in background of nitrogen
– Stainless-steel body pressure-reducing regulator that is outfitted with inlet / outlet pressure gauges, with the outlet port being a compression fitting for ¼" tube

NOTE: The regulator must have a diaphragm made from one of the following materials:
Best option: Stainless steel
Secondary option: Aluminum
Tertiary option: Brass

– Flexible, non-diffusive specialty tubing (available for purchase from AMI) or a length of stainless-steel tubing
– Tank wrench

IMPORTANT: The Block and Bleed procedure is required only when a regulator has been connected to a gas cylinder for the first time or has not been used for an extended period of time.

'Block and Bleed' Steps
1. Connect a recommended pressure reducing regulator to the Span Gas Tank.
2. After the regulator has been attached to the Span Gas Tank and properly tightened, Block and Bleed the High-Pressure side of the Span Gas Regulator following this procedure:

   Open the valve of the Span Gas Tank approximately 1/2 turn. Confirm the inlet pressure gauge responds to 'full tank pressure'. Then, close the valve of the Span Gas Tank.

   Using the wrench, loosen the regulator nut that connects the regulator to the Span Gas Tank until gas starts to leak out at a high rate, approximately 1/2 turn. Watching the high-pressure gauge, wait until the needle reaches close to zero, and then quickly re-tighten

the regulator nut. The goal is to keep a very small amount of pressure in the regulator, so air does not enter and saturate with oxygen.

Repeat the above procedure seven (7) times on high pressure side of the regulator.
3. Connect the AMI-supplied non-diffusive flexible tubing or stainless-steel tubing to the regulator outlet fitting.

NOTE: DO NOT use Teflon® or another plastic tubing for this step as it would allow oxygen from the air to diffuse into the Span Gas Stream and invalidate your calibration.

4. Now, 'Block and Bleed' the Low-Pressure side of the Regulator:
    Connect the flexible tubing to the SAMPLE GAS INLET PORT with a just a 1/2 turn or one (1) thread, so gas can escape during the 'Block & Bleed' process.

    Open the valve of the Span Gas Tank approximately 1/2 turn. Confirm the high-pressure and low-pressure gauges show full pressure. Span gas should be venting through the sample gas connection off the Analyzer and the span gas tubing. Adjust the pressure regulator to approximately 20 psig. Then, quickly close the valve of the Span Gas Tank. Watch the low-pressure gauge. When it approaches zero, open the valve on the tank. The goal is to keep a very small amount of pressure in the regulator.

    Repeat this procedure seven (7) times.
5. During the 7th Block and Bleed cycle of the low-pressure side, tighten the gas fitting at the SAMPLE GAS INLET PORT to complete the Block and Bleed process.

Calibration Steps
1. Open the valve of the Span Gas Tank and adjust the regulator pressure to approximately 20 psig.

IMPORTANT: Prior to calibrating with span gas, the Analyzer and sensor should have had sample gas flowing through them for a minimum of forty-five (45) minutes!

2. Rotate the FOUR-WAY SELECTION VALVE, located on the front panel of the Analyzer, to the SAMPLE ON position and adjust the flow rate to approximately 1 SCFH.
3. Allow the measurement reading to stabilize for two (2) to five (5) minutes.

Analyzer SPAN Buttons

4. Span the Analyzer to the value of the oxygen, specified on the Span Gas Tank, by doing the following:

    Press the SPAN Button and release. The word SPAN will appear on the LCD for one (1) second and then display the oxygen reading, while the PPM FLAG blinks. Quickly press the appropriate UP/DOWN Button to adjust the LCD reading to the value stated on your calibration gas cylinder.

UP and DOWN Buttons

SPAN Button

5. Once completed, wait for a few seconds. The PPM FLAG will stop blinking, and the Analyzer will accept the new calibration.
6. Turn the FOUR-WAY SELECTION VALVE back to the SAMPLE OFF position and disconnect the unit from the Span Gas Tank.

Calibration with Air

1. Turn the FOUR-WAY SELECTOR VALVE to the SAMPLE OFF position.
2. Unscrew and remove ELIMINATOR CELL BLOCK CAP by turning it counterclockwise to expose the oxygen sensor to air for ~30 seconds while blowing and fanning air with your hand near the sensor.
3. Span the Analyzer to the value of the oxygen in air by doing the following:

   Press the SPAN Button and release (see figure Analyzer SPAN Buttons in previous section). The word SPAN will appear on the LCD for one (1) second and then display the oxygen reading, while the % FLAG blinks. Quickly press the appropriate UP/DOWN Button to adjust the LCD reading to 20.9%.

   Once completed, wait for a few seconds. The % FLAG will stop blinking, and the Analyzer will accept the new calibration.
4. Replace and tighten the ELIMINATOR CELL BLOCK CAP by turning it clockwise until 'hand tight'.

NOTE: Take no more than one (1) minute to complete a calibration with air. Keep in mind that the reading may not stabilize exactly without a flowing stream of air moving past the sensor.

Once the procedure is completed, flow Sample Gas through the Analyzer, and it will quickly return to normal pipeline oxygen levels.

Displaying the Current Span Factor

Analyzer UP Button

UP Button

From the main screen, press the UP Button.

Importance of Span Factor
The Span Factor is an indication of sensor life. The span factor is accurate only after an accurate calibration has been completed.
The Span Factor of a new oxygen sensor is in the range of 400 to 600.

Over time, as the oxygen sensor ages, each calibration should require an adjustment with the UP Button to correct for any degradation of the electrochemical sensor output. The degradation is approximately 1% of the reading per month.

When the Span Factor reaches around 980, it will become necessary to replace the sensor during the next calibration.

Front Panel Interface

Analyzer Main Screen

Oxygen Concentration

Cell Block Inlet Pressure

Battery Indicator

Cell Block Temperature

Readings on the LCD – Main Screen

Oxygen Concentration
Oxygen concentration readings are displayed in ppm or %, based on the current reading level and the installed oxygen sensor. The **MODEL 1000BX** automatically adjusts the resolution of the displayed measurement value. The displayed resolution by measured oxygen concentration is per the following table.

Displayed Measurement Resolution		
Measurement Value	Output Resolution	Units
0 to <12.5 ppm	##.##	ppm
12.5 to <1,000 ppm	###.#	ppm
1,000 to <10,000 ppm	####	ppm
1 to <12.5%	##.##	percent
≥12.5%	##.#	percent

Operating Temperature

Operating temperature of the measurement cell block can be displayed in either Fahrenheit (°F) or Celsius (°C).

⚠ CAUTION:

Operational temperature range of the Analyzer is 25 °F to 115 °F (-3.9 °C to 46.1 °C). Operating the Analyzer outside the operational temperature range could damage the Analyzer.

NOTE: Fahrenheit is the factory default unit for temperature. Users can switch to Celsius by changing the settings in the COMMAND CENTER User Interface Software. See Change Display to Metric Units section.

Cell Block Inlet Pressure.

Gas Inlet Pressure can be displayed in either psi or kPa.

⚠ CAUTION:

Gas Inlet pressure must be between 0.5 – 150 psig (3 – 1,034 kPa). Exposing the Analyzer to a pressure greater than 150 psig (1,034 kPa) could damage the analyzer. An inlet gas pressure less than 0.5 psig (3 kPa) will not provide the necessary pressure for the Analyzer to operate.

NOTE: Imperial psi is the factory default unit for gas pressure. Users can switch to kPa by changing the settings in the COMMAND CENTER User Interface Software. See Change Display to Metric Units section.

Battery Indicator

Battery indicator has four (4) bars to indicate battery charge. The Analyzer will operate approximately twenty-five (25) days when fully charged.

If the battery indicator shows no bars and is blinking, the battery level is critically low and unit should be charged immediately in order to prevent the unit from shutting down.

If the battery indicator shows four (4) bars and is blinking, the battery is in an overvoltage condition. Contact AMI for assistance if the battery experiences an overvoltage condition.

If the battery indicator is cycling showing one, then two, then three, then four bars, the unit is charging.

NOTE: When the analyzer is charging, the battery indicator does NOT indicate the battery charge.

Error Indicator Display
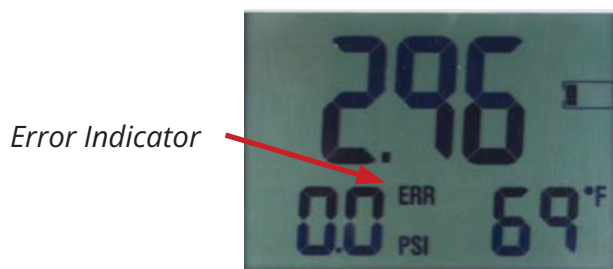
Error Indicator

Error Indicator

If the Analyzer detects any errors, ERR with display next to the Operating Pressure reading. See Error Status Display: Error Reference Guide section for more information.

Readings on the LCD – Toggled Screens

Model Information Display

Model Information

From the main screen, press the DOWN Button once. Screen will show "AnA" in the lower left-hand corner and display the analyzer model number "1000" and gas measured "O2".

Battery Voltage Display

Battery Voltage

From the main screen, press the DOWN Button twice. Screen will show "bat" in the lower left-hand corner and display battery voltage in volts as the reading.

Date Display

Date

From the main screen, press the DOWN Button three (3) times. Screen will show "da" in the lower left-hand corner and display the date as a two (2) digit day and two (2) digit month separated by a period in the top of the display and the year as two (2) digits in the lower right hand corner.

If the incorrect date is displayed, it may be updated through the **COMMAND CENTER** user interface.

NOTE: The unit is shipped with the date and time at the manufacturing factory. Please verify that the date and time is correct for the operational location of the Analyzer prior to use.

Time Display

Time

From the main screen, press the DOWN Button four (4) times. Screen will show "ti" in the lower left-hand corner and display the time in a twenty-four-hour time format as a two (2) digit hour and two (2) digit minute separated by a period in the top of the display and the seconds as two (2) digits in the lower right hand corner.

If the incorrect time is displayed, it may be updated through the **COMMAND CENTER** user interface.

NOTE: The unit is shipped with the date and time at the manufacturing factory. Please verify that the date and time is correct for the operational location of the Analyzer prior to use.

Sensor Type Display

Sensor Type

From the main screen, press the DOWN Button five (5) times. Screen will show "SnS" in the lower left hand corner and display the sensor configured for the analyzer in the top of the display as follows:
– t2 for a T-2 sensor
– t4 for a T-4 sensor
– P3 for a P-3 sensor
– P5 for a P-5 sensor

In the lower right hand corner of the display, "trc" will show when a trace sensor is installed and "Pct" when a percent sensor is installed.

If the incorrect sensor is displayed, please contact the AMI factory for assistance on how to update the sensor type using the *COMMAND CENTER* User Interface.

Firmware Revision Display

Firmware Revision

From the main screen, press the DOWN Button six (6) times. Screen will show "rEL" in the lower left-hand corner and display the installed firmware revision.

Error Details Display

Error Details

From the main screen, press the DOWN Button seven (7) times. Screen will show "Err" in the lower left-hand corner and display the first error code. If there are multiple active error codes, pressing the DOWN Button again will show the next error code. Continue pressing the DOWN Button to reveal all error codes. When all error codes have been shown, the next press of the DOWN Button returns the screen to the Battery Voltage display.

Powering-off The Analyzer

Analyzer ON/OFF Button

ON/OFF Button

Press the ON/OFF Button on the front panel to turn the Analyzer off.

END OF ANALYZER OPERATION

COMMAND CENTER SOFTWARE

Interface with *COMMAND CENTER*
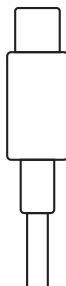
USB Type C Connector   Analyzer USB Connector

USB Connector

1. The Analyzer has a USB Type C Connector. This port is used for both charging and communication. Take the Type C end of a USB cable and connect it to the Analyzer. Take the other end of the cable and connect it to a laptop or PC. Unit can also be charged by connecting the USB cable to an appropriate USB wall plug.

COMMAND CENTER User Interface Window
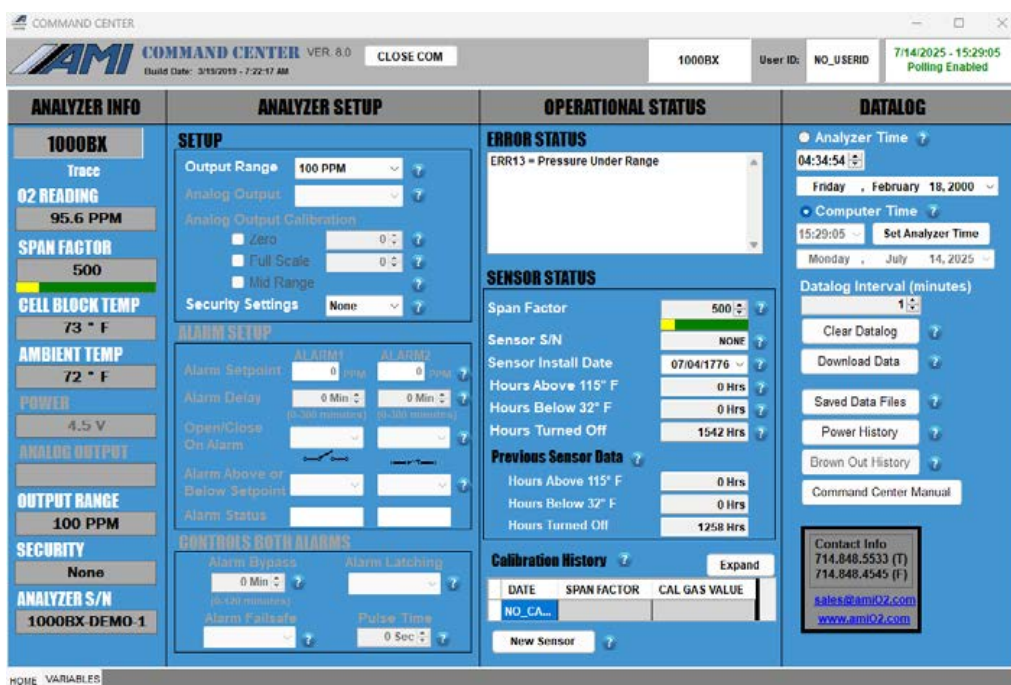
2. Power up your laptop and open the current version of the *COMMAND CENTER* User Interface Software.
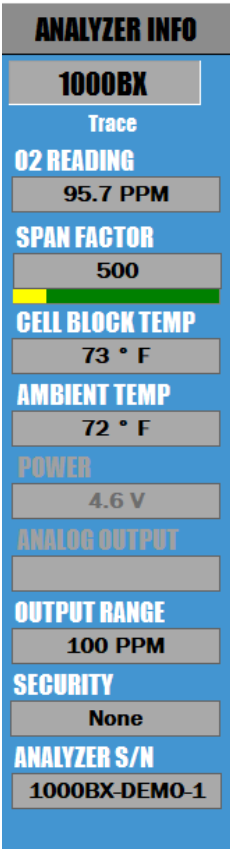
3. Once the link is established, the software will automatically recognize the Analyzer and populate the Analyzer Info Column with information specific to your Analyzer.

   The Analyzer Info Column will display the following information about your Analyzer:
   – Analyzer Model Number
   – Measurement Reading
   – Span Factor
   – Cell Block Temperature
   – Ambient Temperature
   – Output Range
   – Security Selection
   – Analyzer Serial Number

Operating the Data Logging Feature

Analyzer ON/OFF Button

ON/OFF Button
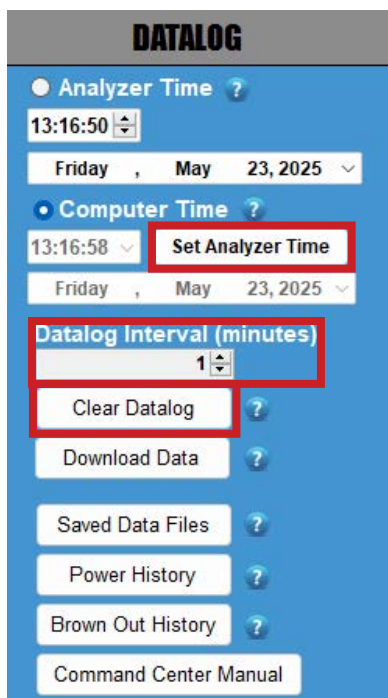
When the Analyzer is turned on, the Data Logging feature will turn on by default.

NOTE: The default data collection interval is set for one (1) minute. This means that the Analyzer will record information once every minute.

To change the data collection interval, a laptop with the *COMMAND CENTER* Software must be connected to the Analyzer.

DATALOG

- ○ Analyzer Time ?
- 13:16:50
- Friday , May 23, 2025
- ● Computer Time ?
- 13:16:58 | Set Analyzer Time
- Friday , May 23, 2025

Datalog Interval (minutes)

- 1

- Clear Datalog ?
- Download Data ?
- Saved Data Files ?
- Power History ?
- Brown Out History ?
- Command Center Manual

A. **Set Analyzer Time**
To manually set the time, select ANALYZER TIME and enter the date and time you want to set. To synchronize the date and time to match the time on your computer, select COMPUTER TIME and click the SET ANALYZER TIME Button. The time should automatically adjust and closely match the time shown on your laptop.

NOTE: The unit ships set to the time of the Pacific Time Zone. Prior to first use, update the time. If time is not updated prior to first use, logged data will be time stamped to Pacific Time.

NOTE: When battery in Analyzer is changed, unit does not retain time in memory. Always set Analyzer time when battery is replaced.

B. **Clear Data Log**
Press the CLEAR DATALOG Button to clear any recorded data performed at the factory.
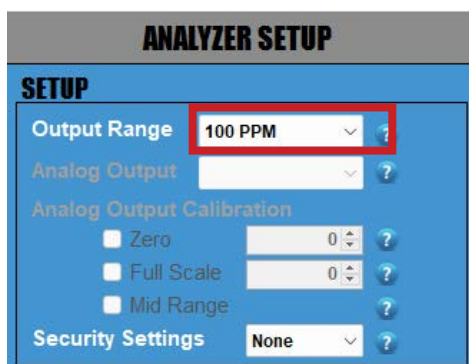
C. **Data Interval (minutes)**
Then set your desired collection interval for the data logger by adjusting the time (in minutes).

NOTE: The default setting has the data logger operating in one-minute intervals for fifteen (15) days. You can increase the interval (in minutes) of how often data is collected. Keep in mind that increasing the duration of the interval will also proportionally change how long data is collected. If you increase the interval every two (2) minutes, the data collection will now last for thirty (30) days. Every three (3) minutes will increase the collection period to forty-five (45) days and so forth.

NOTE: The data log is a rolling log. The data log will begin to overwrite the oldest data after once the maximum collection period has been reached for the selected data log interval.

Download Data

Output Range Dropdown Menu

ANALYZER SETUP

SETUP

- Output Range | 100 PPM ?
- Analog Output ?
- Analog Output Calibration
  - ☐ Zero | 0 ?
  - ☐ Full Scale | 0 ?
  - ☐ Mid Range ?
- Security Settings | None ?

While the Analyzer automatically scales the displayed oxygen concentration in ppm or % on the Analyzer LCD SCREEN, the output from the data log is scaled for a defined range. The data log Output Range is defined in **COMMAND CENTER**.

To specify the Output Range, select the desired Output Range from the Output Range dropdown menu under Analyzer Setup.

*NOTE: The data log downloaded from **COMMAND CENTER** will only report measured values up to 125% of the maximum value of the selected Output Range. If there are measured values greater than 125% of the maximum value of the selected Output Range, those values will be reported as 125% of the maximum value of the selected Output Range. If the data log has clipped data of 125% of the maximum range value, increase the Output Range and download the data log again.*

Download Data Log Button
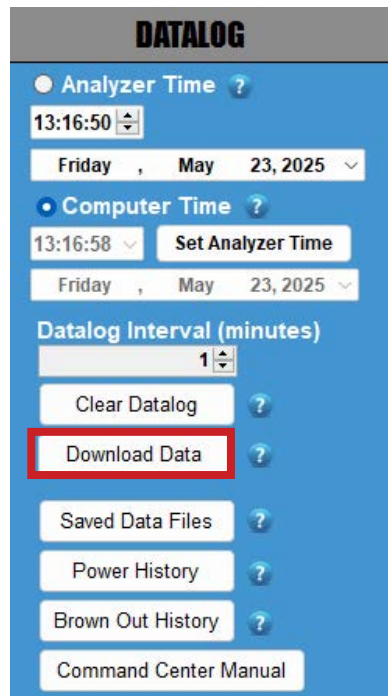
To begin, click the DOWNLOAD DATA Button located on the **COMMAND CENTER** screen.
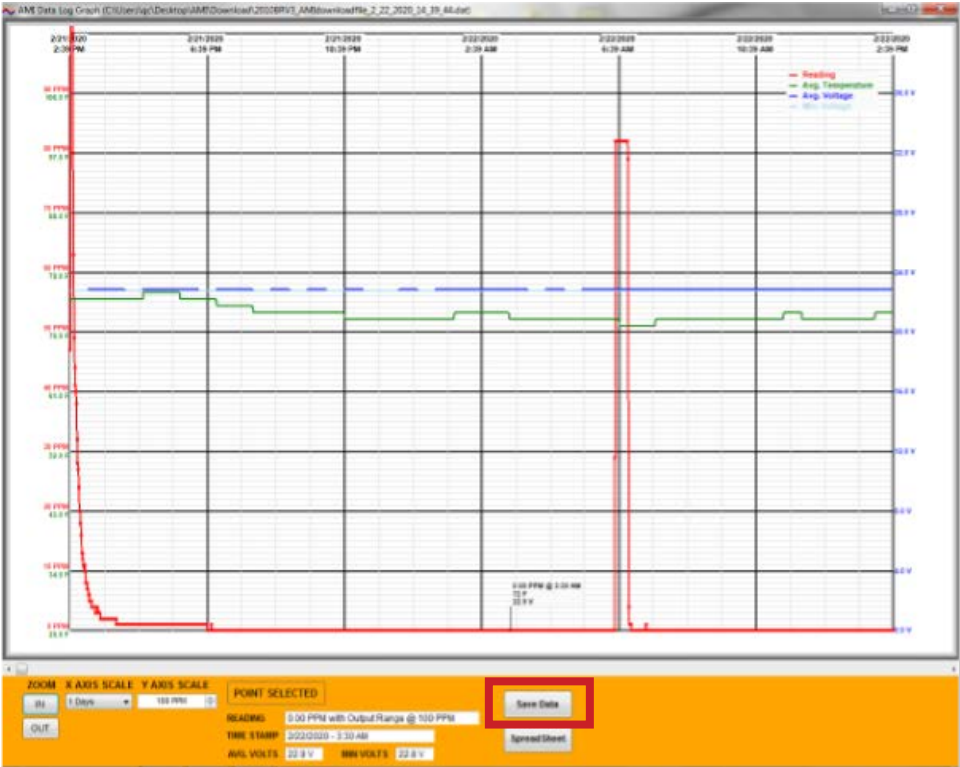
Data Log Handler Window
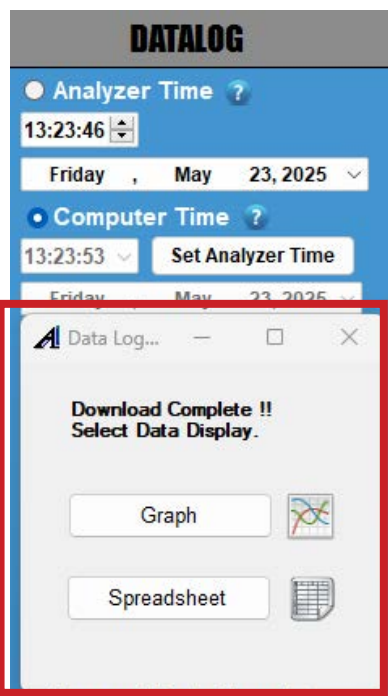
DATA LOG HANDLER window will appear giving you the option to seeing your downloaded data as either a graph or spreadsheet.

To see the data as a graph, click the GRAPH Button on the DATA LOG HANDLER window.

To have the downloaded data in a spreadsheet, click the SPREADSHEET Button on the DATA LOG HANDLER window.

Sample Downloaded Data Graph

To save the graph to a file, click the SAVE DATA Button.

Sample Downloaded Data Spreadsheet

To save the spreadsheet to a file, click the SAVE DATA Button.

Change Display to Metric Units

COMMAND CENTER Variables Screen (MODEL 2010BX Screenshot shown)

This step will require a password. Contact AMI before proceeding with the instructions below.

– Click on the VARIABLES Tab at the bottom left-hand window.
– Click the USER INPUT Cell at the upper left-hand area of the window.

COMMAND CENTER Variables Password Screen

– Once the small SUBMIT PASSWORD window opens, enter the password that you receive and press SUBMIT.

COMMAND CENTER Enable Polling and Clear Output
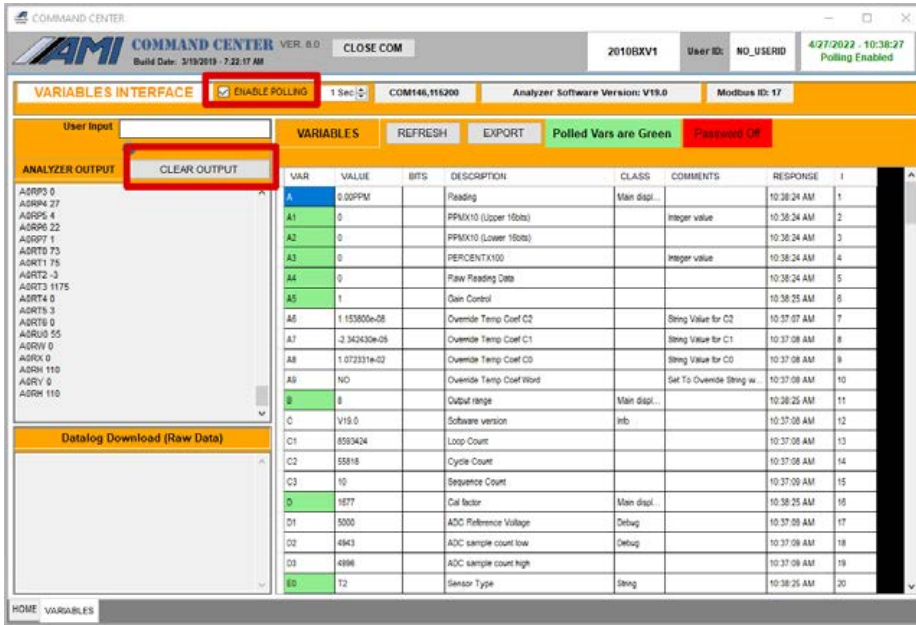
- – Uncheck ENABLE POLLING.
- – Click CLEAR OUTPUT.

COMMAND CENTER Variables Change Measurement Units
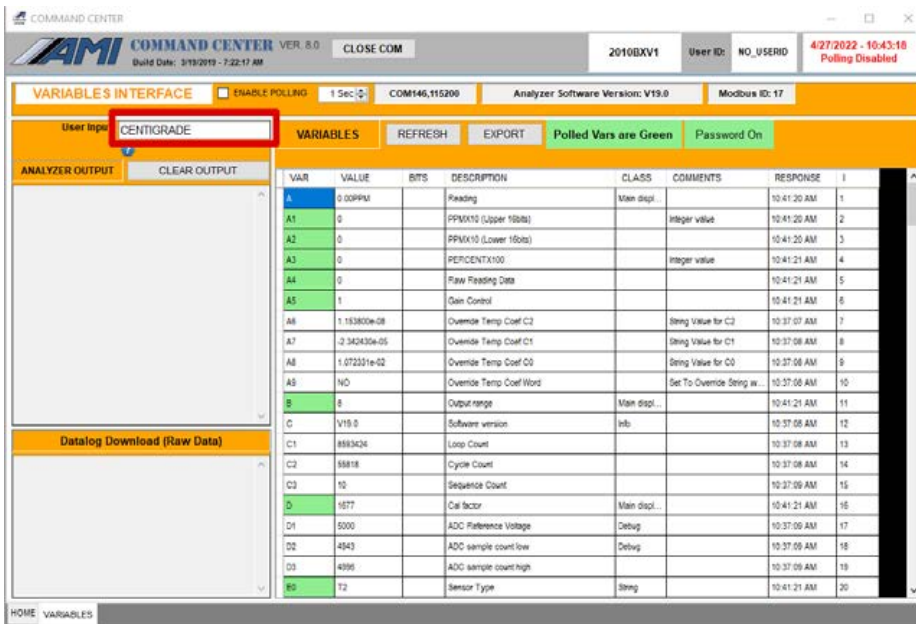
- – Type CENTIGRADE into the User Input area (shown above in the red box) and press RETURN. This will change BOTH Temperature to Celsius and Pressure to kPA.

NOTE: To return to Imperial Units, enter FAHRENHEIT and press RETURN.

END OF *COMMAND CENTER* SOFTWARE

MAINTENANCE AND TROUBLESHOOTING

The following section identifies potential system issues and provides possible resolutions. If you are unable to resolve an issue after following the suggestion(s) shown in this section, contact AMI for further support.

Recharging Battery

⚠️ **WARNING**

DO NOT CHARGE BATTERY IN A HAZARDOUS ENVIRONMENT, SUCH AS WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT OR IN A PRECIPITOUS AND/OR DUSTY ENVIRONMENT.

NE PAS CHARGER LA BATTERIE DANS UN ENVIRONNEMENT DANGEREUX, COMME LORSQU'UN UNE ATMOSPHERE EXPLOSIVE EST PRESENTE OU DANS UN ENVIRONNEMENT PRECIPITUOS ET/OU POUSSIEREUX.

Directions to Recharge Battery
1. Take the Type C end of a USB cable and connect it to the Analyzer.
2. Attach the other end of the USB cable to a compatible power source connection (e.g. charger or computer).

IMPORTANT REQUIREMENTS:
Charging voltage: *5 V from host*
USB Charging min current: *100 mA*

3. Once the connections are done, the batteries will start recharging. Battery needs a minimum of eighteen (18) hours to recharge from a completely depleted state.

Replacing Battery

⚠️ **WARNING**

DO NOT REPLACE BATTERY IN A HAZARDOUS ENVIRONMENT, SUCH AS WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT OR IN A PRECIPITOUS AND/OR DUSTY ENVIRONMENT.

NE PAS REMPLACER LA BATTERIE DANS UN ENVIRONNEMENT DANGEREUX, COMME LORSQU'UN UNE ATMOSPHERE EXPLOSIVE EST PRESENTE OU DANS UN ENVIRONNEMENT PRECIPITUOS ET/OU POUSSIEREUX.

⚠️ **WARNING**

DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT

AVERTISSEMENT – NE PAS OUVRIR EN CAS DE PRESENCE D'ATMOSPHERE

NOTE: AMI offers a battery replacement kit, part number 4KIT21, that includes a replacement battery and twenty (20) plastic rivets to reinstall the protective boot.

NOTE: Do not leave the battery disconnected from the analyzer for an extended period of time when an oxygen sensor is installed in the analyzer. The oxygen sensor requires power to preserve its life. If an oxygen sensor is installed in analyzer at the time of a battery change, perform the battery replacement promptly to conserve the sensor life.

NOTE: When performing a battery replacement, it is recommended to have the Analyzer powered via USB to conserve the oxygen sensor life.

Steps to Replace Battery Pack

Remove Hex Screws

Handle Removed

Hex screw 4x

1. Detach the handle by removing the four (4) screws with a 5/32" hex wrench as shown above.

Pull Boot From Analyzer

Plastic Rivets
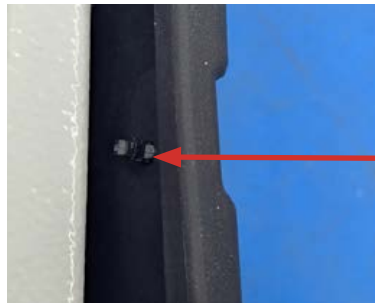
Slide Boot Off Analyzer

Plastic Rivet

2. Separate the twenty (20) plastic rivets from the analyzer by hand by pulling the boot away from the analyzer case. Slide the rubber boot away from the front of the Analyzer.

Front Panel Screw

Bottom Screws

3. Remove the screw at the top on the front panel of the Analyzer with a #2 Phillips screwdriver. Then remove the two (2) screws on the bottom of the Analyzer.

4. While pushing on the gas fittings on the back side of the analyzer, slide the assembly containing the ELIMINATOR CELL BLOCK, PCB board, and front panel out of the case.

Detach Battery Pack
Cable from PCB
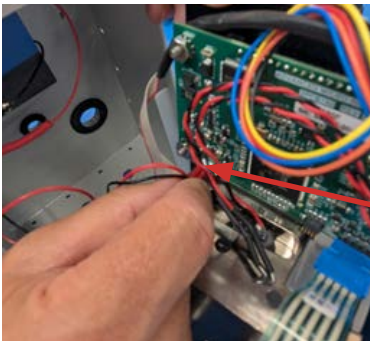
5. Disconnect the battery pack cable from the PCB.

*Battery Pack Cable
Connector Attached PCB*

Battery Pack Screws
to Case

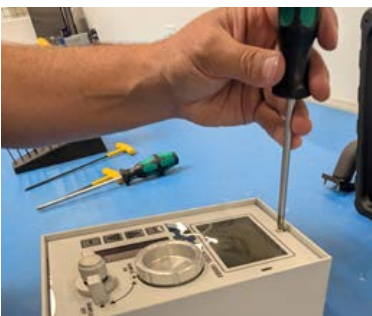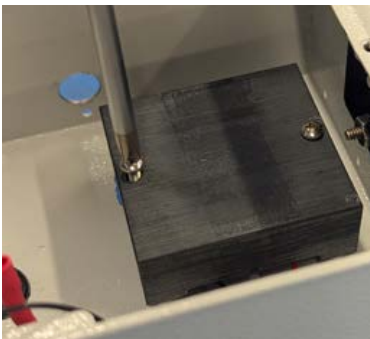6. Remove the two (2) screws holding the battery pack to the case. Then, replace the old battery pack with the new battery pack. Re-fasten the two (2) screws to hold the battery pack to the case and re-attach the battery pack cable to the PCB.

Re-install ELIMINATOR CELL BLOCK,
PCB Board, and Front Panel in Case
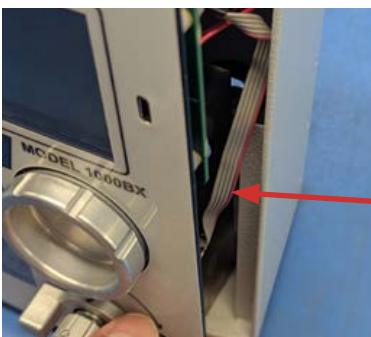
7. Slide the assembly containing the ELIMINATOR CELL BLOCK, PCB board, and front panel into the case. Be careful not to pinch any of the cables or wires against the case.

Cable Pinch Point

Bottom Screws

Front Panel Screw

8. Secure the assembly by fastening the two (2) screws to the bottom of the Analyzer and the one (1) screw at the top on the front panel of the Analyzer.

Re-install Rubber Boot

9. Slide the rubber boot back on through the front of the Analyzer and secure with the plastic rivets. Replace any plastic rivets that were broken during disassembly with new rivets prior to reassembling.

Re-attach Handle

10. Attach the handle back on the Analyzer and fasten with the proper screws.

   Properly dispose of the old batteries according to local, state, and federal regulatory guidelines.

Calibration Intervals and Sensor Replacement

For the best accuracy, it is recommended the Analyzer is calibrated every thirty (30) to forty-five (45) days. Reference Calibration information in Analyzer Operation section of this manual.

It is recommended to replace the sensor when the Span Factor exceeds a value of 980. Refer to Sensor Installation information in the Analyzer Operation section of this manual.

Error Status Display: Error Reference Guide

Error Indicator Display

Error Indicator

Error Indicator on Analyzer Display

If the Analyzer detects any errors, ERR will display next to the Operating Pressure reading.

Some error codes will oscillate between the main screen and the error screen. These error codes are designated flashing errors. Other error codes can only be seen when viewing the error codes via the DOWN Button and are designated as not flashing errors.

To view all error codes the Analyzer is reporting, from the main screen press the DOWN Button seven (7) times to show the first error code. If there are multiple active error codes, pressing the DOWN Button again will show the next error code. Continue pressing the DOWN Button to reveal all error codes. When all error codes have been shown, the next press of the DOWN Button returns the screen to the Battery Voltage display.

COMMAND CENTER Error Status Display
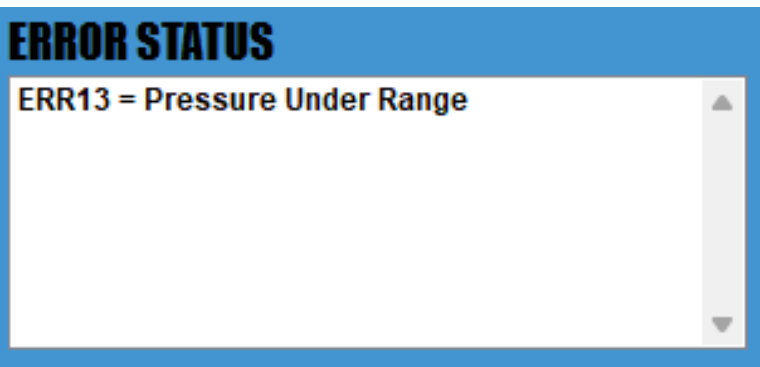
In *COMMAND CENTER*, any active error codes are displayed on the ERROR STATUS display under OPERATIONAL STATUS. Once troubleshooting is complete and the error is resolved, the message will automatically be removed from the ERROR STATUS display.

The following table shows the errors that can be detected by the Analyzer and whether they are a flashing or not flashing error. Each error has an assigned number which is what is displayed on the Analyzer error screen. If you are unable to correct and clear an error code, please contact the AMI factory for assistance.

Analyzer Error Codes Table

Error Code	Error Name	Error Description	Flashes On Main Screen
1	RTC_NOT_SET	Default Date/Time detected at startup. Need to update analyzer date and time.	No
4	DETECT_PRESSURE	Pressure sensor not detected at start up	Yes
7	BATTERY	ADC implausible signal for VBAT channel. Check battery and battery connection.	No
10	USBREAD	Reading from USB failed	No
11	USBWRITE	Writing to USB failed	No
12	OVERPRESSURE	Pressure is above the operating range of 150.0 psi	No
13	UNDERPRESSURE	Pressure is below the operating range of 0.5 psi	No
14	OVERTEMPERATURE	Block temperature is above the operating range of 120 °F	No
15	UNDERTEMPERATURE	Block temperature is below the operating range of 20 °F	No
16	ADCTIMEOUT	ADC has stopped collecting.	Yes
17	SIGPROCTIMEOUT	Processing of ADC samples has stopped	Yes
18	MEMORYREAD	Error reading from NVRAM	Yes
19	MEMORYWRITE	Error writing to NVRAM	Yes
20	ADC_NTC_CHANNEL	ADC reading zero, railed or out of sequence for NTC channel	Yes
21	ADC_VBAT_CHANNEL	ADC reading zero, railed or out of sequence for VBAT channel	Yes
22	ADC_DIET_CHANNEL	ADC reading zero, railed or out of sequence for DIET channel	Yes
23	PRESSURE_CHANNEL	Bad status from pressure sensor pressure channel	No
24	TEMPERATURE_SIGNAL	ADC implausible signal for temperature channel	Yes
27	ADC_O2_SIGNAL	ADC implausible signal for O2 channel	No
28	ADC_O2_CHANNEL	ADC reported that it failed an internal integrity check or that the channel was out of range, out of sequence or failed CRC check.	Yes
29	SPAN_HIGH	Span value is above the operating range (>= 1,000)	Yes
30	SPAN_LOW	Span is below the operating range (<= 300)	Yes
31	RTC_SYNC	Clocks failed to perform periodic synchronization	No
32	SENSOR_TYPE	Sensor type is invalid or unsupported	Yes

Troubleshooting the Analyzer

The following section identifies potential system issues and provides possible resolutions. If you are unable to resolve an issue after following the suggestion(s) shown in this section, contact AMI for further support.

Analyzer Does Not Power Up

Resolution:
– Recharge the batteries and then power-up the Analyzer.

Analyzer Reads Too Low

Resolution:
– Re-calibrate the Analyzer. Flow Span Gas through it and adjust the Span Value of the Analyzer until the Analyzer reads appropriately. See Calibration in the Analyzer Operation section of the manual.
– Check the Span Factor by pressing the UP Button. If the Span Factor displays 980 or higher, replace the oxygen sensor.
– Calibrate new sensor with Span Gas. If the measurement readings continue to stay low, re-calibrate with ambient air to verify that your Span Gas is accurate.

Analyzer Reads Too High

Resolution(s):
– Leak test all external fittings. We recommend using SNOOP®
– Check that the gas flow rate is between 0.1 to 2.0 SCFH
– Re-calibrate the Analyzer using ambient air or calibration gas as described in the Calibration Section of the manual.

Analyzer Reads Zero

Resolution(s):
– Check that the oxygen sensor is in the correct position and not upside down. If it is incorrect, reorientate to the correct position.
– Check the sensor to see if it is leaking. If it is leaking, replace with a new oxygen sensor.
– Check that the shorting clip was removed from the sensor. Remove the shorting clip if it is still installed.

Incorrect Readings

Resolution(s):
– Verify that there are no leaks from the Sample Tap to the Analyzer.
– If you calibrated using Span Gas, verify that the value of the Span Gas Tank is correct by performing a calibration with ambient air.

- Perform a Block and Bleed process on the calibration tank regulator as described in the Calibration Section of the manual. Then, re-calibrate the Analyzer.

Analyzer Refuses to Accept Front Panel Settings

Resolution(s):
- Use the *COMMAND CENTER* Interface Software to verify that the Security Settings match your preference. Security Settings drop down menu is in Analyzer Setup section.

  Security Settings of NONE allows anyone to make changes to the Analyzer's settings using the front panel. Security Setting of FULL prevents anyone from changing the Analyzer's setting using the front panel. However, the user would be able to view settings via the UP Button and DOWN Button. Security Setting of SPAN will allow the user to span the unit via the SPAN Button but not change any other settings.

'Err' Flashes ON *the LCD Screen*

Resolution(s):
- Determine error code as described in Error Status Display: Error Reference Guide section. If you cannot clear error code yourself, contact AMI for support.

For any other issue not covered in this section, contact AMI for support.

END OF MAINTENANCE AND TROUBLESHOOTING

ACCESSORIES

AMI offers the following accessories to be used with your **MODEL 1000BX** Portable Oxygen Analyzer.

PROTECTIVE CARRYING CASE
This rugged protective carrying case extends the life of the portable gas Analyzers in the most demanding and hazardous environments. It is lined with a thick die-cut foam, providing complete protection during travel and storage periods. The die-cut foam also has built-in compartments for the accessories.

NON-DIFFUSIVE FLEXIBLE HIGH-PRESSURE SAMPLE TUBING
This unique high-pressure, non-diffusive sample gas tubing is outfitted with special connection fittings. Designed with an o-ring/swage seal, it can be tightened using only finger-strength. The tubing and fittings are rated up to 6,500 psig.

It is available in lengths of 4 feet, 6 feet , 10 feet, and 15 feet.

ANALYZER GUARDIAN
The ANALYZER GUARDIAN protects the Analyzer from liquids and particulates entering. Its unique membrane and stainless-steel deflector disk combination work as a barrier against liquids while allowing only gas to reach the Analyzer. It is offered with an optional liquid bypass assembly and pressure regulator.

It is recommended the ANALYZER GUARDIAN should be used with AMI's DEMISTER for the best protection.

ANALYZER GUARDIAN shown with Optional Pressure Regulator and Optional Liquid Bypass Assembly

DEMISTER
Compact, vertically mounted device that attaches directly to the pipeline. As hot sample gas passes through the DEMISTER, it is rapidly cooled, causing compressor oils, glycols, and water vapors to condense, coalesce, and drain back into the pipeline.

END OF ACCESSORIES

MODEL 1000BX SPECIFICATIONS

USAGE	
Both indoor and outdoor use	
Altitude for Use	<16,404 feet (<5,500 meters)
Relative Humidity	<95%, non-condensing

PHYSICAL	
Dimensions	5.5" W x 10.1" H x 5.2" D (14 cm x 26 cm x 13 cm)
Weight	6 lbs (2.7 kg)
Digital Display	4–digit back lit LCD
Gas Connections, Inlet	Female quick disconnect fitting. Supplied with mating male quick disconnect fitting coupled to 1/4" compression fitting
Gas Connection, Outlet (Exhaust)	Male barb fitting for ¼" flexible tubing
Wetted Parts	316 stainless-steel fittings, electroless nickel-plated cell block, gold-plated contacts, acrylic flow meter, and Viton o-rings (Kalrez or Buna-N optional)
Materials	Cases (painted CRS), Rubber Boot (EDPM), Grommets (Silicone and NBR), and handle (PVC)

TECHNOLOGY	
Method of Measurement	Electrochemical Sensor
Key Technologies	Proprietary **ELIMINATOR CELL BLOCK**, *COMMAND CENTER* Interface Software (with data logger, power-up history, USB virtual comport), and proprietary oxygen sensor

PERFORMANCE	
Low Minimum Detection Threshold	T2, T4 sensor: 0.05 ppm P3, P5 sensor: 100 ppm
Linear Range	T2, T4 sensor: 0 to 10,000 ppm P3, P5 sensor: 0 to 25%
Resolution	T2, T4 sensor: 0.05 ppm P3, P5 sensor: 100 ppm
90% Upscale Response Time	0 to 10 ppm: <25 sec 10 ppm to 25%: <10 sec
90% Downscale Response Time	< 15 min (after 1 min exposure to air to return to reading of 10 ppm)
Repeatability	±1% of reading or ±0.2 ppm, whichever is greater
Accuracy	±1% of reading or ±1 ppm, whichever is greater
Diurnal Temperature Specification	< 3% of scale over temperature range

Specifications (continued)

OPERATION	
Operating Temperature Range	25 °F to 115 °F (-3.9 °C to 46.1 °C)
Storage Temperature Range	25 °F to 115 °F (-3.9 °C to 46.1 °C)
Recommended Flow Rate	0.1 to 2.0 SCFH (0.05 to 1.0 lpm)
Inlet Gas Pressure	0.5 –150 psig (0.03 –10.3 bar)
Exhaust Gas Pressure	Vent to Atmosphere
Data Collection Capacity	15 days of data recording at 1 data point per minute
Battery Life	25 days, operating 1 year, non-operating storage with sensor installed
Battery Charge Time	>18 hours
Battery Cycle Life	>500 cycles
Protection	RFI-protected

POWER	
Requirement	Electrical Input(s): USB Type C (5 V used for charging) Max Current (With USB plugged in): 100 mA

AREA CLASSIFICATION	
Area Classification	US/Canada: Class I, Division 1, Groups B-D, T4 Class I Zone 0, AEx ia IIB+H2 T4 Ga Ex ia IIB+H2 T4 Ga -3.9 °C ≤ Tamb ≤ +46.1 °C
	IECEx: Ex ia IIB+H2 T4 Ga -3.9 °C ≤ Tamb ≤ +46.1 °C
	ATEX/UKCA: ⟨Ex⟩ II 1 G Ex ia IIB+H2 T4 Ga -3.9 °C ≤ Tamb ≤ +46.1 °C
Conforms / Certified To	UL 60079-0 UL 60079-11 UL 61010-1 CSA C22.2#60079-0 CSA C22.2#60079-11 CSA C22.2#61010-1-12
Environmental Conditions	Pollution Degree 3

END OF SPECIFICATIONS

AMI WARRANTY & SUPPORT
Limited Warranty/Disclaimer

The warranty period is two (2) years for the Analyzer. Any failure of material or workmanship will be repaired free of charge for that specified period from the original purchase (shipping date) of the instrument. AMI will also pay for one-way ground shipment back to the customer. The warranty period is six (6) months for the oxygen sensor. Any indication of abuse or tampering of the instrument will void the warranty.

Receiving the Analyzer

When you receive the instrument, check the package for evidence of damage and if any is found contact the shipper. Although every effort has been made to assure that the Analyzer meets all performance specifications, AMI takes no responsibility for any losses incurred by reason of the failure of this Analyzer or associated components. AMI's obligation is expressly limited to the Analyzer itself.

EXCEPT FOR THE FOREGOING LIMITED WARRANTY, AMI MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AS TO THE NON-INFRINGEMENT OF THIRD-PARTY RIGHTS, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. IF APPICABLE LAW REQUIRES ANY WARRANTIES WITH RESPECT TO THE SYSTEM, ALL SUCH WARRANTIES ARE LIMITED IN DURATION TO TWO (2) YEARS FROM THE DATE OF SHIPPING.

Limitation of Liability

IN NO EVENT WILL AMI BE LIABLE TO YOU FOR ANY SPECIAL DAMAGES, INCLUDING ANY LOST PROFITS, LOST SAVINGS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES, EVEN IF THE COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANY OTHER PARTY.

Limitation of Remedies

AMI's entire liability and your exclusive remedy under the Limited Warranty (see above) shall be the replacement of any Analyzer that is returned to the Company and does not meet the Company's Limited Warranty.

Factory Service and Support

AMI offers calibration and repair services for their analyzers. To return an analyzer to the factory for repair or calibration, please complete a Return Merchandise Authorization (RMA) Request Form at www.amio2.com/request-rma. After your form has been received and reviewed, an AMI representative will contact you by email or phone with RMA number and instructions on how to ship the unit to the AMI factory.

If you have questions about your product, please contact the AMI factory at +1.714.848.5533 or complete the online Service & Support form at www.amio2.com/quote/support.

END OF AMI WARRANTY & SUPPORT

DECLARATIONS OF CONFORMITY

EU Declaration of Conformity

Battery Powered Portable Analyzer:

1000BX
3000BX

In locations:

CE (Ex) II 1 G Ex ia IIB+H2 T4 Ga -3.9°C ≤ T_{amb} ≤ +46.1°C

We, Advanced Micro Instruments (AMI) declare under sole responsibility that the above products, to which this declaration relates, is in conformity with the requirements of the following EU Directive(s):

- **ATEX DIRECTIVE 2014/34/EU**

Notified Body Name/number: Intertek Testing Services NA Ltd./ 2903
Issued the EU-Type examination certificate: ETL23ATEXQ0280

The Technical Documentation (TD), relevant to the product described above and which support this DoC is available from the contact address on this DoC.

The following harmonized standards and normative documents are those to which the product's conformance is declared, and by specific reference to the essential requirements of the reference Directive:

EN 60079-0:2018: Explosive Atmospheres - Part 0: Equipment - General Requirements
EN 60079-11:2012: Explosive Atmospheres - Part 11: Equipment Protection By Intrinsic Safety "I"

Kevin Bates
President

Signed for and on Behalf of
Advanced Micro Instruments
225 Paularino Ave
Costa Mesa, CA 92626
Tel: 714-848-5533
www.amiO2.com

225 Paularino Avenue | Costa Mesa, CA 92626 USA | Tel: (+1) 714.848.5533 | www.amio2.com | SF-300-006A

UK Declaration of Conformity

For the gas analyzers:

1000BX
3000BX

In locations:

⟨Ex⟩ II 1/2 G Ex ia IIB+H2 T4 Ga -3.9°C ≤ T_{amb} ≤ +46.1°C

We, Advanced Micro Instruments (AMI) declare under sole responsibility that the above products, to which this declaration relates, is in conformity with the requirements of the following UK Directive(s):

- **UK DIRECTIVE UKSI 2016:1107**

Notified Body Name/number: Intertek Testing & Certification Limited, Cleeve Road, Leatherhead, Surrey, KT22 7SA (NB number 0359)
Issued the UK-Type examination certificate: ITS21UKQAN0067

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EN 60079-0:2018: Explosive Atmospheres - Part 0: Equipment - General Requirements
EN 60079-11:2012: Explosive Atmospheres - Part 11: Equipment Protection By Intrinsic Safety "I"

Kevin Bates
President

Signed for and on Behalf of
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225 Paularino Avenue | Costa Mesa, CA 92626 USA | Tel: (+1) 714.848.5533 | www.amio2.com | SF-300-007A