

HIGH PERFORMANCE

RELIABILITY

INTUITIVE DESIGN



Operator Manual



OPERATOR MANUAL

Special Message from Advanced Micro Instruments (AMI):

The **COMMAND CENTER USER INTERFACE™ Software** gives you access to the more sophisticated features available on your AMI Gas Analyzer(s).

Because It is important that you have the latest version of the **COMMAND CENTER** installed on your computer or laptop, we encourage you to register your Analyzer at www.**AMIO2**.com. Doing so will **allow us to send you an automatic alert whenever an updated version of the software is available for download.** All software downloads for registered users through the customer login/registration portal at www.**AMIO2**.com are **FREE**.

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COMMAND CENTER USER INTERFACE™ Software Minimum Requirements

Windows 7 1Ghz or faster processer (32-bit x86 or 64-bit x64) 4GB RAM 8GB available disk space .Net Framework 4.0

I. COMMAND CENTER USER INTERFACETM LAYOUT

The **COMMAND CENTER** is a universal platform that works across AMI's Gas Measurement Analyzers. The software, once opened on a computer or laptop and then connected to an AMI Analyzer, will recognize the Analyzer and display the proper the version of the Interface.





The **COMMAND CENTER USER INTERFACE™** contains 6 sections (each one is highlighted by a red box above):

Analyzer Info Column

displays the current readings for gas measurement, span factor, cell block temperature, ambient temperature, power, analog output, output range, security and the serial number of the Analyzer

Analog Output & Security Settings Setup

allows the user to make selection changes to the Output Range, Analog Output and Security Settings. It also contains the settings to use during Analog Output Calibration

Alarm Setup

contains the settings for the 2 independent alarms, including delays and alarm logic

• Controls for Both Alarms

contains the settings that control both alarms (these cannot be set for each alarm individually)

Operational Status Column

contains the Error Status Display and the Sensor Status Area (for oxygen and $\rm H_2S$ Analyzers)

Datalog Column

allows the user to set the Analyzer time and Datalog Interval as well as download Analyzer Measurement Data as a graph or spreadsheet. The user can also clear the Datalog and view the Power History and Brown-out History **Operational Status**

H₂S Analyzer Layout

COMMAND CENTER				
	MMAND CENTER VER. 8.0 CLOSE COM		3010V3 Use	r ID: None 1/24/2019 - 14:41:33 Polling Enabled
ANALYZER INFO	ANALYZER SETUP	OPERATIONAL	STATUS	DATALOG
AND CONTRACT 3010BRV3 Trace H/S BRAINNG 0.00 PPM SPAN FRATOR 471 CELL BLOCK TEMP 70 * F POWER 1.1.5 V ANALOG OUTPUT 4 - 20 mA OUTPUT RANEE	STUP Output Range 10 PPM • 7 Analog Output • 20 mA • 7 Analog Output • 20 mA • 7 Analog Output Calibration • 27 0 0 000 • 000 • 7 • Full Scale • 10030 • 7 • Mark Range Security Settings • None • 7 Alarm Setpoint • AlaRM1 Alarm Setpoint • AlaRM1 Alarm Delay (0.500 mmotres) Open(Close • 0 mmotres) Open(Close • 7 Alarm Above or 7 Alarm Above or 7	REND STATUS NO ERRORS NO ERRORS SENSOR STATUS Span Factor Sensor Install Date Hours Above 115° F Hours Bolow 22° F Hours Above 115° F Hours Above 27° F	471 (≥) ₹ None ₹ 1201/201 - ₹ 0.0185 ₹ 25334 Hrs ₹ 0.0185	Analyzer Time * H441:3012 Turredy , January 24, 2019 * Computer Time * 14:41:33 * SetAnalyzer Time Turredy , January 24, 2019 * Clear Datalog Clear Datalog Clear Datalog Clear Datalog Power History * Power History * Command Center Manual
10 PPM SEGURITY None AMALYZER S/H DFLT	Alarm Status OFF OFF CONTROLS BOTH ALARMS Alarm Dypass Alarm Latching Alarm Dypass Alarm Latching Ionitatching (*120 minites) Alarm Failsafe Pulse Time Failsafe • 0 Sac ψ	Hours Turned Off Calibration History 7 DATE SPAN FACTOR 117/19 471 New Sensor 7	12849 Hrs Expand CAL GAS VALUE 49.9ppm	Contact Info 714.484.5533 (1) 714.484.4545 (F) sales@amiO2.com www.amiO2.com

The layout of the Interface that appears, when connected to a H₂S Analyzer, is exactly the same as when connected to an Oxygen Analyzer (see page 2).

Moisture Analyzer Layout

ANALYZER INFO	ANALYZER SETUP	OPERATIONAL STATUS	DATALOG
4010BR	SETUP	ERROR STATUS	Analyzer Time 7 15:13:06 4 15:13:06 4 15:13:06 4 15:13:06 4 15:13:06 4 15:13:06 4 15:13:06 4 15:13:06 4 15:13:06 1 15:13:06 1 15:13:13:15 15:13:15:15:15:15:15:15:15:15:15:15:15:15:15:
URE READING .070 LBS	Analog Output A20 PPM Analog Output 420 PPM Analog Output Calibration Zero 656 7 Eulopain 200 PPM		Thursday , January 24, 2019 - © Computer Time ? 15:13:12 - Set Analyzer Time Thursday , January 24, 2010 -
125 Il block temp 72 ° F	Mid Range ? Security Settings None ? AlARM SETUP	SENSOR STATUS	Datalog Interval (minutes)
MBIENT TEMP 0.000 * F Ower 11.9 V Walog Output	Alarm Setpoint ALARM1 ALARM2 Alarm Delay Otimic* 0 Open/Close Closed 7	Sensor Install Date 07/041776 - Nours Above 113° F Hours Below 32° F Hours Turned Off Previous Senser Belo	Download Data 2 Saved Data Files 2 Power History 2 Brown Out History 2
4 - 20 mA PUT RANGE 0 - 20 LBS JRITY	Alarm Above or Above Above Above Above Above Above Above Above Alarm Status Alarm Status Alarm Bypass Alarm Latching Alarm Expanse Alarm Latching Alarm Above Alarm Alarm Alarm Above Alarm Alarm Above Above Alarm Above Alarm Above Al	Hours Above 115" F Hours Below 32" F Hours Turned Off	Conmand Center Manual Contact Info 714.848.5533 (T)
None LYZER S/N NO_SERIAL	1 Nin 😨 7 NonLatching • 7 (0-120 minutes) Alarm Failsafe Pulse Time Non-Failsafe • 7 0 Sec 🚔 7	LASER ANALYSIS	714.848.4545 (F)

The layout of the Interface, when connected to a Moisture Analyzer, is slightly different. At the bottom of the OPERATIONAL STATUS COLUMN, you will find the LASER ANALYSIS Button, which is used for specific advanced features and functions available only for the **MODEL 4010LX**.

END OF COMMAND CENTER LAYOUT

II. COMMAND CENTER ELECTRONICS PLATFORMTM SET-UP

The installation and setup of the **COMMAND CENTER USER INTERFACE™ Software** is the same across all AMI Gas Measuremnt Analyzers (oxygen, hydrogen sulfide and moisture).

Step 1: Remove the explosion-proof cover to access the USB Port (Type B) of the Analyzer



Step 2: Establish a Communication Link between your Laptop and the Analyzer



USB Type A Connector



USB Type B Connector

a) Power up your Laptop and open the current version of the **COMMAND CENTER USER** INTERFACE™ Software.

COMMAND CENTER					
	COMMAND CENTER VER. 8.0 CLOSE COM Build Date: 122/2019 - 8:91:35 PM		2010V3 Us	er ID: NONE	1/24/2019 - 14:52:00 Polling Enabled
ANALYZER INFO	ANALYZER SETUP	OPERATIONAL	STATUS	D4	TALOG
2010BRV3 Trace 02 READING 0.00 PPM SPAN FACTOR 524 CEL BIOCK TEMP 74 * F AMBIENT TEMP 75 * F POWFR	STUP Output Rage 10 PPM • v Analog Output 420mA • v Analog Output Calibration # Full Scale 10652(2 v # Full Scale 10652(2 v Atal Stup Security Settings None • v ALARM STUP Alarm Setpoint 40.40M1 × 500 ms v Alarm Setpoint 500 ms 0 MmC 1 v	ERROR STATUS IND ERRORS SENSOR STATUS Span Factor Sensor Install Date Hours Above 115° F	524 🕃 🖗	Analyzer 14:48:24 💬 Thursday , © Compute 14:52:00 - Thursday , Datalog Into Clear Dat Download Saved Data	Time ? January 24, 2019 ~ r Time ? Set Analyzer Time January 24, 2019 ~ rrval (minutes) 10 alog ? Data ? Files ?
11.5 V ANALOG OUTPUT 4 - 20 mA OUTPUT RANGE 10 PPM SEGURITY None ANALVZER S/N	OpenClose (*30 mater) 6-30 mater) On Alarm Alarm Above of Cestal Cost of Cestal Alarm State of Cestal Cost of Cestal Alarm State of Cestal Cestal Cestal Cestal Alarm State of Cestal Cestal Cestal Cestal Cestal Cestal Alarm State of Cestal C	Hours Turned Off Previous Sensor Data 2 Hours Above 115° F Hours Bolway 22° F Hours Turned Off Calibration History 2 DATE SPANIFACTOR 1116 524 New Sensor 2	CAL GAS VALUE 99.9ppm	Power Hit Brown Out I Command 0 Contract In 714.848.55 714.848.45 sales@ami www.amiC	tory 2 History 2 Center Manual Caster Manual Caster Manual Caster Manual Caster Manual Caster Manual

Left: COMMAND CENTER USER INTERFACE

window shown (Oxygen Analyzer Layout)

- b) Using a USB cable with a Type A Connector on one end and a Type B Connector on the other, insert the Type A Connector into the USB port of your laptop and the Type B Connector into the USB port of the Analyzer on the Explosion-proof side.
- c) Once the link is established, the software will automatically recognize the Analyzer and populate the Analyzer Info Column with information specific to your Analyzer.



d) The Analyzer Info Column will display the following information about your Analyzer:

- Analyzer Model Number
- Measurement Reading for your AMI Analyzer
- Cell Block Temperature
- Ambient Temperature (not displayed on THE MODEL 4010LX)
- Input Power, either AC or DC
- Analog Output Setting (4–20mA or 1–5 VDC)
- Output Range Selection
- Security Selection
- Analyzer Serial Number

Step 3: Selection of Options in Analyzer Setup Area & Syncing with Electronic Flow Meter (EFM)

a)

ANALYZER SETUP				
SETUP				
Output Range	25 %	• 3		
Analog Output	4-20 mA	- +		
Analog Output (Zero	4-20 mA 1-5 V	2		
🗖 Full Sc	ale 106	636 🔶 👔		
🗖 Mid Ra	inge	3		
Security Setting	5 None	• 3		
ALARM SETUP				
Alarm Setpoint	ALARM1 20.0 %	ALARM2 22.5 % ?		
Alarm Delay	0 Min 📥	0 Min 🚔 💈		
Open/Close On Alarm	0-300 minutes) Closed •	(0-300 minutes) Closed		
Alarm Above or Below Setpoint	Above -	Above • ?		
Alarm Status	OFF	OFF		
CONTROLS BOTH ALARMS				
Alarm Bypass Alarm Latching				
1 Min 🜩 👔 NonLatching 🔻 👔				
(0-120 minutes) Alarm Failsafe Pulse Time				
Failsafe 🔻	2	0 Sec 🚖 👔		

View ANALOG OUTPUT Setting.

This is set and calibrated at the factory per your order requirements prior to shipping. If you wish to change the analog output from 4-20mA or 1-5 VDC or vice versa, refer to the instructions shown on page 8.

SETUP			
Output Range	25 %	• 2	
Analog Output	4-20 mA	• 2	
Analog Output Ca	alibration		
📃 Zero		652 🔶 🕜	
🗖 Full Sca	ale 10	636 💠 😗	
🗖 Mid Rar	nge	3	
Security Settings	None	- 34	
ALARM SETUP	None Span O	nly	
and the second	ALA Full	<u>₹</u> M2	

Set your desired SECURITY SETTINGS. You have 3 options available to select from:

-NONE allows anyone to make changes to the Analyzer's settings using the front panel

-SPAN ONLY (this setting is NOT AVAILABLE on **THE MODEL 4010LX**)

-FULL **prevents** anyone from changing the Analyzer's settings using the front panel. However, you can still use the front panel to check the Analyzer's status values by pushing any of the buttons

(i.e., pressing the ALARM ONE Button displays the setpoint for ALARM ONE, pressing the ALARM TWO Button displays the setpoint for ALARM TWO, and so on)

ANALYZER SETUP					
SETUP					
Output Range	25 %		-	3	
Analog Output	4-20	mA	•	3	
Analog Output (Calibra	ation			
Zero 🗹		(552 ≑		
🛄 Full So	ale	106	636 ≑	2	
Mid Ra	ange			2	
Security Setting	S	None	•	3	
ALARM SETUP					
Alarm Setpoint	ALAR 20	(M1).0 %	ALA	RM2 22.5 % ?	
Alarm Delay	0	Min 🚔		0 Min 🚔 💈	
Open/Close On Alarm	0-300 n Close	ninutes) d 🔻	(0-300 Clos	ed 🔻 了	
Alarm Above or Below Setpoint	Above	~ • • •	Abov	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Alarm Status	0	FF		OFF	
CONTROLS BOTH ALARMS					
Alarm Bypas	Alarm Bypass Alarm Latching				
1 Min 🚔 👔 NonLatch			ng 🔻 了		
(0-120 minutes) Alarm Failsafe Pulse Time Failsafe ▼ ? 0 Sec 🖨 ?					

c)

Sync your electronic flow meter (EFM) or similar device to your Analyzer.

The following steps are critical because they will ensure that both devices display the same measurement readings and, thereby, prevent unnecessary confusion in the future.

- By now, you have already wired your EFM or similar device to the Analyzer using the Analyzer's analog output terminals.
- 2. Click on the small square box next to ZERO and the reading of the Analyzer should display the low end of your output range. Confirm that the reading on your EFM or similar device matches the reading on the Analyzer. If it does not, use the UP and DOWN ARROWS to the right of ZERO to adjust the readings of the Analyzer until the reading of the EFM or similar device is now the same.
- 3. Once this is done, click on the square next to FULL SCALE. The reading of the Analyzer should display the high end of your output range. Confirm that the reading on your EFM or similar device matches the reading on the Analyzer. If it does not, use the UP and DOWN ARROWS to right of FULL SCALE to adjust the reading of the Analyzer until the reading of the EFM or similar device is now the same.
- 4. Repeat Step 2 (ZERO) and Step 3 (FULL SCALE) once more to confirm that both your EFM or similar device and the Analyzer are displaying the same readings.
- 5. Last, click on MID RANGE. This will check the linearity. There are no values to adjust as this is just a midpoint validation.

ANA	LYZER SET	UP
SETUP		
Output Range	25 %	• 2
Analog Output	4-20 mA	
Analog Output (Zero	4-20 mA 1-5 V	2
🗖 Full So	cale 10	0636 🚔 🛛 👔
🗖 Mid Ra	ange	3

OPTIONAL

d)

Changing your ANALOG OUTPUT from 4–20mA to 1–5 VDC or vice versa. (Skip this step if you <u>DO NOT</u> want to change your ANALOG OUTPUT.)

Click on the drop down menu of ANALOG OUTPUT and select the output option that you wish to change to.



IMPORTANT

Whenever you change the ANALOG OUTPUT from 4–20mA to 1–5 VDC or vice versa, you will need to complete the following steps to verify your ANALOG OUTPUT.

- 1. Attach a multimeter to the Green Analog Out Terminal Connector of your Analyzer. Make sure your multimeter is set appropriately, either current for 4–20mA or voltage for 1–5 VDC.
- 2. Click on the square box next to ZERO to confirm that your multimeter is displaying either 4mA or 1VDC (the number of digits displayed on the screen will depend on the multimeter that you use). If the reading of the multimeter does not match the reading of the Analyzer, use the UP and DOWN ARROWS to the right of ZERO to adjust the values until the reading of the multimeter is either 4mA or 1VDC.
- 3. Once this is completed, click on the square box next to FULL SCALE to confirm that your multimeter is displaying either 20mA or 5VDC. If the reading of the multimeter does not match the reading of the Analyzer, use the UP and DOWN ARROWS to the right of FULL SCALE to adjust the values until the reading of the multimeter is now either 20mA or 5VDC.
- 4.. Repeat Step 2 (ZERO) and Step 3 (FULL SCALE) again until you can confirm that your multimter is displaying 4mA or 1VDC for ZERO and 20mA or 5VDC for FULL SCALE.
- 5. Last, click on MID RANGE. This will check the linearity. There are no values to adjust as this is just a midpoint validation.
- 6. Once you have completed this section, disconnect the multimeter.

Step 4: Alarm Logic & Setup



The Analyzer features 2 independent Concentration Alarms –one for ALARM 1 and one for ALARM 2. The settings for these alarms, including setpoints, relay contacts, close/open logic and alarm delays, are adjusted through the **COMMAND CENTER**.

It is important that you plan out how you want your ALARM LOGIC to work for each ALARM before you start adjusting the settings discussed in this section.

ALARM SETUP		
Alarm Setpoint	ALARM1 20.0 %	ALARM2 22.5 % ?
Alarm Delay	0 Min 🛬	0 Min 🔶 ?
Open/Close On Alarm	Closed -	Closed • ?
Alarm Above or Below Setpoint	Above -	Above • 7
Alarm Status	OFF	OFF

a) Set the ALARM SETPOINTS.

Enter your desired value for each setpoint and then press the ENTER key on your laptop. Keep in mind that your values cannot exceed the limit of the Measurement Range that you previously selected.

ALARM SETUP		
Alarm Setpoint	ALARM1 20.0 %	ALARM2 22.5 % 7
Alarm Delay	0 Min 📥 (0-300 minutes)	0 Min 🚔 🧿 (0-300 minutes)
On Alarm	Closed -	Closed 🔻 🕐
Alarm Above or Below Setpoint	Above -	Above -
Alarm Status	OFF	OFF

b) Set the ALARM DELAYS.

There are 2 ALARM DELAYS. Each ALARM DELAY setting is located beneath the corresponding ALARM that it controls.

Enter your desired time duraction for each ALARM DELAY and press the ENTER key on your laptop. You can also adjust using the UP and DOWN ARROWS. The range is from 0 to 300 minutes.

Note: This feature is especially helpful at custody transfer points when customers are allowed to exceed contractual limits for a predetermined amount of time.

ALARM SETUP		
Alarm Setpoint	ALARM1 20.0 %	ALARM2 22.5 % ?
Alarm Delay	0 Min 🛬	0 Min 🚔 💈
Open/Close On Alarm	Closed -	Closed -
Below Setpoint	Above -	Above - ?
Alarm Status	OFF	OFF

c) Click on the drop-down menu and set the relay contact of each individual ALARM to OPEN or CLOSE when its respective ALARM is triggered.

Each setting corresponds to a schematic symbol below. When the OPEN ON ALARM is selected, the schematic symbol opens. When the CLOSE ON ALARM is selected, the schematic symbol closes.

The setting also corresponds to the ALARM column that it lies underneath.

ALARM SETUP		
Alarm Setpoint	ALARM1 20.0 %	ALARM2 22.5 % ?
Alarm Delay	0 Min 🚔 (0-300 minutes)	0 Min 🚔 ? (0-300 minutes)
Open/Close On Alarm	Closed 👻	Closed 👻 🕃
Alarm Above or Below Setpoint	Above -	Above 👻 了
Alarm Status	OFF	OFF

d) Click on the drop-down menu and set the ALARM to trigger ABOVE SETPOINT or BELOW SETPOINT.

For ALARM ABOVE SETPOINT, the ALARM will trigger if your readings rise above your ALARM SETPOINT.

For ALARM BELOW SETPOINT, the ALARM will trigger if your readings fall below your ALARM SETPOINT.

	ALARM1	ALARM2
Alarm Setpoint	20.0 %	22.5 %
Alarm Delay	0 Min 📥	0 Min 🚔 💡
	(0-300 minutes)	(0-300 minutes)
Open/Close On Alarm	Closed 👻	Closed 🔻 👔
Section Section		
Alarm Above or Below Setpoint	Above -	Above 👻 ?
Alarm Status	OFF	OFF
CONTROLS BOTH	HALATMS	

) View the ALARM STATUS. Both independent ALARMS have their own ALARM STATUS.

If an ALARM is not triggered, the ALARM STATUS will display 'OFF' in green.

If an ALARM is triggered, its ALARM STATUS will display 'ON' in red.

*For an ALARM to be triggered, it will take into account the complete logic of how the ALARM was set up. This includes SETPOINT, DELAY, OPEN/CLOSE CONTACT ON ALARM, and ALARM ABOVE OR BELOW SETPOINT.

Step 5: Setup of the Controls for Both Alarms

IMPORTANT:

For this section, the adjustments discussed below affect both ALARMS and **CANNOT** be set independently for each ALARM.



- a) Set the ALARM BYPASS. Use the UP and DOWN ARROWS to set the duration of your ALARM BYPASS (HOLDOFF).
 - Note: This feature disables both ALARMS and ANALOG OUTPUTS for those of you using the analog output for control..

CONTROLS BOTHALAR	MS
Alarm Bypass	Alarm Latching
1 Min 🚔 👔	NonLatching 🔹 👔
(0-120 minutes)	NonLatching
Alarm Failsafe	Latching
Non-Fallsafe -	0 Sec 🕂 👘

b) Click on the drop-down menu and set the ALARM relay contacts to LATCHING or NONLATCHING.

-If set to NONLATCHING, the relay contacts will energize when the measurement readings exceeds the ALARM SETPOINTS and then de-energize when the measurement readings drop below the ALARM SETPOINTS.

- If this is set to LATCHING, the relay contacts will energize when the measurement readings exceeds the ALARM SETPOINTS but also remain engaged when the reading drops below the ALARM SETPOINTS. A person will have to press the ALARM HOLDOFF Button for 1 second on the front panel of the Analyzer to disengage the relay contacts.



- c) Click on the drop-down menu and set the ALARMS to FAILSAFE or NON FAILSAFE.
 - If set to FAILSAFE, the ALARMS will trigger if the power supplied to the Analyzer drops below 8.5V. However, the ALARMS will not clear until the power moves back up and exceeds 12V.
 - If set to NONFAILSAFE, the ALARMS will not trigger if the power supplied to the Analyzer drops below 8.5V.



WARNING: DO NOT adjust this setting unless you are using a pulse-latch slam valve!

d) CHECK WITH THE VALVE MANUFACTURER for the correct pulse time and then set your desired PULSE TIME using the UP and DOWN Arrows.

This sets the duration of time that the Analyzer sends power to the relay contacts to open or close the valve when an ALARM is triggered. The Alarm 1 Contact will open the slam valve, while the Alarm 2 Contact will close the valve.

This features is helpful because it eliminates the need to continually draw power while the valve is closed.

Step 6: Datalog Interval & Setup

DATALOG
💿 Analyzer Time 👔
08:33:14 🐳
Thursday , January 03,2019 👻
⊙ Comput <mark>er Time ?</mark>
08:33:04 - Set Analyzer Time
Thursday , January 03, 2019 👻
Datalog Interval (minutes) 1ዽ
Clear Datalog
Download Data 🛛 👔

 a) SET ANALYZER TIME Click the Analyzer Time and m

Click the Analyzer Time and manually set the time. Or click Computer Time and then the SET ANALYZER TIME Button. The time should automatically adjust and closely match the time shown on your laptop.

b) DATA COLLECTION INTERVAL (minutes) Then set your desired collection interval for the DATALOGGER by adjusting the time (in minutes). The DATALOGGER allows you to store a time-stamped recording that contains the moisture reading, average temperature of the Cell Block, average power supply voltage and minimum voltage supplied to the Analyzer.

Important: The default setting for the DATALOGGER

Oxygen Analyzers & H₂S Analyzers

The DATALOGGER collects data for 15 days in 1-minute intervals. If you increase the duration of the interval, the data collection period also increases proportionally. Therefore, if you increase increase the interval to 2 minutes, the data collection period adjusts to 30 days. Every 3 minutes will increase the collection period to 45 days and so forth.

Moisture Analyzers

The DATALOGGER collects data for 5 days in 1-minute intervals. If you increase the duration of the interval, the data collection period also increases proportionally. Therefore, if you increase increase the interval to 2 minutes, the data collection period adjusts to 10 days. Every 3 minutes will increase the collection period to 15 days and so forth.



c) CLEAR DATA LOG

Press the CLEAR DATA LOG Button to clear any recorded data performed at the factory.

Saved Data Files	?
Power History	2
Brown Out History	?
Command Center M	anual

You can also view Saved Data Files, Power History, Brown-out History, and the Manual by pressing their respective buttons in this column.

END OF COMMAND CENTER SETUP

III. COMMAND CENTER DOWNLOAD DATA

The directions for downloading data on the **COMMAND CENTER** are the same across all AMI Gas Measurement Analyzers (oxygen, hydrogen sulfide and moisture).

	MMAND CENTER VER. 8.0 CLOSE COM d Date: 1/22/2019 - 8:09:36 PM	2010V3 Use	er ID: NONE	1/24/2019 - 14:52:00 Polling Enabled		
ANALYZER INFO	ANALYZER SETUP	OPERATIONAL	STATUS DATALOG		TALOG	
2010BBV3	SETUP	ERROR STATUS		Analyzer 1	lime 🤉	
Trace	Output Range 10 PPM -	NO ERRORS	*	14:48:24 🚖		
02 READING	Analog Output 4-20 mA - ?			Thursday , J	anuary 24, 2019 👻	
0.00 PPM	Analog Output Calibration			© Computer	Time 😨	
SPAN FACTOR	🗆 Zero 654 🚔 👔		-	14:52:00 -	Set Analyzer Time	
524	□ Full Scale 10652 🚔 🔞		1.1	Thursday , J	anuary 24, 2019 👻	
	Mid Range	SENSON STATUS		Datalog Inte	rval (minutes)	
GELL BLUGK TEMP	Security Settings None • 7	Span Factor	524 🚔 🕐			
AMPIENT TEMP	ALARM SETUP	Sensor S/N	None 🕐	Clear Data	log 🕜	
AMDICNI ICMP	ALARM1 ALARMZ Alarm Setpoint 8.00 PPM 9.00 PPM ?	Sensor Install Date	12/01/2031 - 🕐	Download D	ata 🕜	
DOWER	Alarm Delay 0 Min 🔶 0 Min 🔶 ?	Hours Above 115° F	0 Hrs 👔	Saved Data	Files 7	
11.5 V	(0-300 minutes) (0-300 minutes)	Hours Below 32° F	0 Hrs 👔	David Data		
	On Alarm Closed • Closed • ?	Hours Turned Off	25220 Hrs 2	Power Hist	ory 2	
4 - 20 mA	Alarm Above or	Previous Sensor Data ?	0.11-1	Brown Out H	istory 👔	
OUTPUT BANGE	Below Setpoint Above - Above - 2	Hours Below 32° F	0 Hrs	Command C	enter Manual	
10 PPM	Alarm Status OFF OFF	Hours Turned Off	12849 Hrs			
SECURITY	CONTROLS BOTH ALARMS			Contact Infe	2	
None	Alarm Bypass Alarm Latching	Galibration History	Expand	714.848.553	3 (1) 5 (F)	
ANALYZER S/N	(0-120 minutes)	DATE SPAN FACTOR	CAL GAS VALUE	sales@amiC	2.com	
	Alarm Failsafe Pulse Time	1/1/0 524	99.9ppm +	www.ami02	.com	
	Failsafe • ? 0 Sec 🔄 ?	New Sensor 🛛 👔				
HOME VARIABLES						

To begin, click the DOWNLOAD DATA Button located on the **COMMAND CENTER User** Interface.



A DATALOG HANDLER window will appear, giving you the option of seeing your downloaded data as either a graph or spreadsheet.

DATALOG				
Analyzer Time 2				
08:46:24 🚔				
Friday , January 04, 2019 👻				
o Computer Time 👔				
08:42:02 - Set Analyzer Time				
Friday , January 04, 2019 -				
A Data Log Handler				
Download Complete !! Select Data Display.				
Graph				
Spreadsheet				

To see the graph, click the GRAPH Button.



(Sample Graph of Downloaded Data)

You can save your graph to a file by clicking the SAVE DATA Button.

DATALOG
💿 Analyzer Time 👔
08:46:24 🛬
Friday , January 04,2019 👻
o Computer Time 💈
08:42:02 - Set Analyzer Time
Friday , January 04, 2019 👻
A Data Log Handler
Download Complete !! Select Data Display.
Graph
Spreadsheet

To see your downloaded data as a spreadsheet instead, click the SPREADSHEET Button. on the DATALOG HANDLER Window.

Date	Time	Output Range	Log Period	Output Reading	Avg. Voltage	Min Voltage	Avg. Temp.
/09/2018	04:44:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	04:45:13	420 PPM	1 min	290 PPM	11.9 V	11.8 V	81 F
/09/2018	04:46:13	420 PPM	1 min	277 PPM	11.9 V	11.8 V	81 F
/09/2018	04:47:13	420 PPM	1 min	286 PPM	11.9 V	11.8 V	81 F
/09/2018	04:48:13	420 PPM	1 min	294 PPM	11.9 V	11.8 V	81 F
/09/2018	04:49:13	420 PPM	1 min	286 PPM	11.9 V	11.8 V	81 F
/09/2018	04:50:13	420 PPM	1 min	277 PPM	11.9 V	11.8 V	81 F
/09/2018	04:51:13	420 PPM	1 min	294 PPM	11.9 V	11.8 V	81 F
/09/2018	04:52:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	04:53:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	04:54:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	04:55:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	04:56:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	04:57:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	04:58:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	04:59:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
3/09/2018	05:00:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	05:01:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	05:02:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	05:03:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	05:04:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
1/09/2018	05:05:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	05:06:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
/09/2018	05:07:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
8/09/2018	05:08:13	420 PPM	1 min	302 PPM	11.9 V	11.8 V	81 F
	05.00.40	100.0014		000.004	44.014	** ***	04.5

(Sample Spreadsheet of Downloaded Data)

You can save your spreadsheet to a file by clicking the SAVE DATA Button.

IV. COMMAND CENTER ERROR STATUS DISPLAY

The feature is available for all AMI Gas Measuremnt Analyzers (oxygen, hydrogen sulfide and moisture).



The ERROR STATUS DISPLAY is located at the top of the Operational Status Column of the **COMMAND CENTER User Interface**.

Any error(s) detected by the Analyzer will be displayed in this area. Additionally, every error will have an assigned error code and message (see the next page for a complete list of the existing error codes).

Error Status Display: Error Reference Guide

E N I	N
Error Number	Wessage
0	No 2F Triggger
1	No DC Trigger
2	TEC Set Pt Low
3	TEC Set Pt High
4	DC Avg Value Low
5	2F Avg Value Low
6	Power Supply Low
7	PPM OverRange
8	LBS Over Range
9	2F MaxtoMin Too Low
10	2F H2O Peak Out of Index
11	2F CH4 Peak Out of Index
12	Over/Under Pressure
13	H20 DC Peak Too Large
14	Over/Under Temperature
15	
16	FPGA Bad Read
17	Memory Bad Read
18	Memory Bad Write
19	Analytical Timeout
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	ADC Sample High
22	ADC Sample Low
33	ADC Conversion TimeOut
34	
35	De SAMI LE TO LOW
27	
20	<u> </u>
20	<u> </u>
39	+
40	
41	
42	<u> </u>
43	
44	ļ
45	

OPERATIONAL STATUS		
ERROR STATUS		
NO ERRORS	~	
	Ŧ	

Note:

Once troubleshooting is completed and the error is resolved, the message will automatically be removed from the Error Status Display by the Analyzer.

END OF ERROR STATUS DISPLAY

V. SENSOR & CALIBRATION SECTION

The section applies only to AMI Oxygen & Hydrogen Sulfide Analyzers.



The SENSOR STATUS Area is located in the middle of the OPERATIONAL STATUS COLUMN of the **COMMAND CENTER User Interface.**

- The SPAN FACTOR is shown and can be adjusted during calibration using the arrows
- The SENSOR S/N (serial numbers) can be displayed in its respective cell

ENSOR STATUS	
pan Factor	524 🚔 🕐
Sensor S/N	None 了
Sensor Install Date	12/01/2031 - 😮
Hours Above 115° F	0 Hrs 👔
Hours Below 32° F	0 Hrs 👔
Hours Turned Off	25220 Hrs 👔
Previous Sensor Data 👔	
Hours Above 115° F	0 Hrs
Hours Below 32° F	0 Hrs
Hours Turned Off	12849 Hrs
Calibration History 🕜	Expand
DATE SPAN FACTOR	CAL GAS VALUE
1/1/0 524	99.9ppm 👻
New Sensor	

Click on the NEW SENSOR Button at the bottom of the OPERATIONAL STATUS COLUMN. A drop down window will open and allow you to enter the serial number of your sensor. Once you close the window, the serial number will now be displayed in its designdated cell.

SENSOR S	STATUS			
Span Fac	tor		524 ≑	?
Sensor S	N	None	?	
Sensor In	stall Date		12/01/2031 -	
Hours Ab	ove 115° F	0 Hrs	?	
Hours Below 32° F			0 Hrs	?
Hours Turned Off			25220 Hrs	?
Previous	Sensor Data 👩			
Hours /	Above 115° F		0 Hrs	
Hours I	Below 32° F		0 Hrs	
Hours Turned Off			12849 Hrs	
Calibration History 2 Expan				
DATE SPAN FACTOR			CAL GAS VALUE	-
1/1/0	524	99.9ppm		-
New Se	ensor 👔			

SENSOR STATUS							
Span Factor	524 🖨 😮						
Sei or S/N	None ?						
Sen, or Install Date	12/01/2031 - ?						
Hours Above 115° F 0 Hrs							
Hours Below 32° F	0 Hrs 👔						
Hours Turned Off	25220 Hrs 👔						
Previous Sensor Data 👔							
Hours Above 115° F 0 Hrs							
Hours Below 32° F 0 Hrs							
Hours Turned Off	12849 Hrs						
Calibration History 2 Expand							
DATE SPAN FACTOR	CAL GAS VALUE						
1/1/0 524 9	99.9ppm 👻						
New Sensor 👔							





To enter the date of the sensor installation, click on the pull down menu and make the proper selection.

These cells show the following information:

- Number of hour(s) the sensor operated above 115°F
- Number of hour(s) the sensor operated below 32°F
- Number of hour(s) the Analyzer was turned off

The cells in this area shows the data from the previous sensor that was installed in the Analyzer.

The CALIBRATION HISTORY stores information from the previous 9 calibrations. To view, click the EXPAND Button.

VI. MODEL 4010LX SECTION

The section applies only to **THE MODEL 4010LX** TDL Moisture Analyzer.

Viewing the Moisture Readings



To view the waveform of your measurement readings, click the LASER ANALYSIS Button located on the bottom of the OPERATIONAL STATUS Column of the **COMMAND CENTER User Interface.**

A separate Laser Graph Window will appear and display the waveform of the current moisture measurement.



Sample Waveform Displayed in the Laser Graph Window

The graph above shows a typical waveform that a user should see when **THE MODEL 4010LX** is measuring the concentration of H_2O in a sample.

- The size of the Moisture Peak will vary, depending on the concentration of H₂O vapor in the sample. The greater the concentration of H₂O vapor in the gas sample, the larger the height and size of the peak.
- The vertical dashed yellow line and solid yellow line represent the acceptable range for your signature water peak
- The CH4 (methane) peak is a signature portion of the Laser Frequency Absorption Waveform and should always appear in every moisture reading. Its amplitude will be consistent from reading to reading unless there are changes in pressure. If the CH4 peak is missing, it is an indication that something is likely wrong with your sample gas or how it enters **THE MODEL 4010LX**
- The vertical dashed red line and solid red line represent the acceptable range for your signature methane peak
- The Laser Power Waveform shows that the laser is working and functional
- The Absorption Waveform shows the absorption that is occuring while the moisture measurement is being performed.

ANALYZER INFO	AWALYZER SETUP	OPERATIONAL STATUS	DATALOG		
4010BR 01STURE READING 3.070 LBS 74H FRETOR 125 ELL BLOGK TEMP 72 * F MORECHTER 0.000 * F 0WER 11.9 V NALOG OUTPUT 4 - 20 mA UTPUT RANGE 0 - 20 LBS	SETUP Output Range 420 PPM · Analog Output 4:20 mA · 7 Analog Output Calibration Zero 656 ? 7 Full Scale 3280 ? Mid Range 7 Security Settings None 7 Alarm Setpoint 5:3 Lis 6:2 Lis 7 Alarm Delay 0 Min ? OpeniClose Closed • Closed • 7 Alarm Above or Above • 7 Alarm Above or 7 Alarm Status Off Off	ERROB STATUS ERRID - 2F H2O Peak Out of Index ERRID - 2F H2O Peak Out of Index ERRID - 2F CH4 Peak Out of Index Sensor STM Sensor SIM Sensor Install Date Prous Above 110° F Hours Above 110° F Hours States Data Hours Above 110° F Hours Datove 32° F Hours Datove 32° F Hours Install Date	 Analyzer Time ? 15:16:34 Thursday , January 24, 2019 Computer Time ? 15:16:39 Set Analyzer Time ? 15:16:39 Set Analyzer Time ? Datalog Interval (minutes) 1 Clear Datalog ? Download Data ? Saved Data Files ? Power History ? Brown Out History ? Command Center Manual		
EGURITY None NALYZER S/N NO_SERIAL	Alarm Bypass Alarm Latching 1 Min 2 NonLatching 7 (0.120 minutes) Alarm Failsafe 9 Pulse Time Non-failsafe 9 0 Sec 2 7	LASER ANALYSIS	Contact Info 714.848.5533 (T) 714.848.4545 (F) <u>sales@ami02.com</u> <u>www.ami02.com</u>		

Using SMART REALIGNMENT[™] to Realign the Signature Peaks

If your signature peaks have shifted, the ERROR STATUS DISPLAY will automatically display the error messages, alerting you to the need to realign your peaks.

COMMAND CENTER						
COMMAND CENTER VER.8.0 CLOSE COM MOIV1 US Build Date: 1/22/2015 - 8:09:36 PM					1/24/2019 - 15:13:12 Polling Enabled	
ANALYZER INFO	ANALYZER SETUP	OPERATIONAL	STATUS	DATALOG		
4010BR 4010BR MOISTURE READING 3.070 LBS STAIL RECTOR 125 CELL BLOCK TEMP 72 ° F AMBLENT YLAP 0.000 ° F POWER 11.9 V	VALYZER INFO ANALYZER SETUP 4010BR SETUP Output Range 420 PPM STURE READING Analog Output Calibration 3.070 LBS Zero 125 Full Scale 125 Mid Range 2 r F Mid Range 72 * F Alarm SETUP Alarm Setpoint 53 Lbs 62 Lbs Alarm 2	ERROR STATUS ERROR STATUS SENSOR STATUS Span. Factor Sensor SIN Sensor Install Date Hours Above 115' F Hours Delow 32" F Hours Color	125 [⊰] 07/04/1776 -	Analyzer 1 15:13:06 Thursday , J O Computer 15:13:12 Thursday , J Datalog Inte Clear Data Download D Saved Data	Inter 0 Ime 2 Time 2 Sel Analyzer Time anuary 24,2019 → Time 2 Sel Analyzer Time anuary 24,2019 → Time 3 Sel Analyzer Time 3 Sel Analyze	
AHALOG OUTPUT 4 - 20 mA OUTPUT RANGE 0 - 20 LBS SECURITY None ANALYZER S/N NO_SERIAL	On Alarm Alarm Above or Below Setpoint Above • Above • 7 Alarm Status Off Off CONTROLS BOTH ALARMS Alarm Status Off Off CONTROLS BOTH ALARMS Alarm Latching • 7 (-470 mututes) Alarm Failsafe • Pulse Time Hon Failsafe • 7 0 Sec • 7	Provines Consections Provines Senser Bate Hours Below 32* F Hours Termed Off	ALYSIS	Brown Out H Contact Inf 714,848,553 714,848,454 sales@amiC	story 2 enter Manual	

STEP 1: To begin, click on the LASER ANALYSIS Button at the bottom on the Operational Status Column. A new window will appear and display the current measurement waveform.



STEP 2: Type in the correct password that you received from AMI in the password entry area. The display window will slightly change.



STEP 3: Click on the **TIP** of the misaligned methane signature peak. Note: This peak is in the left area of the waveform and separated from the signature weak peak

by 3 non-designated peaks. It is critical that you click on the tip and no where else on the waveform during this step.



STEP 4: Click on ADJUST PEAKS on the upper right-hand corner of the screen. The display will slightly change again.



While the realignment process is taking place, you will see the screen displaying ADJUSTING WAVEFORM and an adjacent 'working bar' in the upper right-hand corner, highlighted by the red box.



When the process is nearing completion, the screen will adjust once more and display DOWNLOADING WAVEFORM.



Once everything is done, a new waveform will appear, displaying the fully adjusted signature methane peak and water peak. The Red Error Message will also disappear and be replaced with ERROR: NONE.

You have now successfully completed **SMART REALIGNMENT[™]**. At this point, you can close the **COMMAND CENTER User Interface Software** Window.

END OF MODEL 4010LX SECTION



SOFTWARE REDISTRIBUTION LICENSE AGREEMENT

The **COMMAND CENTER USER INTERFACE™** Software is to be used solely for Analyzer configuration and data analysis for any Advanced Micro Instruments (AMI) Analyzer. The software interfaces with the Analyzer through a USB or RS232 port of any personal computer.

The software can be redistributed and installed on any customer-owned personal computer.

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