

**Marathon Sensors Inc.**  
**AACC 2200 Oxygen Monitor**  
**Operator's Guide**



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# **AACC 2200 Preferred Oxygen Monitor F911583-XAAX**

## **INTRODUCTION**

The purpose of this document is to provide a quick reference guide for the AACC 2200 preferred. The preferred version is configured for the most common applications of the oxygen monitor. This document explains the simple steps needed to wire and operate the monitor. Also the most common configuration changes are explained.

## **FEATURES**

The AACC 2200 preferred is pre-configured with a 4 to 20 ma analog output for retransmission of 0 to 10% oxygen.

A 4-20 ma analog output for retransmission of 0 to 3000 degrees F.

Three alarm contacts are pre-configured for minimum %oxygen (0.5%), maximum oxygen (10%), and sensor break/probe fault/verification fault. The contacts are normally closed when there is no alarm condition.

Probe care features are preset for typical applications.

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## WIRING

Refer to the main AACC 2200 manual for EMC and safety requirements when wiring to the instrument. Figure 1 shows the terminal assignments as setup by the factory.

Connect the probe thermocouple to the V+ and V- terminals. The thermocouple type preset for the AACC 2200 is type B.

Connect the probe millivolts to terminals 6C (+) and 6D (-). Do not remove the wires that are already on the instrument for the probe impedance test. These wires connect terminals 5D to 6C, terminals 6D to JF, and terminals 5C to JD.

Wire the alarm contacts as desired.

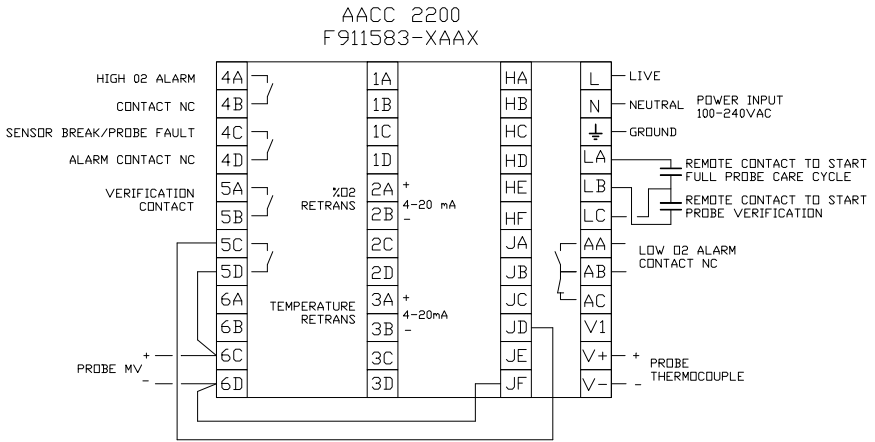
Connect the 4 - 20 ma % oxygen retransmission signal from terminals 2A (+) and 2B (-) to the recording device.

Connect the 4 - 20 ma temperature retransmission signal from terminals 3A (+) and 3B (-) to the recording device.

Connect the verification contact to the verification solenoid.

Connect AC power, 100 -240 VAC, to the live, neutral and ground terminals.

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**Figure 1 Signal Assignments**

## OPERATION

### KEY DESCRIPTION

The four rectangular buttons at the bottom of the instrument are used to view or enter data into the instrument. The left most button with a picture of a sheet of paper with the corner bent over is the page key. The next button with the circular arrow is the scroll key. The third button with a triangle pointing down is the down arrow key. the fourth or right most button with the triangle pointing up is the up arrow key.

There are two small round buttons just above the rectangular buttons. The left one is the auto/man button which is not used on the monitor and the right one is the probe care button.

### PROBE CARE

A probe care cycle can be started by pressing the run/hold button. This will run a probe verification followed by a probe impedance test. To start just an impedance test or just a verification, press the page key until the Care List is displayed, then press the scroll key once. Then use the arrow keys to select imp for impedance test or veri for verification.

## **ALARM SETPOINTS**

Alarm setpoints can be changed from the alarm list. Press the page key several times until AL List is displayed. Press the scroll key until 1FSL or 2FSH is displayed. The 1FSH is minimum oxygen alarm setpoint and the 2FSH is the maximum oxygen alarm setpoint. The setpoints are changed by using the arrow keys.

## **ALARM DISPLAY**

A sensor break alarm is displayed by a flashing S.br in the upper display. This indicates that the probe thermocouple connection is open. The process minimum oxygen alarm (1FSH), maximum oxygen alarm (2FSH), probe fault (PFLt), and verification fault (VFLt) alarms show up flashing in the lower display.

## **ALARM ACKNOWLEDGE**

The sensor break, minimum oxygen (1FSL), and maximum oxygen (2FSH) alarms can not be acknowledged. They will clear by themselves when the alarm condition goes away. The probe fault (PFLt), and verification fault (VFLt) alarms are acknowledged by pressing the page and scroll keys together.

## INSTRUMENT CONFIGURATION

Configuration mode is used to change items that are usually set once for a specific application. When the instrument is in configuration mode, all contacts open and the analog outputs go to zero.

To enter configuration mode, press the page key several times until ACCS List appears. Press the scroll key once and then use the arrow keys to set the level 1 (access) password. Press the scroll key once and then use the arrow keys to select conF. Press the scroll key once and then use the arrow keys to enter the level 2 (conf) password. Press the scroll key once and the instrument is now in configuration mode.

To exit configuration mode, press the page key several times until exit appears in the upper display. Press the up arrow key once to show yes in the lower display. The instrument will reset, perform its power up sequence, and then enter the normal operating mode.

The items below will give a list name (i.e. inst ConF) and a header for the parameter to be changed. To change the parameter, enter configuration and then press the page key until the list name is displayed. Press the scroll key until the upper display shows the parameter header. Use the arrow keys to select the desired parameter value. When finished, either exit configuration mode or continue to another parameter.

## **TEMPERATURE UNITS**

The temperature unit are under the PV ConF list as parameter unit. Choices are deg C, deg F, deg K or none.

## **THERMOCOUPLE TYPE**

The thermocouple type is under the iP Conf list as parameter inPt. There are many choices but the most common would be S.tc, r.tc, k.tc, or b.tc for type S, R, K, or B thermocouples respectively.

## **ANALOG OUTPUT 1**

Setup parameters for analog output 1 are under the 2A ConF list. The standard setups are the Func parameter is PV, the VAL.L parameter is 0, the VAL.H parameter is 10, the unit parameter is mA, the Out.L parameter is 4.0, and the Out.H parameter is 20.0. Therefore, the output provides a 4-20 ma signal representing 0 to 10% oxygen. This analog output could also be used to retransmit temperature (IP.1) or millivolts (IP.2).

## **ANALOG OUTPUT 2**

Setup parameters for analog output 2 are under the 3A ConF list. The standard setups are the Func parameter is IP.1, the VAL.L parameter is 0, the VAL.H parameter is 3000, the unit parameter is mA, the Out.L parameter is 4.0, and the Out.H parameter is 20.0. This analog output could also be used to retransmit % oxygen (PV) or millivolts (IP.2).

## **OTHER PARAMETERS**

Other configuration parameters can be changed in a similar manner. Please refer to the configuration section in the main manual for all the options.

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## FACTORY PARAMETER SETUPS

\* = instrument sets the value

### Home list

Process Variable		*
Target Setpoint		Hide
Reference Number	rEF	Hide

### Probe List

Milivolt Offset	OFFS	0
Probe Temperature	Ptc	*
Probe Millivolts	Pmv	*
Auxilliary Input	Axin	* (hide)

### Care List

		Hide
Care	CArE	OFF
Measured Recovery Time	prt.r	*
Temperature Minimum	tmin	OFF
Probe Test Interval	Pti	OFF
Maximum Impedance	imPH	20
Probe Test Recovery Time	Ptrt	30
Final Delay	FdE	1
Time Of Average 1	tA1	1
Time Of Average 2	tA2	1
Delay Time 1	td1	45
Delay Time 2	td2	30
Referance Gas Value	VGAS	10
Tolerance	toL	2
Impedence Result	Imp.r	*
Verification Result	Vrf.r	*

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User List		Hide
Number 1	n1	0
Number 2	n2	0
Number 3	n3	0
Number 4	n4	0
Number 5	n5	0
Number 6	n6	0
Number 7	n7	0
Number 8	n8	0
Number 9	n9	0
Number 10	n10	0
Number 11	n11	0
Number 12	n12	0
Number 13	n13	0
Number 14	n14	0
Number 15	n15	0

Alarm List		Hide
Alarm 1 Setpoint	1---	0.5
Alarm 2 Setpoint	2---	10
Alarm 1 Hysteresis	HY1	1 (hide)
Alarm 2 Hysteresis	HY2	1 (hide)
Alarm 3 Hysteresis	HY3	na (hide)
Alarm 4 Hysteresis	HY4	na (hide)
Loop Break Time	Lbt	OFF (hide)
Enable Diagnostic Messages	diAG	NO (hide)

Autotune List		Hide
Autotune Enable	tunE	OFF
Automatic manual Reset Calculation	Adc	MAN

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## Input List

Filter 1	FiLt	OFF
Filter 3	FLT3	OFF
Simple offset 1	OFS.1	0
ADC millivolts 1	mv.1	*
ADC millivolts 2	mv.2	*
CJC Temperature	CJC.1	*
IP1 linearized value	Li.1	*
IP3 linearized value	Li.3	*
Current input used for pv	PV.SL	*

## Info List

Hide

## Inst Conf

Function: O2, %C, Dewpoint, Redox	Zr.Fn	Oxy
Control Type	Ctrl	Pid
Instrument type: Monitor/Controller	tYPE	mon
Control Action	Act	REV
Type of cooling	COOL	lin
Control Time Units	ti.td	Sec
dtYP	dtYP	PV
Manual Key Enable	m-A	EnAb
Run hold button	r-h	EnAb
Power feedback	PwrF	OFF
Feedforward Type	Fwd.t	nonE
Sensor Break Action	Sbr.t	Sb.OP
Forced manual output	FOP	no
BCD Input Function	bcd	nonE
Gain Scheduling	Gsch	no

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## PV Conf

Instrument Units	unit	F
Display Resolution	dEc.P	nnn.n
Exponent	ExP	2
Range low	rnG.L	0
Range High	rnG.H	100

## IP Conf

Linearisation type	inPt	b.tc
CJC Type	CJC	Auto
Sensor break Impedance	imP	Auto

## SP Conf

Number of Setpoints	nSP	2
Remote Tracking Configuration	rm.tr	OFF
manual track Configuration	m.tr	OFF
SRL rate units	rmP.U	PSEC
Remote Setpoint Configuration	rmt	nonE

## Alarm Conf

Alarm 1 Type	AL1	FSL
Alarm 1 Latch	Ltch	NO
Alarm 1 Block	bLoc	NO
Alarm 2 Type	AL2	FSH
Alarm 2 Latch	Ltch	NO
Alarm 2 Block	bLoc	NO
Alarm 3 Type	AL3	OFF
Alarm 3 Latch	Ltch	NO
Alarm 3 Block	bLoc	NO
Alarm 4 Type	AL4	OFF
Alarm 4 Latch	Ltch	NO
Alarm 4 Block	bLoc	NO

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## LA Conf

Logic Input A Ident	id	LoG.I
Logic Input A Slot Function	Func	CArE

## LB Conf

Logic Input B Ident	id	LoG.I
Logic Input B Slot Function	Func	Veri

## AA Conf

Fixed Module AA Ident	id	rELy
Fixed Module AA Slot Function	Func	dIG
Summary OP AA invert	Sens	inv
Summary OP AA Conf		1FSL

## Module HA Conf

Interface Module H Ident	id	none
--------------------------	----	------

## Module JA Conf

Logic Input B Ident	id	nonE
Logic Input B Slot Function	Func	nonE

## Module 1A Conf

Module 1A Ident	id	none
-----------------	----	------

## Module 2A Conf

Module 2A Ident	id	dc.rE
Module 2A Slot Function	Func	PV
Module 2A Low Value	VAL.L	0
Module 2A High Value	VAL.H	25
Output 2A units	unit	mA
Module 2A Low Output Range	Out.L	4
Module 2A High Output Range	Out.H	20

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## Module 3A Conf

Module 3A Ident	id	dc.rE
Module 3A Slot Function	Func	IP.1
Module 3A Low Value	VAL.L	0
Module 3A High Value	VAL.H	3000
Output 3A units	unit	mA
Module 3A Low Output Range	Out.L	4
Module 3A High Output Range	Out.H	20

## Module 4A Conf

Module 4A Ident	id	rELy
Module 4A Slot Function	Func	dIG
Summary OP 4A Invert	SEnS	inv
Summary OP 4A configuration		2FSH

## Module 4C Conf

Module 4C Ident	id	rELy
Module 4C Slot Function	Func	dIG
Summary OP 4C Invert	SEnS	inv
Summary OP 4C configuration		Sbr/PFLt/VFLt

## Module 5A Conf

Module 5A Ident	id	rELy
Module 5A Slot Function	Func	dIG
Summary OP 5A Invert	SEnS	nor
Summary OP 5A configuration		burn/Veri

## Module 5C Conf

Module 5C Ident	id	rELy
Module 5C Slot Function	Func	dIG
Summary OP 5C Invert	SEnS	nor
Summary OP 5C configuration		ImP

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## Module 6A Conf

Module 6A Ident	id	dC.iP
Module 6A Slot Function	Func	PmV
Module 6A Input Type	inPt	Hiln
Module 6A Input Value Low	inP.L	-0.2
Module 6A Input Value High	inP.H	1.8
Module 6A Displayed Value Low	VAL.L	-200
Module 6A Displayed Value High	VAL.H	1800

## CAL Conf

Calibration point	rcAL	nonE
User calibration enable	VCAL	no
Low point for Input 1	Pt1.L	0
High point for Input 1	Pt1.H	0
Offset low for input 1	OF1.L	0
Offset high for input 1	OF1.H	0

## PASS Conf

Access Mode User Password	ACC.P	1
Configuration Mode User Password	cnF.P	2

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