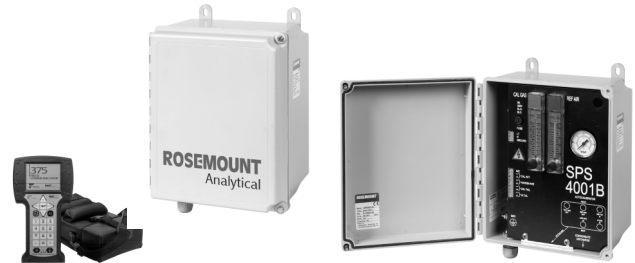


Autocalibration Systems for In Situ Oxygen Analyzers

- Cost-effective autocalibration systems for installations ranging from one to four oxygen analyzers
- Can be easily added to existing oxygen installations
- HART® digital communications provide remote calibration
- Autocalibration systems take full advantage of unique Oxymitter 4000 “Calibration Recommended” diagnostics; ensures Oxymitter 4000 is always in calibration
- SPS 4001B Autocalibration Sequencer is ideal in single probe applications
- IMPS 4000/MPS 3000 Autocalibration Sequencers are ideal in applications of up to four oxygen probes



HOW OFTEN SHOULD I RECALIBRATE?

The frequency of oxygen analyzer calibration is very application-dependent, based upon the fuels being burned, normal levels of oxygen and the sulfur content in the flue gases. The Oxymitter addresses this concern by providing an on-line diagnostic that determines when a calibration should be conducted. Once every hour, the Oxymitter initiates an on-line impedance measurement of the sensing cell which directly correlates to cell accuracy. This feature will trigger a fully automatic calibration via the SPS 4001B, ensuring that the analyzer is always accurate. Also, many needless calibrations based on “time in service” are eliminated.

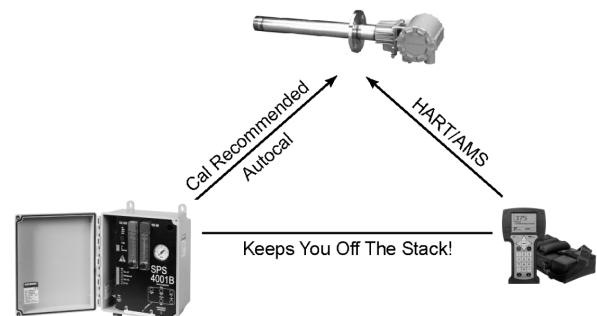
A contact closure notifies the control room when a calibration is taking place. Oxygen output signal can be held at last value or released during calibration. Both Oxymitter and World Class products can also initiate calibrations by traditional methods.

- Contact closure from the user’s control room
- Time since last calibration feature – established the autocalibration system
- Oxymitter 4000 has a button on the front panel of the electronics to initiate calibration
- HART communications or AMS

KEEPS YOUR ANALYZERS IN CALIBRATION; KEEPS YOU OFF THE STACK

An oxygen flue gas analyzer is one of the few industrial instruments which enables a calibration standard to be permanently piped to the instrument. Most instruments that measure pressure, flow or temperature require a calibration standard to be brought to the instrument or that the instrument be taken to the calibration source, usually located in the instrument shop.

Automatic calibration systems have been used with in situ oxygen flue gas analyzers for years with success. However, the introduction of the Rosemount Analytical SPS 4001B Single Probe Autocalibration Sequencer and the IMPS 4000 Multiprobe Autocalibration Sequencer, coupled to the unique features of Emerson’s Rosemount Analytical Oxymitter and World Class 3000 analyzers, makes autocalibration for in situ oxygen analyzers a valuable operations tool.



ROSEMOUNT®
Analytical

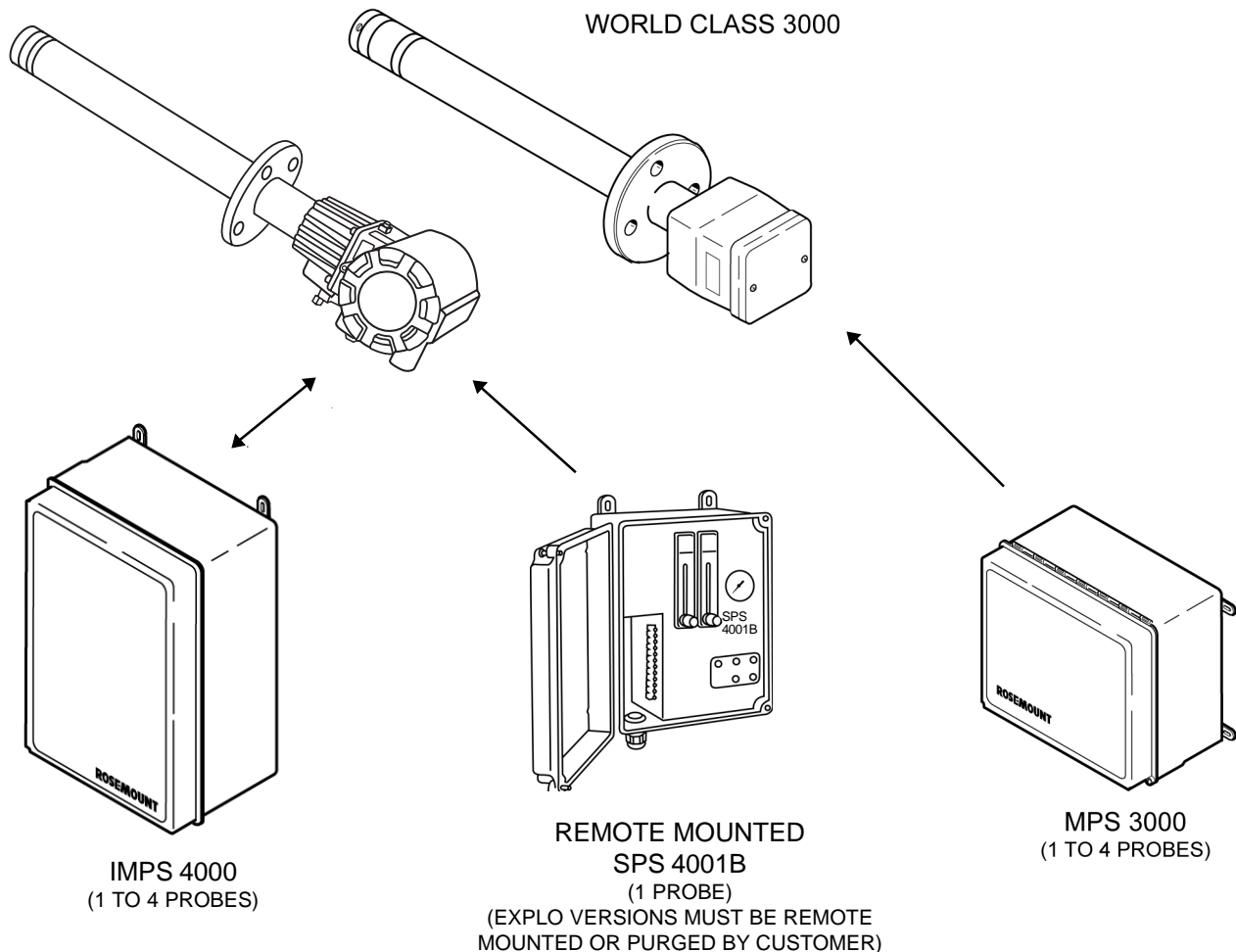
Visit our website at www.raihome.com
On-line ordering available.


EMERSON™
Process Management

SPS 4001B AND IMPS 4000

FEATURES	BENEFITS
Flexible installation allows SPS 4001B to be installed as either an integral component to the Oxymitter or as a remote component to your Oxymitter or World Class 3000 analyzers.	Enables the user to minimize installation costs and maximize human and material resources.
Both SPS 4001B and IMPS 4000 can initiate auto-calibration based on a contact created by the "Calibration Recommended" feature of the Oxymitter Oxygen Transmitter.	Combination of this patented feature coupled with autocalibration eliminates the need for a maintenance or service person to ever manually calibrate the analyzer on the flue duct. Needless calibrations are eliminated.
Both SPS 4001B and IMPS 4000 are enhancements to the HART® digital communications when used with Oxymitter and World Class 3000 Analyzers.	The use of HART communications coupled with an autocalibration system enables the user to set up, calibrate and troubleshoot an oxygen analyzer from any location where the analyzer's 4-20 mA signal is terminated and accessible.
Both SPS 4001B and IMPS 4000 are enhancements to Emerson Process Management's AMS capability.	The ability to view and diagnose the Oxymitter or World Class 3000 Oxygen Analyzers from a single console coupled to autocalibration system enables the user to initiate and perform analyzer calibration from the control room.

ROSEMOUNT ANALYTICAL AUTOCALIBRATION SYSTEM INSTALLATION OPTIONS



SPS 4001B SINGLE PROBE SEQUENCER

The SPS 4001B is an Oxymitter accessory that permits automatic calibration of a single probe. The NEMA 4X enclosure contains:

- a manifold and solenoids for switching two calibration gases
- a microprocessor for communicating with the Oxymitter electronics
- cal gas and reference gas flowmeters
- a reference gas air set and filter

All of these working components are plate-mounted into a sub-assembly that is easily removed from the box for maintenance access.

Calibration gases are offered as an option, or rented bottles may be utilized from a local gas supplier.

Test gas bottles which will provide three to five years of service in normal operation can also be included as an option. The Oxymitter 4000 utilizes its one contact output signal as a “handshake” interface with the SPS 4001B which fires the solenoids to introduce test gas to the probe. Additional alarm contacts to the user’s control room are also provided by the SPS 4001B system:

- 1 “cal initiate” input contact per probe
- 1 “in cal” output contact per probe
- 1 “cal failed” output contact per probe (Includes cal gas pressure low)



SPECIFICATIONS

Mounting:	Remote from Oxymitter 4000
Materials of construction:	
Manifold enclosure:	Aluminum
Pneumatic fittings:	1/8 in. brass NPT (SS optional)
Pneumatic tubing:	1/4 in. Teflon (SS optional)
Assembly hardware:	galvanized and stainless steel
Enclosure:	Fiberglass
Humidity range:	5-95% Relative humidity
Ambient temperature range:	-40° to 149°F (-40° to 65°C)
Electrical classification:	NEMA 4X (IP 56)
Electrical feedthroughs:	1/2 in. NPT
Input power:	90 to 250V, 50/60Hz

Power consumption:	2.4W maximum
External electrical noise:	EN 61326, Class A
Handshake signal to/from Oxymitter (self-powered):	5V (5mA maximum)
Cal. initiate contact input from control room (1 per probe):	5 VDC (self-powered)
Relay outputs to control room:	5 to 30 VDC, Form A (SPST) (1 “In-Cal”, 1 “Cal Failed”)
Cabling distance between SPS 4001B and Oxymitter Electronics package:	Maximum 1000 ft. (303 m)
Piping distance between SPS 4001B and probe:	Maximum 300 ft. (91 m)
Approximate shipping weight:	10 lbs. (4.5 kg)

SPS 4001B ORDERING INFORMATION – Order Part Number – 6A00175G01

Spare Parts			
Part Number	Description		
1A97913H22	Fuse 1.6A 260V SloBlo	6A00150601	PL Board
1A99094H02	Regulator pressure maximum O ₂		
7305A67H01	Pressure switch		
771B635H01	Flowmeter 0-10 scfh		
771B635H02	Flowmeter 0.2-2 scfh		
1A99119G01	Two cal gas bottles, disposable, 19.5 cu. ft. (550 L) - 4% O ₂ + 8% O ₂		
1A99120H03	Pressure regulator for cal gas bottles (one required for each bottle)		

IMPS 4000/MPS 3000 MULTIPROBE AUTOCALIBRATION SEQUENCERS

The IMPS 4000 and MPS 3000 Sequencers are multiprobe autocalibration sequencer systems capable of calibrating up to four in situ oxygen analyzers. It is provided in a NEMA 4X (IP 56) enclosure which meets all standard (non-hazardous) industrial environments and applications with the following hardware:

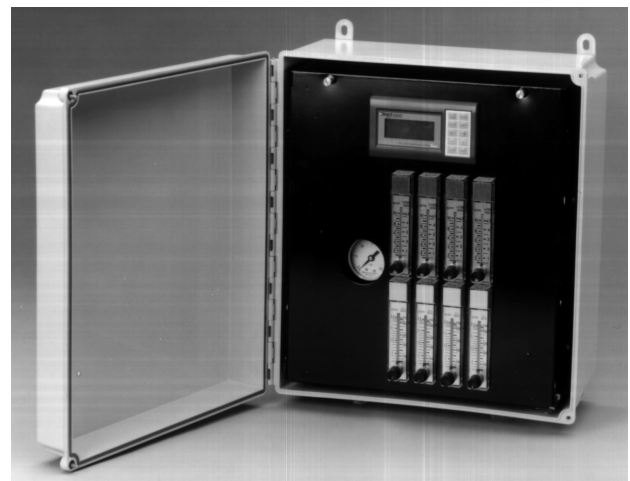
- 1 common filter/regulator for reference air
- 1 reference flow rotometer per probe
- 1 test gas flow rotometer per probe
- Solenoid valves and manifold
- Termination board
- Micro-programmable logic controller (PLC) (IMPS, only)

The IMPS 4000 and MPS 3000 NEMA 4X enclosures can be Z or X-purged by the user to meet Class I, Div II, Group B, C and D hazardous area applications. They also utilize a universal power supply which can accept any voltages from 85-264V, 50/60Hz. The IMPS 4000 is ideal for use with up to four Oxymitter 4000 oxygen transmitters. The IMPS 4000 utilizes the micro-PLC to provide the necessary contacts for actuating the various solenoids within the autocalibration system. The Oxymitter 4000 uses its single contact output signal as a "handshake" interface with the IMPS 4000 which then fires the solenoids which introduce test gas to the Oxymitter 4000 probe for calibration. The PLC also offers additional alarm contacts to the user's control room:

- 1 "cal initiate" input contact per probe
- 1 "in cal" output contact per probe
- 1 common "high gas on" output contact
- 1 common "low gas on" output contact
- 1 "cal failed" output contact per probe (Includes 1 "gas bottle pressure low" pressure switch)

SPECIFICATIONS

Electrical classification:	NEMA 4X (IP 56)
Humidity range:	95% relative humidity
Ambient temperature range:	32 to 131°F (0° to 55°C)
with optional heater:	-35° to 131°F (-31° to 55°C)
Input power:	85 to 264V, 50/60Hz, 50VA
External electrical noise:	minimum interference
Handshake signal to/from Oxymitter (self-powered):	5V (5mA maximum) – IMPS only
Cal. initiate contact input from control room (1 per probe):	24 VDC (self-powered)
Relay outputs to control room:	5 to 30 VDC, Form A (SPST) (1 "In-Cal" per probe, "Low Gas Flowing", "High Gas Flowing", 1 "Cal Failed" per probe, "Gas Pressure Low")
Cabling distance between IMPS 4000/MPS 3000 and electronics package:	Maximum 1000 ft. (303 m)
Cabling distance between IMPS 4000/MPS 3000 and status relay indicator:	Maximum 1000 ft. (303 m)
Piping distance between IMPS 4000/MPS 3000 and probe:	Maximum 300 ft. (91 m)
Approximate shipping weight:	40 lbs. (18 kg)



**IMPS 4000 ORDERING INFORMATION
(Used with Oxymitter 4000)**

Part Number	Description	Number of Probes
3D39695G01	Intelligent Multiprobe Sequencer (IMPS)	1
3D39695G02	Intelligent Multiprobe Sequencer (IMPS)	2
3D39695G03	Intelligent Multiprobe Sequencer (IMPS)	3
3D39695G04	Intelligent Multiprobe Sequencer (IMPS)	4
3D39695G05	IMPS with 115V Heater	1
3D39695G06	IMPS with 115V Heater	2
3D39695G07	IMPS with 115V Heater	3
3D39695G08	IMPS with 115V Heater	4
3D39695G09	IMPS with 220V Heater	1
3D39695G10	IMPS with 220V Heater	2
3D39695G11	IMPS with 220V Heater	3
3D39695G12	IMPS with 220V Heater	4

**MPS 3000 ORDERING INFORMATION
(Used with World Class 3000)**

Part Number	Description	No. of Probes
3D39425G01	Multiprobe Sequencer (MPS)	1
3D39425G02	Multiprobe Sequencer (MPS)	2
3D39425G03	Multiprobe Sequencer (MPS)	3
3D39425G04	Multiprobe Sequencer (MPS)	4
3D39425G05	MPS with 230/240V Heater	1
3D39425G06	MPS with 230/240V Heater	2
3D39425G07	MPS with 230/240V Heater	3
3D39425G08	MPS with 230/240V Heater	4
3D39425G09	MPS with 100V Heater	1
3D39425G10	MPS with 100V Heater	2
3D39425G11	MPS with 100V Heater	3
3D39425G12	MPS with 100V Heater	4
3D39425G13	MPS with 220V Heater	1
3D39425G14	MPS with 220V Heater	2
3D39425G15	MPS with 220V Heater	3
3D39425G16	MPS with 220V Heater	4

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