

# SmartMax<sup>®</sup> II Monitor/Transmitter



# The SmartMax<sup>®</sup> II Monitoring Systems

## It saves you money. It keeps you safe.

**A**rea monitoring of hazardous gases just got a whole lot easier, and a lot less expensive, thanks to the SmartMaxII monitor from Control Instruments.

The SmartMaxII is the only full-featured control monitor/transmitter that installs anywhere in the field and handles the readings from as many as four of the same-type sensors. Tough enough for outdoor Division 1 hazardous areas, the SmartMaxII is fully-equipped with all the alarm, display, and output features you need, including on-board relays, 4-20mA out-put, and an RS-485 serial port.

The SmartMaxII is an excellent solution for both large and small applications. Use it for a simple one or two-point project or to monitor your entire plant.

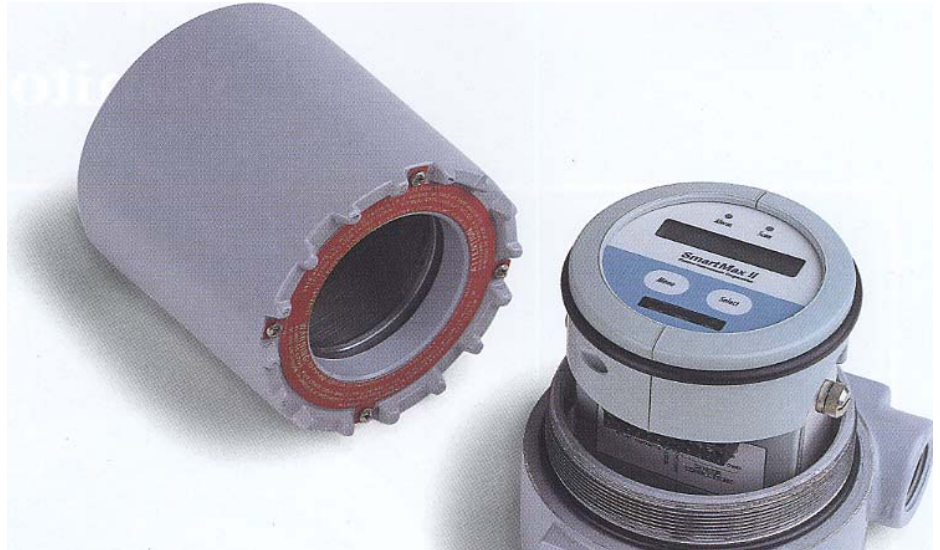
Read on to discover how you can use the SmartMaxII to cut installation and expansion costs, reduce maintenance and optimize the performance of your gas detection system.

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### *Works With All Sensor Types*

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The SmartMaxII works with any Control Instruments diffusion sensor. For area monitoring of combustible gases, use our catalytic sensors. For detecting oxygen levels or toxic gases such as hydrogen sulfide and carbon monoxide, we offer a number of electrochemical sensors.



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### *Up To Four Sensors Connect To One SmartMaxII*

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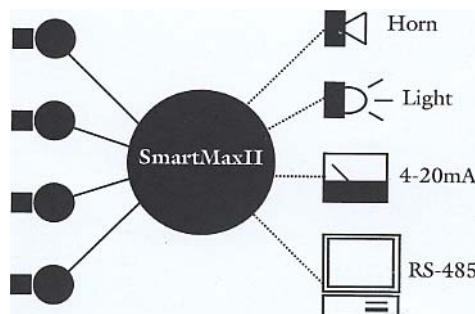
Each SmartMaxII continuously monitors the readings from as many as four same-type sensors. Sharing the SmartMaxII with more than one sensor allows you to dramatically lower the cost of your gas detection system three ways: there's less equipment to buy; less equipment to install; and less equipment to maintain. You can save up to fifty percent over the cost of typical systems!

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### *Three Built-in Relays*

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The SmartMaxII also includes three internal relays that you can program to activate external lights and horns- and to indicate when the system is under going calibration. Built-in relays provide maximum safety and ensure that critical alarms are initiated directly by the sensor. Direct action is more reliable than use of a secondary device or an intermediary connection.



*SmartMaxII handles up to four sensors. It's fully equipped with on-board relays, plus 4-20mA and RS-485 output.*

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### *Full-Featured Display*

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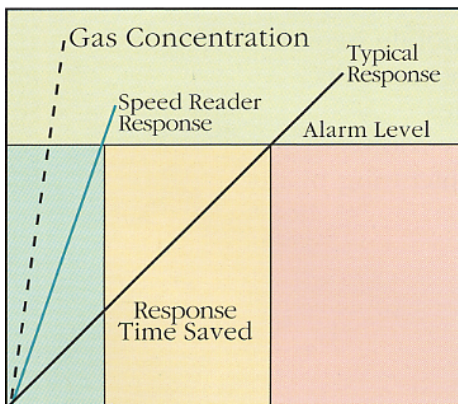
The SmartMaxII's display panel includes *two* status indicators and an eight-character alpha-numeric Liquid Crystal Display. The operator can reset, acknowledge, and access all calibration, programming and diagnostic routines using the front panel's two push buttons.

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### *Fastest Response With Speed Reader Circuitry*

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The SmartMaxII includes Control Instruments' unique Speed Reader predictive response circuitry to cut response time by up to 90%, giving the earliest possible warning.



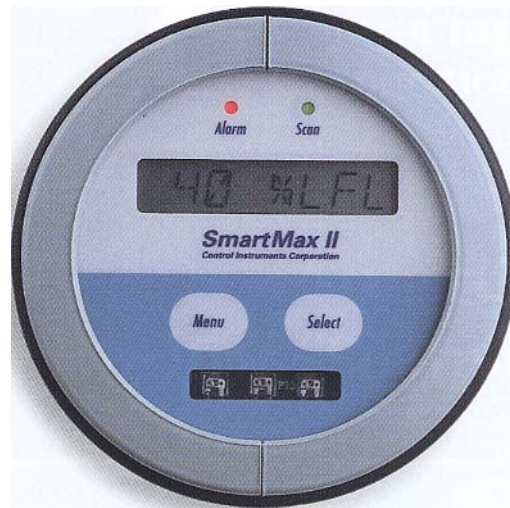
*Speed Reader circuitry reduces response time by extrapolating the final reading, giving earlier warning.*

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### *Two Kinds of Output Signals*

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The SmartMaxII is equipped with both a 4-20mA analog output and an RS-485 digital I/O port.



Use the built-in 4-20mA analog output to connect to your PLC, display meter or recorder.

This means you can easily transfer SmartMaxII readings to your PLC, plant-wide data acquisition system or process control system.

And when you need true digital communication, the SmartMaxII provides a Modbus compatible RS-485 half-duplex serial port.

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### *Self-Diagnostics*

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To enhance safety, SmartMaxII incorporates routines for self-diagnostics. Further, all program and calibration data are stored in non-volatile memory that cannot be lost when power is turned off.

Advanced signal processing reduces Zero drift to eliminate false readings, reduce maintenance, and extend the sensor's useful life.

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### *Available in Four Styles*

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The SmartMaxII is ready for panel mounting right out of the box. It is also available in NEMA 1 and 4 wall mount housings, as well as an explosion-proof Division 1 field enclosure for indoor and outdoor locations.

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### *Three-way Access To Controls, Adjustments*

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In addition to using the front panel's pushbutton, you can also access controls and adjustments non-intrusively through your PLC or by using a flashlight.

A window in the field enclosure housing permits the operator to simply shine a flashlight at photo-transistors to operate the command menu without declassifying a hazardous area.



*Flashlight Calibration – one of the three ways to initiate calibration – doesn't require opening the transmitter enclosure.*

## Standard Specifications

### Dimensions

Panel Mount	3.5" x 4.63"
Nema 1	5" x 5" x 5"
Nema 4	5" x 5" x 5"
Explosion Proof	5" x 6 3/4"

### Input Power Required

DC power	18 – 24 VDC, 20 Watts, 4 sensors max
AC power (optional)	85 – 265 VAC, 50/60 Hertz, 2 sensors max

### Outputs

Digital	RS- 485 Modbus half-duplex
Analog	4 – 20mA into 250 Ohms maximum +25 Ohm loop resistance
DC sensor power	15 – 24 VDC sensor power source
Internal Relays	One Form, C, 60 Watt contact Two SPST, 60 Watt contact Software configured to function as Warning, Danger, Malfunction alarms, and/or to activate Horn or calibration

### Wiring Line Lengths

Power	1000 feet/ 14 AWG (15 Ohm one way) AC: 4000 FT/ 14 AWG
Digital signal	4000 FT/ 20-22 AWG twisted 3-conductor (lines can be longer using RS – 485 repeaters)

### Indicators

Status	8 – character liquid crystal display
Alarm status	Red LED flashes on new alarm, constant for acknowledged alarm
Operating status	Green LED flashes during normal operation; winks when communicating

### Controls

Power Switch	On/Off
Push Buttons	Menu: to view menus and menu items Select: to enter and activate menu items

### Inputs

Sensors	Up to four (4) Control Instruments catalytic or electrochemical sensors
Remote Input	External pushbutton contacts

### Operating Parameters

Temperature Range	- 40°C to + 75°C
Humidity Range	5% to 95% RH, Non-condensing
Enclosure Rating	NEMA 1 panel mount (standard) NEMA 1 wall mount (optional) NEMA 4 watertight, dust-tight, field housing for indoor & outdoor (optional) Explosion proof field enclosure (optional)

### Hazardous Area Rating

General purpose panel mount (standard)
General purpose wall mount (optional)
Class 1, Division 1, Groups BCD (optional)

### Approvals

FMR	Factory Mutual Research
CE Marked	



NEMA 1 Panel Mount



Explosion proof, field enclosure



NEMA 1 Wall Mount



NEMA 4 watertight, dust-tight, field housing for indoor and outdoor

### Typical Applications

Area monitoring of hazardous gases is a concern throughout many industries including:

- Oil Rigs
- Gas Drilling
- Refineries
- Pipelines
- Chemical plants
- Semiconductor manufacturing
- Storage rooms
- Automobile manufacturing
- Engine test cells
- Garages
- Battery rooms
- Manufacturing plants



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