

MODEL MINI-ICS



Neutronics
Gas Analysis Solutions

Percent oxygen analyzer/controller For process inert gas concentration control



Small. Reliable. Accurate.

- Compact design for continuous real-time monitoring and control
- User-adjustable alarm and inert gas control with relay outputs
- Low flow indicator for process gas sampling applications
- Remote calibration relay output for "one man" calibration
- Two analog outputs - 4-20mA and 0-1, 0-5, or 0-10VDC

Description

The Mini-ICS (Inert Gas Control System) is a compact series analyzer designed for continuous real-time oxygen monitoring and concentration control of nitrogen or inert gas. When combined with a properly designed sample conditioning package, the Mini-ICS provides reliable measurement of oxygen levels over a wide range of conditions and automatically maintains oxygen levels within specified limits through precise control of the flow of inert gas into the process.

Benefits

Inert gas blanketing protects plant personnel, products, and plant assets by reducing the oxygen content in the vapor space of a tank or process vessel. Making the vapor space inert eliminates the possibility of fire or explosion, decreases evaporation, and protects the vessel from structural corrosion damage. Tank blanketing also prevents air, moisture, or other contaminants from entering the vapor space and causing product quality degradation.

The ICS solution

The Mini-ICS includes user-adjustable alarms and setpoints with relay outputs. The oxygen alarm may be configured for the highest level or lowest oxygen level allowable. The high and low limit setpoints are provided for process control, allowing the user to set the levels for activation and deactivation of the inert gas control valve.

Low flow indicator

The low flow indicator LED on the front display panel provides indication that the sample gas flow from the process to the oxygen sensor has dropped below the mechanical set point of the flow switch in the sample conditioning system.

Remote calibration relay

The remote calibration relay activates the valve that allows calibration gas to flow to the sensor during the user initiated routine calibrations. The relay is mapped to the analyzer calibration function and provides a convenient way to calibrate the sensor in applications where the sensor and sampling system are installed a long distance from the analyzer.

Communication options

The user has a choice of options for communicating between the Mini-ICS analyzer and the operating system controller. Two analog outputs are available: 4-20mA and 0-1, 0-5, or 0-10VDC. The RS-232 digital interface gives the user access to all settings including the "factory restore" option which resets the analyzer to the factory delivered configuration settings.

Simple operation

The Mini-ICS is shipped ready to install and operate. Each unit is configured and tested prior to shipment. Setup parameters may be changed by accessing the setup menu or by using the RS-232 service port interface.

Compact design

The Mini-ICS analyzers are easy to install. With a small footprint, they are designed to be flush mounted onto the surface of a control panel and integrated into a wide variety of equipment components. Other packaging options include general purpose or explosion proof surface mounted enclosures and custom rack-mounted designs.

Large bright LED display

The easy to read 7-segment large alphanumeric display shows the oxygen concentration and guides the user through system setup, calibration, and maintenance procedures.

Auto-ranging or fixed range measurement

The Mini-ICS can be configured to automatically change the measurement range based on the concentration of oxygen in the process. System control devices require a continuous indication of the analyzer's selected range for accurate scaling. When auto-ranging is used, the 0-10 VDC range identification output provides an indication of the outputs' current full-scale.

Limiting oxidant concentration (LOC)

NFPA 69, Standard on Explosion Protection Systems, covers the minimum requirements for installing systems for the prevention of explosions in enclosures that contain concentrations of flammable gases, vapors, mists, dusts, or hybrid mixtures. Chapter 7, 'Deflagration Prevention by Oxidant Concentration Reduction', lists the requirements for systems operating below the limiting oxidant concentration (LOC). For systems where the oxygen concentration is continuously monitored, paragraph 7.7.2.5 requires one of the following: (1) a safety margin of at least 2 volume percent below the worst credible case LOC shall be maintained; (2) the LOC shall be less than 5 percent, in which case the equipment shall be operated at no more than 60 percent of the LOC.



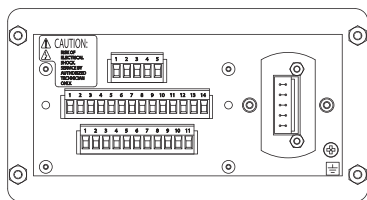
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Percent oxygen analyzer/controller

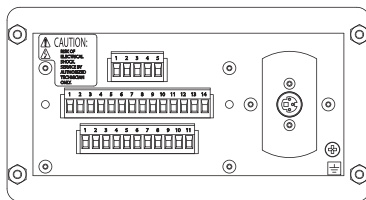
Specifications

Type	Compact series analyzer
Operating range	0-1, 0-10, 0-25, 0-50% oxygen, fixed or auto-range
Sensor types	Electrochemical
Accuracy (analyzer)	± 2.0% full scale
Response time	$T_{90} \leq 20$ seconds
Warm up time	20 seconds
Relative humidity	0 to 95%, non-condensing
Operating temperature	31 to 104° F (0 to 40° C)
Storage temperature	5 to 122° F (-15 to 50° C)
Power supply	90 to 264VAC, 47-63 Hz, single phase; 10 to 30VDC, 2.5 watts
Display	0.75" 7-segment LED digital display, 4 characters
Signal interface	RS-232 serial port
	0-1, 0-5, 0-10V analog output
	0-20mA, 4-20mA analog output
	0-1%: 5.63V; 0-10%: 6.25V; 0-25%: 6.88V; 0-50%: 7.5V
Relay outputs	Alarm: field adjustable Form C (DPDT), configurable to fail-safe/non-fail-safe and ascending/descending activation
	ICS: field adjustable form C (DPDT), configurable to fail-safe/non-fail-safe and ascending/descending activation
	Calibration and fault: non-adjustable Form B (SPST), non-fail-safe activation, Non-configurable
Warranty	Analyzer: 12 months from date of shipment
Dimensions	Faceplate: 3.75" (9.53mm) height x 7.00" (17.78mm) width
	Chassis: 2.81" (7.14mm) height x 5.98" (15.19mm) width x 3.60" (9.14mm) depth
Ratings	Faceplate: NEMA 4 (IP66)
	Chassis: NEMA 1 (IP20)
Weight	2 lbs.

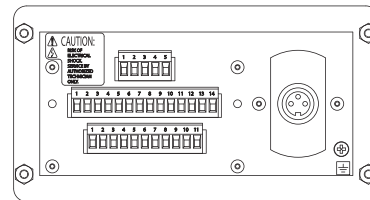
Specifications are subject to change without notice.



Terminal block connector



Mini-DIN 3 pin connector



Locking right angle connector

Order information

Part

Mini-ICS, wall mounted, no barriers

Mini-ICS, XP

Operations manual

VAC power supply

12/24 VDC power supply

Oxygen sensor, model GP

Oxygen sensor, model CAG-250

Part number

7-01-1003-75-0

7-01-1003-74-1

5-06-4900-53-0

C6-01-1000-02-0

6-01-1000-17-0

8-01-1000-02-2

C1-16-1000-01-1



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