

WATCHDOG



The AMI Watchdog provides a set of desirable features that are needed for trace oxygen analysis at a remarkably low cost.

- Display reads oxygen from 0.05ppm up to 25.0% with no range changes
- Analog output can be configured to operate over any of ten ranges from 0-10ppm to 0-25% for best resolution
- Field selectable analog output - 1-5V or 4-20mA, isolated.
- Complete sample system built in to AMI's patented cell block.
- Very rapid response time from air to low ppm levels.
- Easily replaceable sensor, no tools required.
- T-2 sensor resistant to 10ppm H₂S standard. Optional T-4 resistant to 500ppm H₂S.
- Simple, versatile installation.
- Operates off 10-28VDC with very low power consumption
- Analog output can be easily calibrated to a SCADA system or flow computer.
- USB connectivity to a PC: Allows complete access to the internal functions and settings.
- ModBus: Industry standard protocol over RS485.
- Oxygen Sensor life indication with calibration history.

On the face of it, you might think that all you really need is the oxygen sensor, an off-the-shelf cell block and a single range amplifier so that you can plug it into your SCADA system or flow computer. What could possibly go wrong?

As many people have discovered, there is more to it than just that. A trace oxygen analyzer is an excellent leak detector. The tiniest leak, due to improper assembly or incorrect choice of sample system components, will render trace oxygen readings meaningless. The sample system has to be able to provide a controlled flow both of the measurement sample and a span gas and also allow the sensor to be replaced rapidly (excessive exposure to air can damage or destroy a trace oxygen sensor). The electronics has to be able to deal with the wide range of possible oxygen readings from under 1ppm to 20.9% and accurately compensate for temperature variations. The Watchdog provides all of this – and extensive electronic capabilities - at a very low cost.

Trace oxygen analyzers like the Watchdog are essentially leak detectors. AMI's patented cell block allows the analyzer to be built with almost no possibility of internal leaking, with minimal wetted volume and with front-panel sensor access. All sample handling components – the flow meter, needle valve and a four-way sample/span/off selection valve – are integrated into a solid metal block. Connections between them are drilled passages. The result is a highly reliable sample system with all necessary components provided, and a very fast "come-down" time – when a sensor is replaced, or calibrated on air with a 1 minute exposure (at 70°F), it takes about 15 minutes for it to come down to below 10ppm. Competitive analyzers typically take hours.

The AMI oxygen sensor is inherently faster than competitive sensors due to its metallic body and large active electrode area. The standard T2 sensor is also naturally resistive to hydrogen sulfide up to 10ppm H₂S over its warranted life, while the T4 is capable of resisting up to 500ppm H₂S, with no scrubber material required, and hence no maintenance or leakage issues.

The sensor is immediately accessible on the front panel of the analyzer, and can be replaced in seconds. It is not necessary to expose the sensor to air unshorted while installing it as is the case with most competitive analyzers (which significantly increases their come-down time). As a result, although a span gas port is provided, it is practical to accurately calibrate this analyzer on air in less than a minute.

The electronic and software package provides a standard set of features including ten analog output ranges. The output may be field selected as either 4-20mA or 1-5V. The analyzer is capable of operating off a battery/solar panel, and it logs power brown outs and failures should they occur. It tracks the life of the sensor, indicates the remaining life, logs the calibration history and logs the oxygen readings over its operational (output) range, and also tracks excursions of up to ten times that range.

The analyzer can be wall-mounted with 4 externally accessible screws, or bolted to a 2" pipe using standard U bolts.

See the AMI 2010BR trace oxygen analyzer for an even more extensive suite of capabilities.

FEATURES

- 10 user selectable output ranges to choose from.*
- High resolution 3 digit LCD.
- RFI protected.
- 1-5VDC and 4-20mA. isolated analog output signals.
- USB virtual comport and Modbus Bidirectional RS485 communication for advanced features.*
- Datalog – 10 days oxygen reading recording at 1 minute per sample*
- Calibration history – stores the last five calibrations with time, date, span factor and calibration gas.*
- Brown-out history – stores the last five brown-outs and recoveries.*
- Power up history – stores the last ten times the unit was powered up.*
- Advanced analog output calibration.*
(* Requires User Interface Software)
- Power requirements: 10-28VDC.
- Low minimum detection limit.
- Excellent repeatability.
- Fast upscale/downscale response times.
- Patented Cellblock Technology: Integrates all components such as: flow control valve, flow meter, 3-way calibration valve, Sample/Span/Off and compression fittings to be an integral part of the cellblock, eliminating tubing and fittings. The cell block also provides a compact size, fast response time and front panel sensor access without the need for tools.
- Area Classification: Designed to meet requirements for Class 1, Div. 2, Groups C,D application.
- Unaffected by changes in flow rate from 0.1 to 2.0 SCFH
- Wall mount or 2.0" pipe with standard pipe clamp.
- Compact size.
- 2 year warranty for analyzer, parts and labor.
- 6 month sensor warranty, life expectancy 1-2 years.

SPECIFICATIONS

- 10 user selectable output ranges to choose from: 0-10ppm, 0-50ppm, 0-100ppm, 0-500ppm, 0-1000ppm, 0-.500%, 0-1%, 0-5%, 0-10% and 0-25%. The selection of an output range simultaneously controls the datalog so that both functions operate on the same range
- Digital display: 3 digit LCD. Reads full scale from 0.05ppm to 25.0% independently of output range selection
- Isolated analog output signal: 1-5VDC or 4-20mA represents the output range selected
- Power requirements: 10-28VDC <50mA. @ 12VDC
- Minimum detection: 50ppb of oxygen
- Repeatability: +/- 1% of range or +/- 0.2ppm of oxygen, whichever is greater
- Operating temperature range: 25 to 115° F
- Diurnal temperature specification: < +/- 3 % of scale over temperature range
- 90% upscale response times: 10ppm – 25% <10 seconds; 0-10ppm < 25 seconds
- Typical downscale response: 1 minute exposure to air down to 10ppm: < 15 minutes
- Area Classification: Designed to meet requirements for Class 1, Div. 2, Groups C,D applications
- Inlet gas pressure: 0.5 to 150psig
- Gas connections: ¼" 316 S.S. compression fittings.
- Wetted parts: 316 S.S. fittings, electroless nickel plated cellblock, gold plated contacts, acrylic flow meter and Viton O-rings
- Unaffected by changes in flow rate from 0.1 to 2.0 SCFH
- Mounting: Wall mount or 2.0" pipe
- Dimensions: 7.0"W x 6.5"H x 4.5"D
- Weight: 6 lbs.