Intrinsically Safe Oxygen Analyser

Features

- Maintenance-free sampling cell
- Air calibration facility
- 3-year warranty
- Certified for Zone 0

Applications

- Inert atmosphere gas blanketing
- Gas purity
- Glove boxes
- Metallurgy
- Oxygen deficiency monitoring
- Gas line monitoring

The EC91 Process Oxygen Transmitter will detect levels of oxygen as low as 1ppm, up to high percent levels and can be used on most industrial gases and atmospheres. There is no need for routine maintenance of the fuel cell and the instrument can be easily calibrated, using ambient air or standard calibration samples.

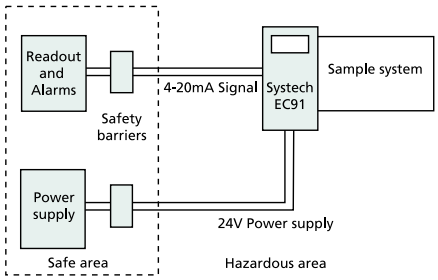
The enclosure is manufactured from moulded glass fibre reinforced polyester, a material with high impact resistance. It will not be harmed by oils, common acids and alkalis, making it suitable for harsh environments. It is protected to IP65.

The EC91 transmits a 4-20mA signal which corresponds to the range of the analyser. Up to six ranges can be specified. A safe area digital indicator and alarm is available as an option.

Custom designed sample systems are available on request. Sample gas may be piped directly to the instrument or remote cell assembly (also certified intrinsically safe). Sample pumps and aspirators are also available.

All the electronic circuits are intrinsically safe and have been certified to ATEX. The EC91 is approved for EEx ia IIC T4.

Installation



The sample pressure should be above 0.1 Bar. If not, a pump or aspirator should be fitted. Connection through the analyser is via a 1/8" tube fitting and a flow regulator should be used on the inlet. If required, dust filters or coalescing filters are available. A sample panel can also be supplied by Systech.

Electrical installation must be made via SHUNT DIODE barriers mounted in the safe area. A control room indicator and alarms can also be specified as an option.

SYSTECH INSTRUMENTS

Principle of Operation

The self-powered sensor has no moving parts and is integral to the sample chamber. This solves the problem of output changes due to a flow rate change, making the instrument extremely sensitive and quick to respond to changes in oxygen concentration.

EC91 Remote Mounted Sensor

The sensor consists of an anode, electrolyte, and air cathode, together with a diffusion limiting capillary. The rate of diffusion is dependent upon the volume concentration of oxygen in the atmosphere or gas stream. At the cathode, oxygen is reduced to hydroxyl ions, which in turn oxidises the metal anode. The following overall reaction takes place:

$$O_2 + 2Pb \rightarrow 2PbO$$

The sensor has a guaranteed operational life of six months. When monitoring low oxygen concentrations, or if the instrument is not in use, the expected lifetime is considerably longer. The sensor module is inexpensive and easy to replace.

Technical Specification

Ranges	6 selectable 0-20, 0-200, 0-2000 (ppm) 0-2%, 0-20%, 0-30% Other ranges available on request	
Resolution	0.05% of scale	
Accuracy	>10ppm	±2% of reading at 20°C ±5% of reading over temperature range
	<10ppm	±2% of reading + 0.4ppm at 20°C ±5% of reading + 0.4ppm + 0.15ppm/°C over temperature range
Response time	90% of reading within 20 seconds	
Calibration range	Ambient (20.9%) or certified gas	
Measuring cell type	Electrochemical fuel cell	
OPERATING CONDITIONS		
Sample inlet pressure	0.1 to 1 Barg, up to 17 Barg with optional sample system	
Sample flow rate	30 ml/min to 5 ltr/min	
Sample temperature	0 to 40°C	
Ambient temperature	0 to 40°C, RH 0-99% non-condensing	
Sample connections	1/8" OD compression fitting	
Unsuitable gases	Corrosives, acid gases and solvents	
POWER REQUIREMENTS		
Power supply	24Vdc via approved Zener barrier mounted in the safe area	
Power consumption	10W	
Display type	Digital LCD	
Analogue outputs	Current: 4-20mA (0-20mA) isolated Maximum loop resistance 400 Ohms	
CABINETRY AND MOUNTING		
Enclosure	Reinforced polyester	
Installation	Wall mounted	
Dimensions	200W × 200H × 175D (mm)	
Weight	3kg	
Ingress protection	IP65	
Certification	ATEX Certificate number Baseefa 04 ATEX0240 Approved for EEx ia IIC T4.	
OPTIONS		
Local display	Analogue in place of standard digital display	
Sample pump	For pressure below 0.1 Barg	
Remote probes	1" NPT or BSP	
Remote probe holder		
Control room display		
Aspirators		
Sample systems		
Alarm outputs		

SYSTECH INSTRUMENTS

Systech reserve the right to change specifications without notice

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