昶　艾
CHANG-AI

BROCHURE

GNL-IN90 Online Trace Oxygen Analyzer

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GNL-IN90 Online Trace Oxygen Analyzer

GNL-IN90 online trace oxygen analyzer is an intelligent instrument based on micro-processor.

The sensor it uses is fuel cell type electrochemical oxygen sensor. With fast response, perfect repeatability and accuracy, it is mainly used for applications which need 0-1000ppm oxygen purity measurement.

Principle：

Sensor include cathode end, Pb anode end and electrolyte, the contact metal part in the picture is as electro end to respectively connect to cathode and anode. Electrolyte get through the cathode surface and form a thin cover of electrolyte, and on this cover, it is with a permeable membrane. The sample gas go through the permeable membrane to the thin electrolyte cover, then there's chemical reaction below:

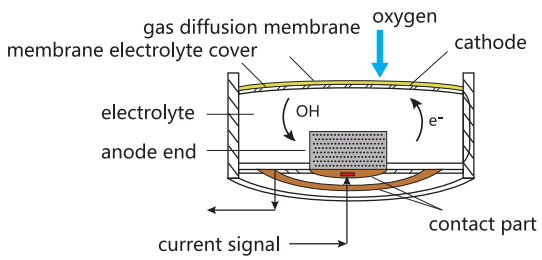
Cathode：$O2+2H2O+4e^{-}\rightarrow 4OH^{-}$

Pb Anode：$2Pb+4OH^{-}\rightarrow 2PbO+2H2O+4e^{-}$

Cell general reaction：$O2+2Pb\rightarrow 2PbO$

This reaction is single forwarded, the electric current that OH^{-} ion transfer is linear to the oxygen purity in the sample gas. The Pb in anode end will become PbO during the reaction until the Pb material is consumed up, just like fuel cell. If no oxygen then there will not be any reactions and no electric current will formed. Sensor with absolute zero point, that is mean the lower the oxygen purity, the longer the life of sensor will be.

oxygen sensor principle structure



Features：

· 240×128 LCD display oxygen purity and other data；

· With unique inner gas way structure, if power suddenly off or disconnect, then it will shut down the gas way at once to protect the sensor from being exposed to air;

· New structure test room to meet sensor easily replacement;

· Lowest measure range is 0-10ppm，maximum measure range is 0-10000ppm；

· 2 way SPST alarm function；RS232 communication port to connect with computer or other data equipments;

· Isolated 4-20mA DC standard signal output, if need 0-100mV、0-1V or 0-10V, it needs to specify it in the P.O;

Applications：

· Air separation；

· Gases Generation；

· Protection gas detection for semi-conductor industries;

· Protection gas detection for wave soldering/reflow soldering；

· Protection gas detection for food production；

· Gas detection for petroleum chemical process;

· Oxygen purity detection in inert gases and HC gas mixtures.

Technique Specifications

Type :	GNL-IN90 Online Trace Oxygen Analyzer
Principle :	Electrochemical fuel cell
Measure Mode :	Online
Install Mode :	Panel mounted
Application Area :	Non-hazardous area
Measure Range :	0-10/100/1000ppm
Sensitivity :	0.5% F.S
Accuracy :	±2%F.S
Stability :	0-1000ppm ±1%F.S
	0-100ppm ±1.5%F.S
	0-10ppm ±2.5%F.S
Response Time :	0-10ppm T90<60s under 25℃
Lower Time :	from air purity (20.94%) to trace oxygen 0-10ppm needs 2 hours.
Temperature Auto Compensation:	With a temperature sensor inside the sensor's cell room, information feedback to micro-processor and proceed temperature compensation;
Power Supply :	AC85-265V , 47~63Hz
Power Consumption :	lower than 20VA
Signal Output :	4-20mA DC isolated standard signal output ; it needs to specify if need 0-100mV , 0-1V or 0-10V DC;
Alarm Contact Point :	2 way alarms, SPST
Contact Point Capacity :	3A when AC 240V
Resolution :	1-25% 0.01%
	100-10000ppm 1 ppm
	10-100 ppm 0.1 ppm
	0-10 ppm 0.01 ppm
Communication :	RS232
Environment Temperature :	0-45℃

Environment Humidity :	less than 80%RH
Sample Gas Temperature :	0-45℃
Sample Gas Pressure :	35~210KPa
Sample Gas Flow :	1.2L/min
Flow Meter Range :	0-2L/min
Flow Control Valve :	inner needle valve
Gas Inlet :	1/4'' Swagelok type, stainless steel
Gas Outlet :	1/4'' Swagelok type, stainless steel
Sensor Room :	Aluminum sealing
Gas Way :	1/8'' 316 type stainless steel
Background Gas :	N2, H2, He, Ar, HC mixtures; specify it in P.O if CO2 purity more than 1000ppm.
Sensor Life :	2 years under 25℃, 1 atm pressure.
Warranty :	1 year
Calibration :	every 3 months to calibrate zero and span, need 3 kinds of standard gases, zero gas 3ppm; span gas 800ppm; and test gas 400ppm.
Sensor Protect :	2 solenoid pilot valve inside sensor room to control whether sample gas go through sensor or not, if exposed to percent oxygen, it needs to shut down the gas way by solenoid pilot valve to protect the sensor;
Self Diagnosis :	for example power supply, previous level diagnosis, analog diagnosis, etc.
Front Panel Size :	275mm(W)*190mm(H)
Analyzer Size :	222 (W) *178.5 (H) *300mm (D)
Panel Install Hole Cut Size :	224 (W) *185mm(H)
Weight :	6.8KG

GNL-IN90 Influence of Various Gases :

Gases	Concentration	Interference level
H_2S	<5ppm	None
SO_3	<10ppm	None
SO_2	<10ppm	None
HCL	<1000ppm	None
HCN	<1000ppm	None
CO_2	<1000ppm	None
NO_2	<1000ppm	1 ppm→2 ppm O2
CL_2	<1000ppm	1 ppm→2 ppm O2

Special Notice

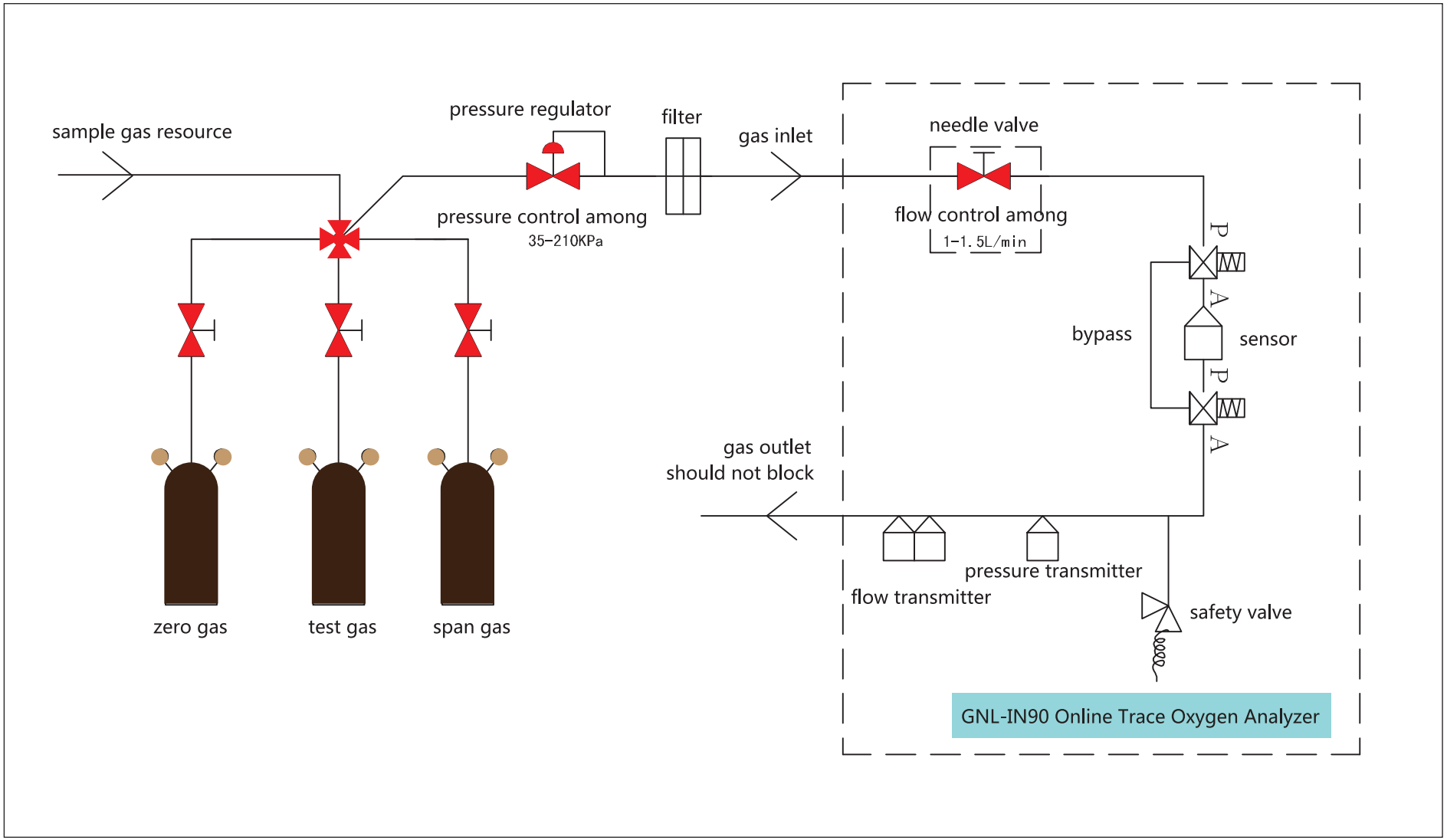
Sample gas pressure should be controlled among 35-210KPa , adjust needle valve to adjust the flow among 1-1.5L/min , maximum flow should not exceed 2 L/min , please operate strictly based on this range, or will destroy the oxygen sensor, flow meter and pressure transmitter forever;

Gas outlet should not be blocked, or inner safety valve will be automatically open, but if gas outlet were blocked, there's still possible for destroy the sensor, flow meter and pressure transmitter;

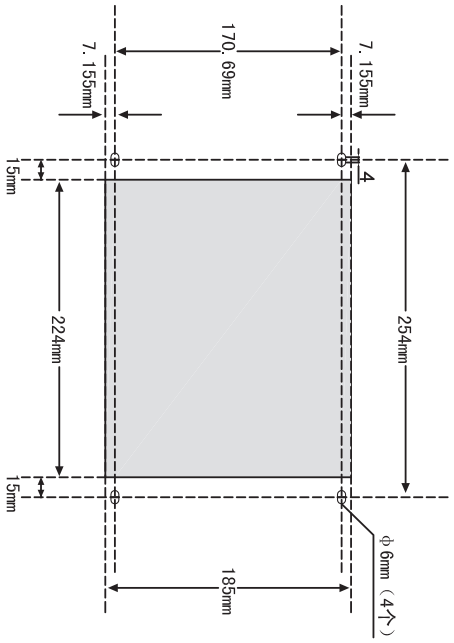
Due to features of sensor, the maximum measurement purity lower than 1% is recommended to get a longer life of the sensor;

To measure PPm level oxygen purity, it needs inner polished stainless steel pipe and assure sealing performance.

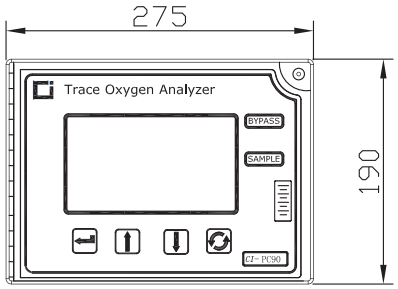
GNL-IN90 recommended gas way connection



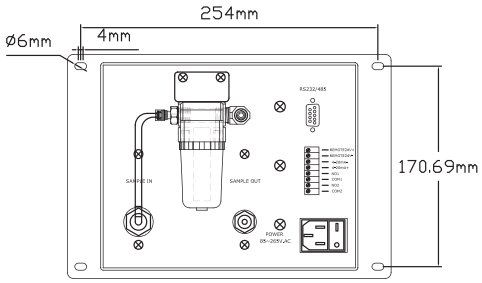
Analyzer Size:



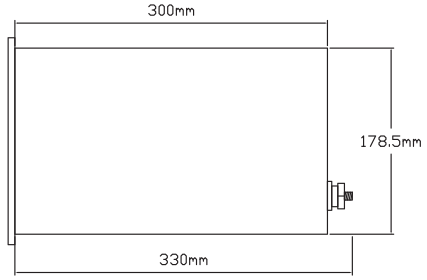
Picture 1 GNL-IN90 Hole Install Cut Size



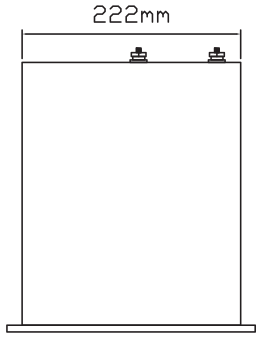
Picture 2A GNL-IN90 Front Size



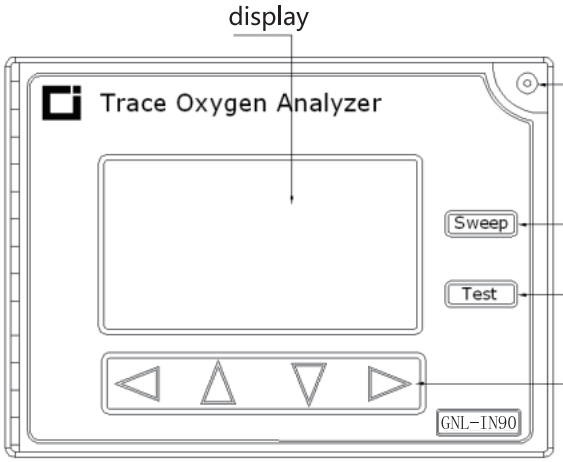
Picture 2B GNL-IN90 Back Size



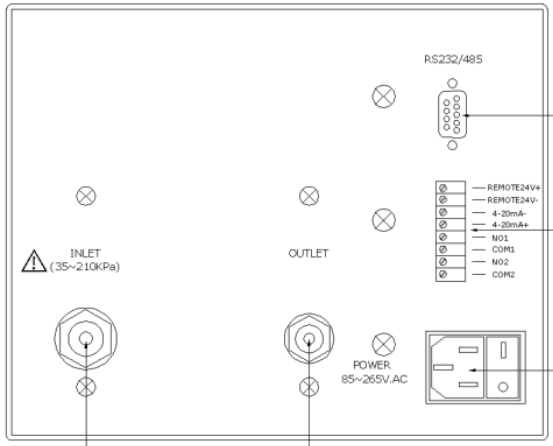
Picture 2C GNL-IN90 Side Size



Picture 2D GNL-IN90 Top Size



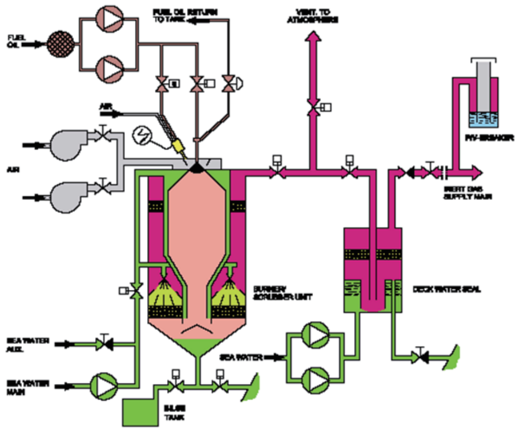
Picture 2A GNL-IN90 Front Size

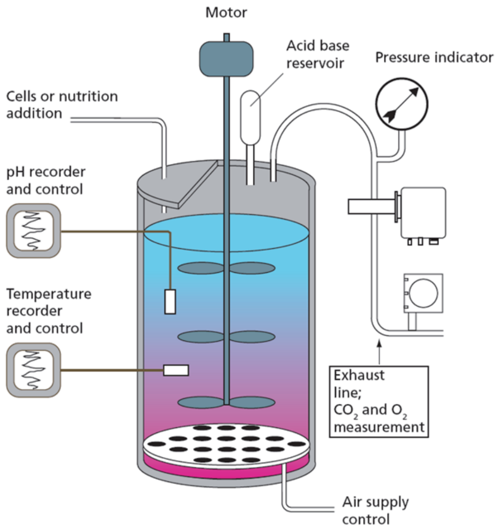


gas inlet (pressure 35-210KPa flow1.2L/min)

gas outlet should not block

Picture 2B GNL-IN90 Back Size


FUEL OIL
FUEL OIL RETURN TO TANK
VENT. TO ATMOSPHERE
AIR
AIR
P/V-BREAKER
INERT GAS SUPPLY MAIN
BURNER/ SCRUBBER UNIT
DECK WATER SEAL
SEA WATER AUX.
SEA WATER
SEA WATER MAIN
SLUDGE TANK


Motor
Acid base reservoir
Pressure indicator
Cells or nutrition addition
pH recorder and control
Temperature recorder and control
Exhaust line; CO_2 and O_2 measurement
Air supply control