

- **Cost effective solution**
 - for low temperature applications
- **NEMA 4X/IP66 protection**
 - reliable operation in demanding environments
- **User programmable**
 - for maximum flexibility
- **Comprehensive diagnostics facility with in-built software protection**
 - ensures security and confidence in operation
- **Linear or logarithmic ranges**
 - enables programming to suit a wide variety of applications
- **English, French, German and Spanish software**
 - simple, user-selection of display language



A low or high temperature oxygen analyzer offering advanced functionality, simple operation and reliability in harsh environments

Introduction

The ZDT Analyzer/Alarm unit is a versatile microprocessor-based oxygen analyzer designed primarily to meet the requirements of the medium sized boiler and furnace market, utilizing high quality zirconia oxygen probes, for energy management.

The low temperature version of the ZDT is designed to operate with the Model ZFG2 low temperature oxygen probe. The probe sensor is controlled at 700°C.

The high temperature version of the ZDT is designed to operate with the Model ZGP2 oxygen probe. The probe sensor is temperature compensated from 600° to 1400°C. In the event of probe thermocouple failure the temperature of the process can be preset in the ZDT.

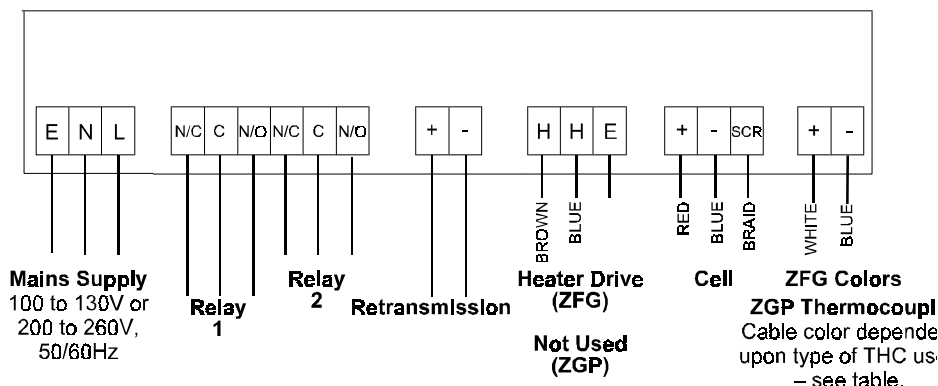
The standard analyzer has high/low alarm relays and a single linear or logarithmic isolated retransmission. Display features include %O₂, cell temperature, heater control output, cell mV, alarm set points, calibration sequence diagnostics and output settings.

The analyzer provides oxygen readout with computation based on the probe mV signal. The mV output signal is Nernstian in form and follows the equation:

$$E(\text{mV}) = 0.0496 T (\log_{10} \frac{P_0}{P_1}) \pm C (\text{mV})$$

Where T = Absolute temperature (°K)
P₀ = Partial pressure reference O₂ (air)
P₁ = Partial pressure sample O₂
C = Cell constant
0.0496 = Faraday's Gas Constant

Electrical Connections



Type of Thermocouple	Compensating Cable					
	BS4937 Part No. 30			DIN 43714		
	+	—	Case	+	—	Case
Ni-Cr/Ni-Al (Type K)	Green	White	Green	Red	Green	Green
Pt/Pt-Rh (Types R and S)	Orange	White	Orange	Red	White	White

The reference air supply to the probe can be supplied by optional integral pump within the ZDT or by external regulated instrument air. Flow rate of the integral pump is approximately 1l/min. (0.264 gal/min.).

Construction and Operation

The ZDT Zirconia Analyzer is housed in a sheet steel enclosure, environmentally protected to NEMA 4X (IP66) and meets the requirements of Generic Emission Standard (EN50081-1) for residential, commercial and light industry and the Generic Immunity Standard (EN50082-2) for industrial environments.

The analyzer is based on the proven 4600 Series transmitter and has the type display with four tactile membrane switches. The measured value display is 5-digit, 7-segment green back-lit I.c.d. while the information display is 16-character, single-line, dot-matrix, green back-lit I.c.d.

The information display can be user-programmed for display in English, French, German or Spanish language.

The  switch allows movement from the 'Operating Page' to the oxygen calibration sequence. Use of the appropriate security code allows further access to the pages for 'Set Up Outputs' and 'Electrical Calibration'. The  switch is used to select the various programming pages, while the  and  switches change programmable values.

In the Oxygen Calibration Page the user code is required to proceed beyond the diagnostic information to the calibration sections.

Specification

Display

Measured value

5-digit x 7-segment back-lit l.c.d.

Information

16-character, single line, dot matrix, back-lit l.c.d.

Parameters

%O₂ (0 to 25%)

Cell temperature

Cell mV

Two O₂ alarm set points – alarm 2 can be configured as a common failure alarm for any of the following:

- THC open circuit
- Cell under temperature (ZGP2)
- Cell warming up (ZFG2)
- Calibration failed
- Cell stability check (ZFG2)
- Power failure

Accuracies

Oxygen Concentration (display and retransmission)

- 2% of reading or $\pm 0.1\%$ O₂ whichever is greater

Display resolution

± 1 digit

System accuracy *

Display

- 2% of reading

or ± 0.1 O₂ whichever is greater

Retransmission

- $\pm 2\%$ of reading

or $\pm 0.1\%$ O₂ whichever is greater

Error due to power supply variation

Less than 0.1% for +6% –20% variation from nominal supply voltage

Environmental Data

Operating temperature limits

–5° to 55°C (23° to 131°F) – all functions

–20° to 70°C (–4° to 158°F) – retransmission

Storage temperature limits

–25° to 55°C (–13° to 131°F)

Operating humidity limits

Upto 95% RH non-condensing

Power Supply

Voltage requirements

100 to 130V, 200 to 260V 50/60Hz

Power consumption

110VA

Insulation

Mains to earth (line to ground) 2kV r.m.s.

Outputs and Set Points

No. of relays

Two.

Relay contacts

Single pole changeover.

Rating	250V a.c.	250V d.c. max.
	3A a.c.	3A d.c. max.
Loading (non-inductive)	750VA	30W max.
(inductive)	75VA	3W max.

Insulation:

2kV r.m.s. contacts to earth (ground).

No. of set points

Two

Set point adjustment

Programmable.

Set point hysteresis

$\pm 1\%$ of set point (fixed)

Local set point annunciation

Red l.e.d.

Retransmission

One fully isolated retransmission

Programmable for any range within

0 to 25% O₂ (linear)

(5% minimum span)

0.01 to 25% O₂ (logarithmic)

(Programmable for any two decades within 0.01 to 25%)

Output current

0 to 10mA, 0 to 20mA or 4 to 20mA programmable.

Resolution

0.1% at 10mA, 0.05% at 20mA.

Max. load resistance

750 ohm (20mA max.).

Output loop test

Output loop test at 0%, 25%, 50%, 75% and 100% of output span

Mechanical Data

Mounting

Wall mounting

Protection

NEMA 4X (IP66)

Dimensions

252mm (9.9 in) wide x 453mm (17.8 in) high x 150mm (5.9 in) deep.

Weight

9kg approx.

* ZDT with a ZGP2, Z-FG2 or Z-FG probe when calibrated against a certified test gas

Ordering Guide

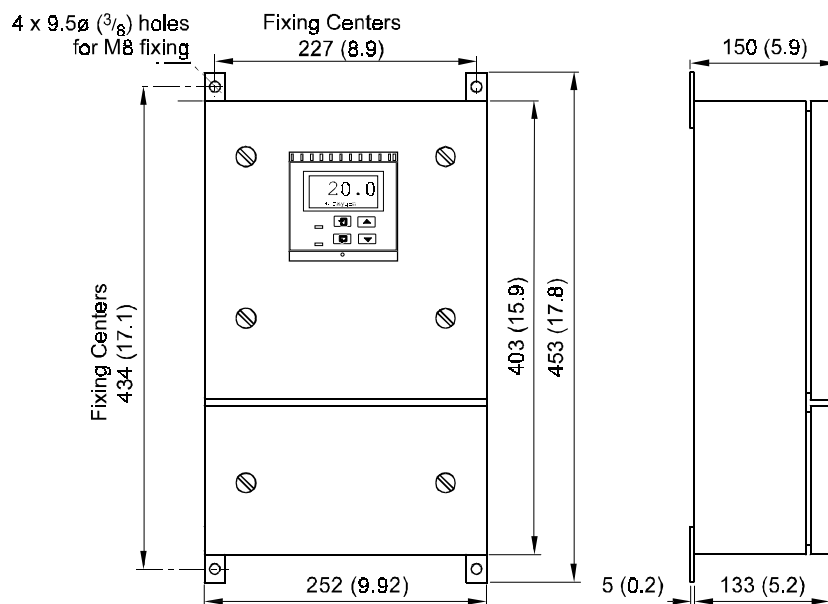
SUNSTAR 传感与控制 <http://www.sensor-ic.com/> TEL:0755-83376549 FAX:0755-83376182 E-MAIL: szss20@163.com

ZDT Oxygen Analyzer	ZDT/	0	1	X	X
Probe Type	ZFG2	0			
Thermocouple Type	Type K	1			
Reference Air Supply	None		0		
	External Output		1		
	Internal Output		2		
Mains Voltage	230V 50/60Hz			0	
	110V 50/60Hz			1	

ZDT Oxygen Analyzer	ZDT/	1	X	X	X
Probe Type	ZGP2	1			
Thermocouple Type	None		0		
	Type K		1		
	Type R		2		
	Type S		3		
Reference Air Supply	None		0		
	External Output		1		
	Internal Output		2		
Mains Voltage	230V 50/60Hz			0	
	110V 50/60Hz			1	

Overall Dimensions

Dimensions in mm (in.)



The Company's policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

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