NTRON SIL O2 Oxygen Analyser Instruction Manual

The SIL O 2 Oxygen Analyser
User Operation Manual

Rev. 1.2
19/06/2023

Contents

SIL O2 Oxygen Analyser

Revision History		
Revision No.	**Change Description**	**Date**
0 1	First Issue	19-10-2018
1	Note added for Non-ATEX Sensor usage	22-10-2018
1.1	Reference to 15% O2 in trouble shooting section removed.	30-11-2018
	Calibration Span instruction amended and note added	
1.2	SIL2 capability specified	19-06-2023

Introduction

The Ntron SIL O2 Analyser is a ATEX approved SIL 2 capable Oxygen measuring instrument. It contains three programmable alarm settings, industry standard Analogue Output(active source) and a non-programmable safety trip relay. The range of operation is 0 to 25% Oxygen. The Resolution is to 0.01%.
Together with one of the range of Ntron ATEX approved Oxygen Sensors, it forms a SIL2 capable measurement unit which can operate on its own or as part of a larger installation.
Note. Non-Atex (Ex) Sensors variants of the models listed in the manual may also be used with the SIL O2 Analyser as long as they are installed in a Non-ATEX (Ex) or, Safe area or zone.
The Alarm settings are typically factory set according to the end user's requirements. Interface software and hardware is available for the user to perform such functions themselves. Contact Ntron for further details.

1.1 The purpose of this User and Operation Manual

This Manual is limited to providing the user with necessary details on installation, interface wiring, operation and maintenance of the SIL O2 Analyser and Oxygen Sensor, to ensure safe and reliable operation of this Analyser and Sensor unit.
Note: This manual does not cover the design or application of a Safety Instrumented System (SIS) into which the SIL O2 Analyser unit may be incorporated. Further details of this can be obtained in the Ntron SILO2 Technical and Safety Manual.

The main user interface features

Installation and Operation

Note: For system application information, consult the SIL O2 Analyzer Technical User Manual

2.1 Notes for a safe installation

Please do not short-circuit the + and -ve sensor cables while connecting to the SIL O2 Analyzer. This could damage the sensor.

This system can also be used in a non-Ex area application. In all applications, the SIL O2 Analyzer Din rail module is always located in the non-Ex area!

Assignment of the mounting rail housing terminals with intrinsically safe circuits and non-intrinsically safe circuits is indicated on the nameplate and is clearly indicated. In addition, the 4-pin terminals of intrinsically safe circuits follow the standard color protocol for intrinsically safe terminal connections and are coloured Blue. Connections for intrinsically safe external circuits are arranged in such a way that, in accordance with EN 60079-11, the exposed parts are at least 50 mm from the exposed connections and parts of the non-intrinsically safe circuits.

For safe operation, a protective ground/earth connection to terminal 13 or 15 should be made. Assembly / disassembly, installation, operation and maintenance may only be performed by qualified personnel in accordance with regulatory requirements and the SIL O2 Oxygen Analysis Manual.

During installation, the technical data and the electrical values of the connected circuits must be respected.

Electrical supply. The SILO2 Analyser operates with an Extra low Voltage (ELV) supply. (See specification section in this manual)No special precautions are necessary but the ELV supply to the SIL O2, if generated from a Mains power source, that mains power source and associated wiring must be in accordance with IEC/EN standards and is the responsibility of the user to provide and to ensure correct and safe installation of such.

When the SIL O2 analyzer is integrated into another system, also refer to the system manual for additional operational information.

The Ntron SILO2 Analyser is designed for use with a range of Ntron ATEX certified Oxygen Sensors to form a measurement system. These Sensor options are detailed in the Specification section of this manual.

If the SIL O2 Analyser has been supplied with a Sensor, the two units will have been calibrated at the Ntron factory prior to delivery. Otherwise, if a Sensor is supplied separately from the SIL O2 Analyser, a calibration will be required prior to putting the system into operational service.

The Ntron Sensors suitable for use with the SIL O2 analyzer are listed in the Installationn section which follows.

The SIL O2 oxygen analyzer is an associated explosion-proof [Ex ia] IIC or [Ex ib] IIC electrical device and should always be used outside potentially explosive areas (in a safe area). Only electrical circuits, certified as intrinsically safe, can be connected to other intrinsically safe circuits in the Ex zone.

Before operation, the intrinsic safety must be verified for the SIL O2 oxygen analyzer circuit connected to the circuit of other equipment, including the interconnecting cabling.

The data contained in the EC test certificate and the regulations of EN 60079-14: 2011-10 must be observed.

The Sensors are ATEX rated devices and have certain conditions of use assigned.

Note. Non-Atex (Ex) Sensors variants of the models listed in the manual may also be used with the SIL O2 Analyser as long as they are installed in a Non-ATEX (Ex) or, Safe area or zone.

For Acetal-bodies Sensors, the following instructions apply; The Sensor should be installed in such a way that it is not subject to impact by other objects and should not be located close to additional heat sources.

Note the ambient temperature range as it appears on the Sensor labelling.

Care must be taken when installing equipment with plastic enclosures or plastic parts of enclosures to ensure that the equipment is protected from any situations that could cause a build up of static charge. The equipment must not be installed into locations in which it could come into contact with, through normal or abnormal circumstances, fast moving dust laden air/gas or non-conductive fluids. The equipment must be cleaned only with a damp cloth.

2.2 Installation

The installation must be in accordance with the local electrical codes and taking into account the details in the Specification section of this manual.

The SIL O2 analyzer is designed for DIN rail mounting and can be supplied mounted in an additional enclosure or provided without an additional enclosure for customer mounting in a system enclosure or control panel.

The Sensor option chosen will determine the process connection/installation for that Sensor type. The Sensor types and related process connections are given below.

Sensor Type: Process Connection:

Model OC-25 Ntron Sensor base, Flow Through or Tri-Clamp

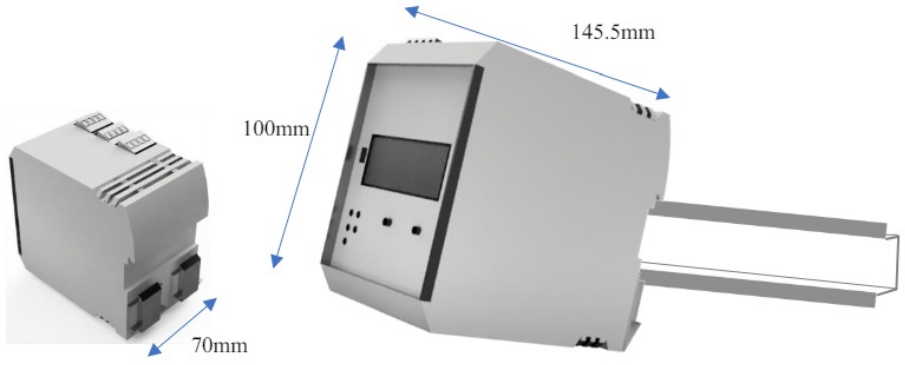
Model OC-26 KF40 Flange

Model OC-200'Oxyprobe' series Bushing insert or Extract* Probe Holder

The Sensor is typically supplied with a corresponding connection cable of either standard length or to a customer specified length.

*The Ntron OxyExtract Manual or Automatic probe insertion mechanism.

2.2.1 Mounting the SIL O2 Analyser



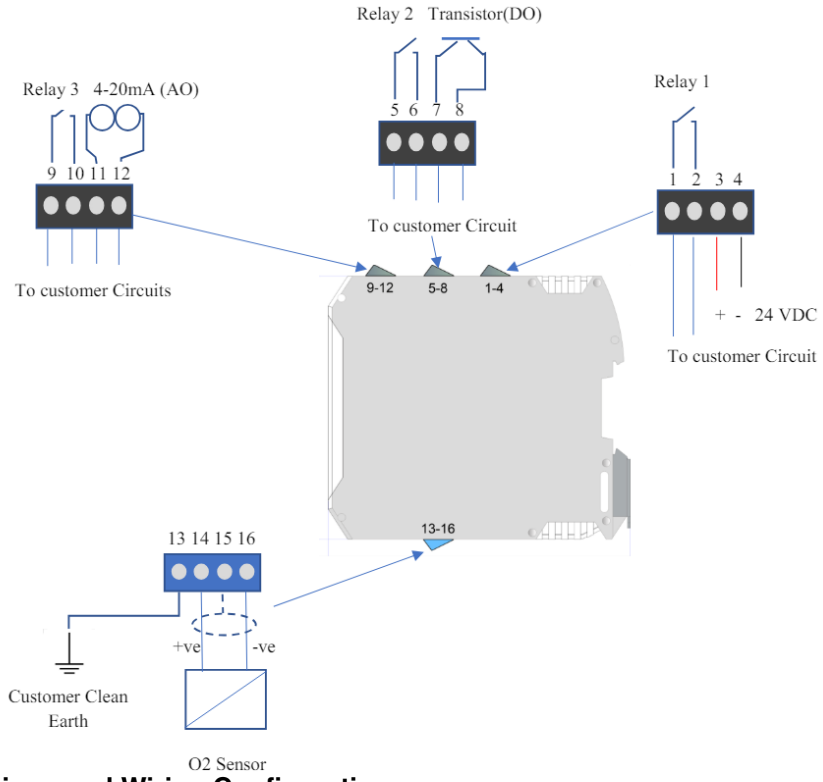
Mount the SIL O2 Analyser onto 35mm DIN rail as shown. Any Trunking/wireways above and below the Analyer when in situ, must be positioned so that there is a minimum of 30mm clearance between such trunking and the Analyser connection terminals.

2.3 Electrical and Interface Connections

2.3.1 Sensor Input and Customer Interface Wiring

The Ntron ATEX Sensor selected for use with the SIL O2 Analyser as listed in the Installation section previously, has intrinisically safe parameter values which match the Isolation Barrier output which is built into the SIL O2 Analyser. The Sensor connects to the Blue terminals as shown below.

The dark Grey terminals are for safe (Non-Ex area) customer interface connections. See the configuration section on the following page.

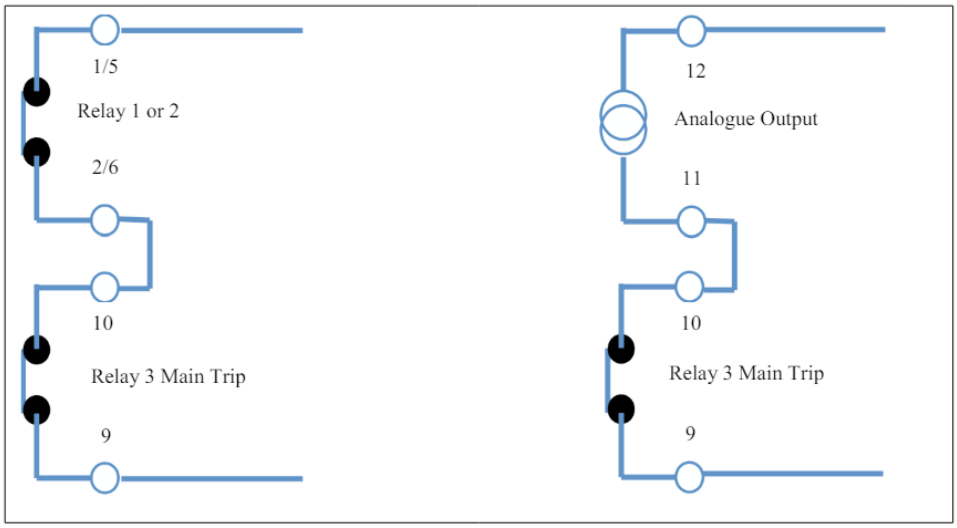


2.3.2 Operational Settings and Wiring Configuration

The SIL O2 Analyser has two presentable alarm levels and associated Relays, referred to as RL1 and RL2. It also has a third presentable alarm level with an associate Transistor Digital Output (DO) The programmed setting of these outputs can vary depending on application. The Inspection and Calibration certificate supplied with each SIL O2 Analyser and Sensor unit will detail these settings. See the Ntron SIL O2 Technical and Safety manual for further details.

The SIL O2 Analyser has a main trip Relay referred to as RL3. This is not programmable and is normally open (contacts)/de-energised when the Analyser is not under power. The Relay energises and its associate contacts close when power is applied and the Analyser and Sensor are healthy and ready to operate. The Analogue output is an industry standard 4-20mA active source output. The connected circuit should be of maximum resistance 420 ohm.

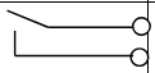
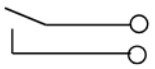
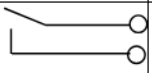
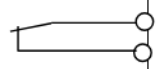
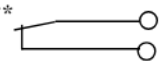
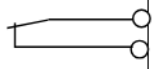
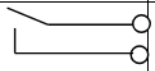
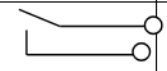
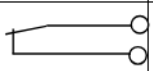
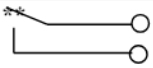
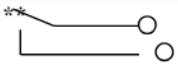
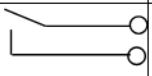
To meet the SIL 2 operational requirements as an Analyser and Sensor unit, the main trip Relay is required to be connected in series with other elements within the Analyser as shown in the diagrams below. For any other configurations, See the Ntron SIL O2 Technical and Safety manual for further details.



***Special case for use of the 4-20 mA analogue output within a safety system**

When using the 4-20 mA analogue output from the SILO2 Oxygen Analyser within the safety system, this signal would typically be required to be processed by a safety PLC which would then activate the Final Trip Element. See the Ntron SIL O2 Technical and Safety manual for further details.

2.3.3 Typical Relay Configuration

Power to the Analyser	Relay Contact 1	Relay Contact 2	Relay Contact 3	Comments
Power Off (All relay contacts in Fail Open condition)				Relays De-energised
Power on and system good/healthy	** 	** 		All Relays Energised
Power on and O2 alarm level(s) reached	* 	* 		Relays 1 & 2 De-energised
Power on and System fault	** 	** 		All Relays De-energised

These relays are programmed to respond to the measured Oxygen level setpoints (Alarms), rising or falling in the range 0-25% Oxygen. These are pre-set to the customer's requirements.
They operate in 'Fail Safe' mode which means that they are energized (under current), presenting a closed contact to the customer/user when the SIL O2 module is under power and the status is healthy/good.
When at a level setpoint (Alarm) or when the SIL O2 module is not-powered, the relays are de-energised (not under current), presenting an open contact to the customer/user. This is also known as 'Fail Open' (FO) condition.

Transisitor (DO)

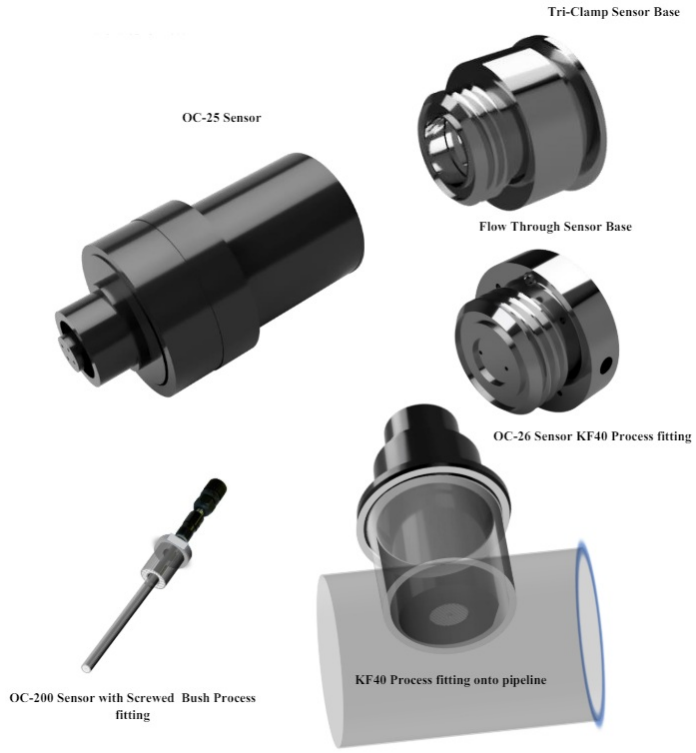
This is an NPN device that can switch 24VDC and can be configured to be normally open or normally closed.

Analogue 4-20mA

This is an active output and requires connection to a passive external circuit suitable for proper operation.
It is set to the range 0-25% Oxygen / 4-20mA (0% Oxygen = 4mA, 25% Oxygen = 20mA.)
This range can not be adjusted.
If the 4-20 mA output is not used, the SIL O2 terminals T11 and T12 must be wired by the user. This output is internally connected in series with the SIL O2 Analyzer digital display, which will not work if the aforementioned terminals are in open circuit!

2.3.4 Sensor Process Connection options

The Sensors are suitable for mounting directly onto process
Lines via a selection of process fittings. The electrical signal connectorsare rated to IP67.



2.4 Operation

Before turning on the SIL O2 analyzer for the first time or after disconnecting the sensor for maintenance / replacement, make sure that a working sensor is connected. Otherwise, the SIL O2 analyzer will go into failure mode, with the red error indicator on and the RL3 relay disabled. As the fault circuit performs a cyclic check every 30 seconds or so. When the sensor is connected, resetting the red indicator and relay 3 occurs automatically, but it is advisable to power off the system to allow the sensor to be disconnected / reconnected under normal circumstances, if possible.

Turn on/apply power to the SIL O2 Analyser.

When operating under normal process/system conditions, the SIL O2 Analyser will give a digital readout of the measured Oxygen level (from the Sensor in the process).

This measurement is converted into a 4-20mA output signal proportional to the Oxygen being measured. If an Alarm level even occurs, the relevant programmed output device will operate (Relay or Transistor) and the ineterface circuit to the user equipment will be interrupted. For further alarm or fault events and their conditions, please see the troubleshooting section at the end of this Manual.

2.4.1 Calibration Procedures

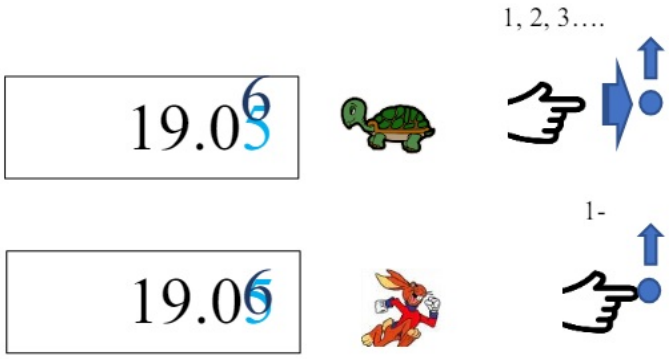
The SIL O2 Analyser and Sensor unit requires periodic calibrations performing, the timing between such calibrations being determined by the application and process requirements.

Typically, a periodic calibration check would reveal if any calibration adjustment is necessary. The SPAN calibration point of 20.9% O2 (Air) is the important setting and typically, if calibration adjustment is required, this is the value that would be adjusted. This adjustment can be made ussing ambient air as the calibration standard or, for greater accuracy, certified cylinder gas at 20.9% O2.

It is possible to also adjust the Zero point of the SIL O2 Analyser. Typically this would only be required when fitting a new/replacement Sensor. A Complete calibration procedure is given below.

Note: Calibration Adjustment procedure.

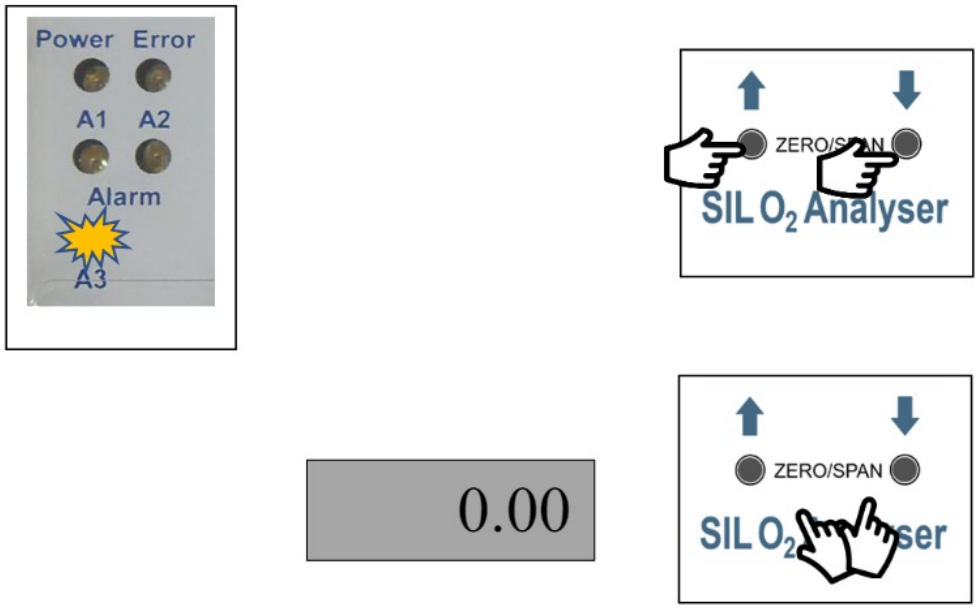
The displayed number change starts with the digit to the far right of the decimal point. Press and hold the Up or Down buttons to change the reading. This gives an accelerated adjustment. More accurate adjustment is achieved by pressing the Up or Down button at one press (press release, release of press, etc.). When the display reads 20.9%, the calibration of the range is complete



2.4.2 Setting the Zero point.

This must be done each time a new sensor is installed before a span calibration is performed.
Subsequently, a zeroing can be performed periodically as needed.
A zeroing operation requires the application of a zero oxygen gas to the sensor, typically nitrogen (minimum quality <100 ppm). Note: Accessing the Zero function when the sensor is in ambient air (20.9% O2) will result in an error / fault condition.
Depending on the type of sensor installed, zero gas must be applied through a process fitting or calibration adapter, and be sure to leave a free exhaust at a suitable location so that the sensor does not become pressurized.
The sensors to be used with the SIL O2 unit will generally give a small output at zero oxygen levels. The zero adjustment function allows the user to adjust this small signal so that the SIL O2 analyzer displays 0.0 when no oxygen is present in the measured gas.

- ZERO mode is activated after pressing the UP and DOWN button simultaneously for more than one second. As an acknowledgment of receipt, the A3 LED flashes. An adjustment of the indicated value is made by pressing the UP or DOWN buttons individually as required.
- The change starts with the digit to the right of the decimal point. (00.0) Press and hold the Up or Down buttons to change the displayed reading. This allows an accelerated adjustment. Accurate adjustment is achieved by pressing the Up or Down button at one press (press release, release of press, etc.). When the display reads 0.0% O2, the setting is complete. By simultaneously pressing the two buttons or a delay of 20 seconds, the ZERO operating mode ends.

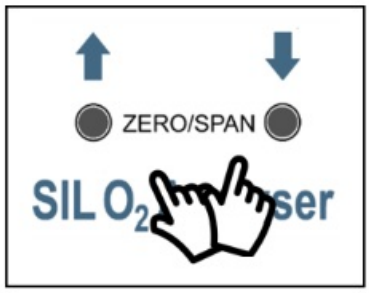


2.4.3 SPAN Calibration

This can be done periodically or as needed in accordance with the requirements of the calibration protocol.
Calibration can be performed by applying either clean ambient air or a 20.9% certified oxygen rate to the sensor.

Note:

- The SIL O2 analyzer should only be calibrated at approximately 20.9% oxygen.
- If an ambient air calibration is performed, it is recommended to confirm the oxygen level with a certified portable oxygen analyzer prior to calibration.
- If a zero setting is made first, then after the end of the zero operation mode, the Span mode is automatically activated after a delay of 20 seconds.
- If A Span only calibration is required, then just press the UP or DOWN buttons individually to increase or decrease the displayed value of oxygen to read 20.9.
  Note: Ensure the Sensor is in 20.9% oxygen when you do this! 20.90 .
- Calibration complete.



Operational safety and maintenance instructions.

If it is assumed that safe operation is no longer possible, the device must be taken out of service and protected against accidental use. The reasons can be: visible damage to the device failure of the electrical function long shelf life at temperatures above 85 ° C
Transport damage
Before the device can be put back into service, a professional routine check must be carried out in accordance with DIN EN 61010, part. 1. This examination must be carried out by the manufacturer. Repair work on Ex devices may only be carried out in accordance with § 9 of Ex. (Elex V).

3.1 Fault conditions

The SIL O2 Analyzer failure operation is not locked out by a fault. When a fault condition is repaired, the trip relay RL3 and the red fault indicator will return to their “healthy” or “operational” state after a few seconds following an automatic internal cyclic check.

3.2 Wire break

When manually disconnecting the sensor (for example for maintenance) or following a break in the sensor connection cable, the SIL O2 Analyzer RL3 fault relay switches off and interrupts the safety circuit.
The red fault indicator will illuminate on the SIL O2 analyzer and the 4-20 mA analog output will reach a constant high value of 22.0 mA. At the same time, the setpoint relays RL1 and RL2 will be deactivated.
When the sensor is reconnected or the cable fault is corrected, the RL3 relay automatically resets after about 30 seconds and the red LED goes out. At the same time, RL1 and RL2 are reset according to their setpoints and the measured gas level. See also note on page 13 of this manual for reset requirements under specific conditions.

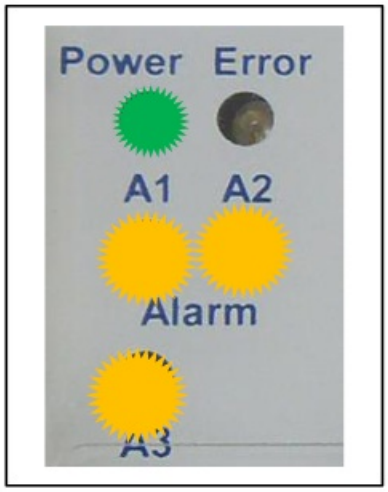
3.3 System faults

A number of internal faults in the SIL O2 analyzer generate a fault output and interrupt the safety circuit. In some cases, cycling the power supply of the SIL O2 analyzer may be sufficient to remedy the problem. Otherwise, please contact Ntron for assistance.

3.4 Troubleshooting

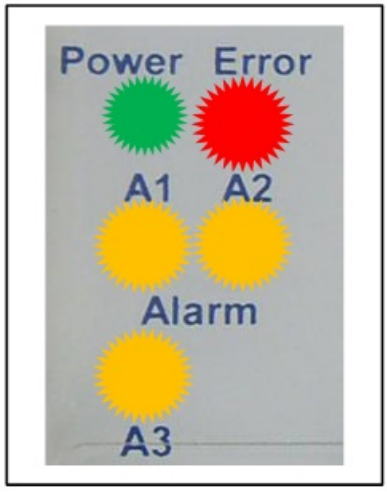
Possible Faults and their solutions
The following possible conditions are applicable to a system (SIL O2 Analyser and Sensor) already installed and commissioned. Some conditions below may also be applied to new systems not yet commissioned.

- Action: Performing a Zero calibration when the Oxygen Sensor is in ambient **air.**



Problem: An incorrect Zero level input to the Analyser will result in an overrange fault. This can occur if a Zero calibration is performed when the Sensor is in ambient air. If this occurs, the Red fault LED will illuminate and the Analyser display and Analogue output will read an over-range value. The Alarm level LED's may also illuminate. This may also occur if a genuine overrange event takes place, with gas containing more than 25% O2 being applied. (25%O2 displayed) Solution: re-calibrate with Nitrogen gas (Zero) and then re-calibrate at the Span point of 20.9%.

- Action: Powering on the Analyser with no sensor connected or a wire break to the sensor.



Problem: If the sensor is disconnected, this would ordinarily cause relays R1, R2 and R3 to deenergise. Analyser display and Analogue output will read a fault value. (28% O2 displayed and 22mA output) Solution: Check Sensor wiring and connect the sensor to the Analyser. After approximately 30 seconds, the Analyser will reset and the Red LED should extinguish.

- Action: Unable to perform a Span **calibration.**

Problem: The Analyser cannot be adjusted to display 20.9% O2 during Span calibration.

Solution: The Sensor may be approaching end of life or has been damaged and cannot generate sufficient output. Replace the sensor Alarm level LED's may or may not be illuminated depending on configuration.

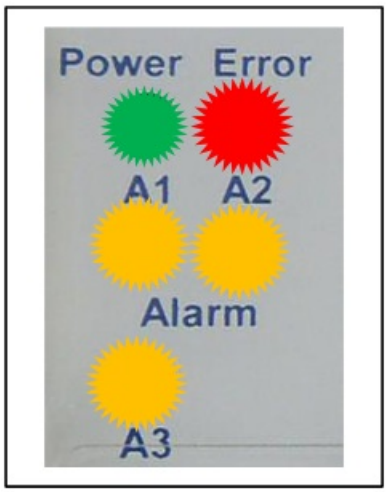
- Action: Alarm Level LED's (Yellow) **illuminated.**

Problem: Alarm level LED's illuminated.

Solution: Genuine Oxygen level alarm event.

Incorrect sample gas levels being applied to the Sensor or incorrect alarm level settings are configured within the Analyser. If this is not expected then check sample gas with independent instrument gas/and/or re-configure Analyser Alarm setpoints. This will require interface with PC based software.

- **Action:** Red Fault LED illuminated when none of the above conditions are **present.**



Problem: Analyser in fault condition. Analyser display and Analogue output will read a fault value.

(28% O2 displayed and 22mA)

Solution: Internal Analyser electronics or programming fault. Try Power On/Off cycle to reset.

If fault does not clear then seek further assistance.

Problem: No Analyser display (Blank)
Solution: Analogue output circuit is broken or interrupted. Investigate and repair.

3.4.1 Possible Sensor Faults

Applicable to all sensor types (OC-25, OC-26, OC-200)
Problem:. SIL O2 Analyser will not calibrate (Cannot be set to 20.9%)
Solution: Sensor is at end of life. Sensor has been wetted or contaminated. The Sensor output signal can be checked at the SIL O2 Analyser terminals 14 and 16. See specification section for details of a healthy output signal.
Problem:. SIL O2 Analyser reads Zero (0.00)
Solution: Actual low Oxygen measurement. Sensor wires have been shorted together, damaging the Sensor. Verify the Oxygen level by other means. Check the Sensor output signal. Replace Sensor as necessary.

3.5 General Maintenance

Establish a periodic checking and maintenance routine in line with the requirements for Safety Instrumented Systems. See the Ntron SIL O2 Analyser Technical and Safety manual for further details.
The SIL O2 Analyser requires little physical maintenance. The user Enclosure into which it is housed should provide protection against a build up of dust or other contaminants on the surface of the SIL O2 Analyser housing. If such contaminants are seen during regular inspection, such can be removed by gentle suction device or by wiping with a damp but not wet, cloth. The ingress of such contaminants should be investigated.
Ensure all wiring to the SIL O2 Analyser is secure and in good condition, paying particular attention to the security of the connection terminals if the user enclosure is subject to vibrations.
There are no user serviceable parts within the SIL O2 Analyser. If any malfunction is detected, mechanical or electrical, the SIL O2 Analyser should be immediately removed from service following the correct protocols.
The Sensor used has a finite life span. The Performance of the Sensor is verified by calibration check and this should be performed according to the protocols required by the safety system. Replacement of the Sensor is necessary when it does not meet the required performance levels.
During operation life, the Sensor should be kept clean of contaminants. It can be wiped with a soft damp cloth. Observe the restrictions regarding potential static charges as detailed on the Sensor Installation
Instruction Documents found in the appendix to this manual.
When removing Sensors from their process installation for replacement or other service requirements, observe the following points.

- Ensure any and all system shut down protocols are followed as applicable.
- Do not disconnect the Sensor from the connecting cables whilst the system is operating or is ‘Live’.
- Ensure the process being measured is shut down or the Sensor connection is isolated by any intermediate valve mechanism if fitted.
- Always remove the Sensor connector before unscrewing the OC-25/OC-200 Sensors or unclamping the OC-26 Sensors from their process fittings

- Block off the exposed process connection if required during the period the Sensor is disconnected.
- Protect the disconnected Sensor cable from damage during the period the Sensor is disconnected.

Specifications

SIL 02 Analyser	**Specifications-Electrical**
Supply Power	24 V DC +/- 10%
Power Consumption	1.5 Watt
Analogue Output	4-20mA active source. 22mA Max output . Load 390 Ohm@22mA, Max 420 O hing20mA constant current.
Communications	RS232
Relay Contact outputs RL 1 /RL2/RL3	Urn 125 V AC / 110 V DC Min Current 10 uA DC. Min. Voltage 10 mV DC. Type According to **IEC 947-5-1** reap. **EN 60947)**
Transistor Output (Do)	Switching parameters: < 28 V @ < 50 mA
Intrinsically Safe Connection	voltage Uo DC 6 V current Intensity to 0.2 mA power Po 0.3 mW max. outer InductIvity Lo 1000 m1-1 max. outer capacity Co 10 OF
	Specifications-Mechanical
Terminal /Wire Size	Pluggable / Quick Release terminals, capacity 2.5nun[l]
Mounting	35 mm Din rail
Housing Material	PBT
Ingress Protection	1P20
Combustibility Class	VO according to UL
Weight	300g
Operating Temperature	-20…+50°C, 0…95% Humidity, non-condensing.
Dimensions	70 mm x 145.5 mm x 100 mm
Indicators	LCD Display and LED alerts on analyser.

Certification/Standards	CE, ATEX 2014/34/EU/ EN 60079-0:2012 + A11:2013, EN 60079- 11: 2012, EN 60079-26: 2015 0158 II (1) G II (1) D ; [Ex ia Ga] IIC; [Ex ia Da] III C Functional safety: SIL2 Capable according to IEC 61508/61511 EMC 2014/30/EU EN 61326-3-2:2008; EN 61000-6-3: 2007 + A1: 2011 EN 61000-4-2:2009; EN 61000-4-3: 2006 + A1: 2008 + A2: 2010 EN 61000-4-4:2012 2006 + A1: 2008 + A2: 2010 EN 61000-4-5:2014 EN 61000-4-6:2014

Oxygen Sensor	Specifications-Electrical
Models	OC-25, OC-26, OC-200 series
Range	0-25% Oxygen
Signal Output	300-375mV in Air OC25, OC-26. 135-160mV in Air OC-200
Technology/Lifespan	Solid State Long Life Up to 24 months application dependent. Storage Life 12 months.
Process Connections	2″ tri-clamp / flow-through / KF40 flange / via Oxy Extract
Intrinsically Safe Sensor Input Connection Parameters.	voltage Uo DC 12 V current intensity Io 120 mA power Po 0.55 W max. outer inductivity Lo 0 mH max. outer capacity Co 1.2 µF
	Specifications-Mechanical
Dimensions OC-25	100mm High x 50mm Diameter
Dimensions OC-26	75mm High x 55 Diameter (KF40)
Dimensions OC-200	Variable length to order, typically 200mm long x 12mm Diameter prob e. Max. Diameter is 30mm.
Protection Class	IP67 When inserted into process fitting with Connector fitted.
Weight	OC-25= 250g; OC-26=150g, OC-200=180g
Environmental	Temperature: -20 to +45-50°C, 10-95% Humidity, no condensation.
Certification/Standards	CE, ATEX 2014/34/EU/ 1180 II 1 GD EN60079-0:2012 + A11:2013 EN60079-11:2012 ATEX II 1 GD; Ex ia IIC T6 Ga(-20°C≤Ta≤+55°C) Ex ia IIIC T90°C Da(-20°C≤Ta≤+55°C) IECEx BAS 09.0148X

Appendices

- SIL O2 Analyser and Sensor Connection Diagrams
- SIL O2 Analyser CE and ATEX Certificates
- Sensor CE and ATEX Certificates

5.1 SIL O2 Analyser and Sensor Connection Diagrams

- E364 SIL O2 with OC-25 Sensor
- E511 SIL O2 with OC-26 Sensor
- E395 SIL O2 with OC-200 ‘Oxyprobe’

5.2 SIL O2 Analyser CE and ATEX Certificates

- CE Certificate CETX003
- ATEX Certificate Dekra BVS 13 ATEX E 010

EU Declaration of Conformity
We declare, under our full responsibility, that we believe the products identified in this declaration, and to which this declaration relates are in conformity with the requirements of Council Directives:
Directive 2014/34/EU- Equipment and protective systems intended for use in potentially explosive atmosphere.
Directive 2011/65/EU and of Council of 8th June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS2)(*)
*OJ L 174, 1.7.2011, p.88 & P106
Description of Equipment
SilO2 Oxygen Analyser.
EU Declaration of Conformity

Standards and marking

Standards applied:	ATEX: EMC: EN 60079-0: 2012 + A11: 2013 Explosive atmospheres – Part 0: Equipment – General require ments. EN 60079-11:2012 Explosive atmospheres – Part 11: Equipme nt protection by intrinsicsafety “i”. EN61326-3-2:2008 Electromagnetic compatibility – immunity re quirements for safety related systems and for equipment intend ed to perform safety related functions in industrial applications with specified electromagnetic environment. EN 61000-6-3: 2007 + A1: 2011, Emissions Light Industrial EN61000-4-2:2009, Electrostatic Discharge EN61000-4-3: 2006 + A1: 2008 + A2: 2010, Immunity Heavy In dustrial EN61000-4-4:2012, Burst Immunity EN61000-4-5:2014, Surge Immunity EN61000-4-6:2014, Conducted Immunity
Equipment marking:	II (1)G (Ex ia Ga) IIC II (1)D (Ex ia Da) IIIC
Notified body:	DEKRA Exam GmbH. Dinnendahlstrasse 9 44809 Bochum Germany. BVS 13 ATEX E 010

The Authorised Signatory to this declaration, on behalf of the manufacturer, is identified below:
Name
David
Title/Position;
Managing Director
Address
Ntron Ltd, Mullaghboy Industrial Park, Navan, Co. Meath, Ireland.

Signature  **Date:** 25/02/2019

Rev. 1.5 25/02/2019

CETX003

Translation

(1) EC-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) No. of EC-Type Examination Certificate: **BVS 13 ATEX E 010**

(4) Equipment: **Oxygen Analyser type SilO2**

(5) Manufacturer: **Ntron Ltd.**

(6) Address: **Mullaghboy Industrial Park, Navan, County Meath, Ireland**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the test and assessment report BVS PP 13.2019 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2012 General requirements
EN 60079-11:2012 Intrinsic safety 'i'
EN 60079-26:2007 Equipment with equipment protection level (EPL) Ga

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

Ex II (1) G [Ex ia Ga] IIC

DEKRA EXAM GmbH
Bochum, dated 1st February 2013

Signed: Dr. Franz Eickhoff
Certification body

Signed: Ute Hauke
Special services unit

This certificate may only be reproduced in its entirety and without change.
DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Phone +49.234.3696-105 Fax +49.234.3696-110 zs-exam@dekra.com

(13) Appendix to

(14) **EC-Type Examination Certificate**
BVS 13 ATEX E 010

(15) 15.1 Subject and type

Oxygen Analyser type SilO2

15.2 Description

The Oxygen Analyser, which will be installed outside the hazardous area, is used for commutation of an intrinsically safe input signal into non intrinsically safe signals.

15.3 Parameters

4.1	Power supply circuit (terminals 3 and 4 resp. connection KT-B4 and KT-B5)				
	Nominal voltage		DC	19...30	V
			AC	18...28	V
	max. voltage	Um	AC/DC	250	V
4.2	Non intrinsically safe RS485 interface circuit (connection KT-B1 and KT-B2)				
	Nominal voltage		DC	6	V
	Nominal voltage			100	mA
	max. voltage	Um	AC/DC	48	V
4.3	Non intrinsically safe Relay contact circuit (terminals 1-2, 5-6 and 9-10)				
	Switching voltage		DC	30	V
	Switching current			1	A
	or				
	Switching voltage		AC	125	V
	Switching current			0.5	A
	max. voltage	Um	AC/DC	125	V
4.4	Non intrinsically safe digital output circuit (terminals 7 and 8)				
	Nominal voltage		DC	28	V
	Nominal voltage			50	mA
	max. voltage	Um	AC/DC	125	V
4.5	Non intrinsically safe analog output circuit (terminals 11 and 12)				
	Nominal voltage		DC	20	V
	Nominal voltage			50	mA
	max. voltage	Um	AC/DC	125	V
4.6	Intrinsically safe mV input circuit (terminals 14 und 16)				
	Voltage	Uo	DC	6	V
	Current	Io		0.2	mA
	Power	Po		0.3	mW
	External inductance	Lo		1000	mH
	External capacitance	Co		10	µF
	For the connection of an intrinsically safe circuit with the following max. value:				
	Voltage	Ui	DC	1	V
	For this circuit the following values apply:				
	Internal capacitance	Ci		0.2	µF
	Internal inductance	Li		negligible	
4.7	Ambient temperature range	Ta		- 20 °C up to + 60 °C	

This certificate may only be reproduced in its entirety and without change.
DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Phone +49.234.3696-105 Fax +49.234.3696-110 zs-exam@dekra.com

(16) Test and assessment report

BVS PP 13.2019 EG as of 1st February 2013

(17) Special conditions for safe use

None

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
44809 Bochum, 1st February 2013
BVS-Schu/Ma A 20130046

Certification body

Special services unit

This certificate may only be reproduced in its entirety and without change.
DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Phone +49.234.3696-105 Fax +49.234.3696-110 zs-exam@dekra.com

Translation

(1) 1st Supplement to the EC-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC
Supplement accordant with Annex III number 6

(3) No. of EC-Type Examination Certificate: **BVS 13 ATEX E 010**

(4) Equipment: **Sil-O2 Analyzer Type 01-758**

(5) Manufacturer: **Ntron Ltd.**

(6) Address: **Mullaghboy Industrial Park, Navan, Country Meath, Ireland**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this supplement.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the Test and Assessment Report BVS PP 13.2019 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2012 + A11:2013	**General requirements**
EN 60079-11:2012	**Intrinsic safety "i"**
EN 60079-26:2007	**Equipment with equipment protection level (EPL) Ga**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This supplement to the EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

II (1) G [Ex ia Ga] IIC
II (1) D [Ex ia Da] IIIC

DEKRA EXAM GmbH
Bochum, dated 2015-07-17

Signed: Simanski
Certification body

Signed: Dr. Eickhoff
Special services unit

This certificate may only be reproduced in its entirety and without any change.

DEKRA EXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany,
telephone +49 234 3696-105, Fax +49 234 3696-110, zs-exam@dekra.com

(13) Appendix to

(14) **1st Supplement to the EC-Type Examination Certificate**
BVS 13 ATEX E 010

(15) 15.1 Subject and type

Sil-O2 Analyzer Type 01-758

15.2 Description

The analyzer can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.
The intrinsically safe circuit of the analyzer can also be led into areas endangered by explosive dust atmospheres. This leads to a modified marking.

15.3 Parameters

Not changed

(16) Test and Assessment Report

BVS PP 13.2019 EG as of 2015-07-17

(17) Special conditions for safe use

None

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
44809 Bochum, 2015-07-17
BVS-Schu/Ma A 20150555

Certification body

Special services unit

Page 2 of 2 of BVS 13 ATEX E 010 / N1
This certificate may only be reproduced in its entirety and without any change.

DEKRA EXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany,
telephone +49.234.3696-105, Fax +49.234.3696-110, zs-exam@dekra.com

5.3 Sensor CE and ATEX Certificates

- CE Certificate SUII01, SUII02
- ATEX Certificate BAS02ATEX1230X-11

EU Declaration of Conformity

We declare, under our sole responsibility, that we believe the products identified in this declaration, and to which this declaration relates are in conformity with the requirements of the EU Council Directives as stated below; Directive 2014/34/EU equipment and protective systems intended for use in potentially explosive atmospheres.
Directive 2011/65/EU and of Council of 8th June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS2)(*)
*OJ L 174, 1.7.2011, p.88 & P106 Annex IV 1b exemption.

Description of Equipment:	OC-Type Oxygen Sensors For Use in Hazardous Areas.
Standards applied:	EN60079-0:2012 + A11:2013 EN60079-11:2012
Marking:	Ex II II 1 GD Ex ia IIC T6 Ga(-20°C≤Ta≤+55°C) Ex ia IIIC T90°C Da(-20°C≤Ta≤+55°C) Certificate No: BAS02ATEX1230X (Other markings: IECEx BAS 09.0148X)
Notified Body:	SGS Baseefa Rockhead Business Park Staden Lane, Buxton, Derbyshire, SK17 9RZ, UK. Notified Body Number: 1180

The Authorised Signatory to this declaration, on behalf of the manufacturer, is identified below:
Name: David : Managing Director
Address : Ntron Ltd Mullaghboy Industrial Estate Navan Co. Meath Ireland, C15 XD61

Signature:
Ph: 00353469071333
Fx: 00353469071331
email: **info@ntron.com**
Web: **www.ntron.com**
Date: 12/02/2019

SENSOR USE/INSTALLATION INSTRUCTIONS

To ensure security of personnel, goods and plant it is important that the national standards laid down for the installation of electrical equipment are followed, that instructions on the nameplate are achieved, and that the work is carried out by trained personnel. Furthermore, it is necessary to use the oxygen sensor in accordance with the advice and data given in this text.
Oxygen sensors for hazardous areas are especially designed to conform to national and international standards governing risks of explosion and certificates for each type are issued by an approved organisation or notified body. Be careful ! A certification number followed with “X” or a “U” requires specific conditions for use.

1. Care must be taken when installing equipment with plastic enclosures or plastic parts of enclosures to ensure that the equipment is protected from any situations that could cause a build up of static charge. The equipment must not be installed into locations in which it could come into contact with, through normal or abnormal circumstances, fast moving dust laden air/gas or non-conductive fluids. The equipment must be cleaned only with a damp cloth.
2. When installing equipment with Metal enclosures, earthing of the metal enclosure must be ensured to avoid the potential of electrostatic discharge.

STORAGE
The sensor should be stored in a cool dry place.
HANDLING WARNINGS
Do not expose open end of sensor housing to liquids, particulates, grease, or oil.
Do not touch top of sensor within open end of sensor housing.
Do not allow vacuum grease to coat open end of sensor.
Do not expose sensor to sudden mechanical shocks.

INSTALLATION & CALIBRATION
Remove the sensor connector plug from the old sensor.
Remove the old sensor by uscrewing counterclock wise or by removing from housing.
Remove and dispose of the old sealing O-Ring where fitted.
Fit the new sealing O-Ring if required.
Install the replacement sensor threading on clockwise or replacing in housing.
Fully hand tighten the sensor housing to ensure O-Ring compression.
Re-connect the sensor plug.
Calibrate the analyser to the new sensor.
Note: The system must not be put back on-line until the analyser has been calibrated to the new sensor.
ELECTRICAL CERTIFICATION
Sensor Type's OC-2, OC-7, OC-16, OC-17, OC-18, OC-19, OC-20, OC-21, OC-22, OC-23, OC-24, OC-28, OC-28M & OC-47 carry the following markings.
BAS02ATEX1230X
Ex ia IIC T6 Ga(-20°C≤Ta≤+55°C)
Ex ia IIIC T90°C Da(-20°C≤Ta≤+55°C)
IECEx BAS 09.0148X
Ui:30v, Ii:120mA, Pi: 0.55W, Ci:0, Li:0
Sensor types OC-19, OC-20, OC-25, OC-25M, OC-26, OC-26M carry the following markings.
BAS02ATEX1230X
Ex ia IIC T6 Ga(-20°C≤Ta≤+55°C)
Ex ia IIIC T90°C Da(-20°C≤Ta≤+55°C)
IECEx BAS 09.0148X
Ui:12v, Ii:120mA, Pi: 0.55W, Ci:1.2uf, Li:0
Application Note For All Sensor Types:
The Oxygen Sensors may only be used within a -20 to +55 Deg. C temperature range and will withstand a 500V isolation test between the input connection and frame of the apparatus.
Application Note for OC-25M, OC-26M and OC-28M Sensors.
See Sensor use/Installation Instructions note 2 above.

MAINTENANCE

At the end of the sensor's life, the output of the oxygen cell will fall to zero in less than a day. If the sensor will no longer re-calibrate, it should be replaced. II 1GD II 1GD

Certificate Number
BAS02ATEX1230X
Issue 11
Issued 3 September 2018

1. EU – TYPE EXAMINATION CERTIFICATE
2. Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
3. EU – Type Examination Certificate BASO2ATEX1230X — Issue 11 Number:

   3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Typc Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4. Product: A Series of Oxygen Sensors
5. Manufacturer: Ntron Limited
6. Address: Mullaghboy Industrial Estate, Navan, County Meath, Ireland
7. This re-issued certificate extends EC – Type Examination Certificate No. BASO2ATEX1230X to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to
8. The original certificate was issued by The Electrical Equipment Certification Service, Notified Body Number 0600, which retains responsibility for its original documentation. SGS Baseman, Notified Body Number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, is responsible only for the additional work relating to this re-issued certificate and any other supplementary certificate it has issued. The examination and test results are recorded in confidential Report No. See certificate history
9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with: EN 60079-0: 2012 + All: 2013 EN 60079-11: 2012
   except in respect of those requirements listed at item 18 of the Schedule.
10. If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.
11. This EU – TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
12. The marking of the product shall include the following : II 1GD Ex is IIC T6 Ga (-20°C < Ta < +55°C) Ex is IIIC T90°C Da (-20°C Ta <+55°C)
    SGS Baseefa Customer Reference No. 2144
    Project File No. 18/0344

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Fax +44 (0) 1298 766601 e-mail **baseefae@sgs.com** web site **www.sgs.co.uk/sgsbaseefa** Registered in England No. 4305578. Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN

BAS-CERT-037
n2 0 BREARLEY noncircadian R S SINCL IR Manager TECHNICAL MANAGER On behalf of SGS Baseefa Limited

SENSOR USE/INSTALLATION INSTRUCTIONS

PRELIMINARY ADVICE

To ensure security of personnel, goods and plant it is important that the national standards laid down for the installation of electrical equipment are followed, that instructions on the nameplate are achieved, and that the work is carried out by trained personnel. Furthermore, it is necessary to use the oxygen sensor in accordance with the advice and data given in this text.

Oxygen sensors for hazardous areas are especially designed to conform to national and international standards governing risks of explosion and certificates for each type are issued by an approved organisation or notified body. Be careful ! A certification number followed with “X” or a “U” requires specific conditions for use.

The Specific Condition of Use for the sensor types listed below is; Possible Electrostatic Risk-Do not charge by Rubbing and do not clean with Solvent

STORAGE

The sensor should be stored in a cool dry place.

HANDLING WARNINGS

Do not expose open end of sensor housing to liquids, particulates, grease, or oil.
Do not touch top of sensor within open end of sensor housing.
Do not allow vacuum grease to coat open end of sensor.
Do not expose sensor to sudden mechanical shocks.

INSTALLATION & CALIBRATION

Remove the sensor plug from the old sensor.
Remove the old sensor by unscrewing counter clock wise.
Install the replacement sensor threading on clockwise.
Fully tighten the sensor housing.
Re-connect the sensor plug.
Calibrate the analyser to the new sensor.
Note: The system must not be put back on-line until the analyser has been calibrated to the new sensor.

ELECTRICAL CERTIFICATION

Sensor Type’s OxyProbe 200 Sensor Probe carry the following markings.
OXYGEN SENSOR
BAS02ATEX1230X
Ex ia IIC T6 Ga(-20°C≤Ta≤+55°C)
Ex ia IIIC T90°C Da(-20°C≤Ta≤+55°C)
IECEx BAS 09.0148X
Ui:12v, Ii:120mA, Pi: 0.55W, Ci:1.2uf, Li:0Application Note For All Sensor Types:
The Oxygen Sensors must only be used within the temperature range quoted in the certification details, and will withstand a 500V isolation test between the input connection and frame of the apparatus.

MAINTENANCE

If the sensor will no longer re-calibrate, it should be replaced. It is recommended that sensors be replaced after 36 months.
II 1GD

EU Declaration of Conformity

We declare, under our sole responsibility, that we believe the products identified in this declaration, and to which this declaration relates are in conformity with the requirements of the EU Council Directives as stated below; Directive 2014/34/EU equipment and protective systems intended for use in potentially explosive atmospheres. Directive 2011/65/EU and of Council of 8th June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS2)(*)
*OJ L 174, 1.7.2011, p.88 & P106 Annex IV 1b exemption.

Description of Equipment:	OxyProbe200 – Oxygen Sensors For Use in Hazardous Areas. OxyProbe200 –
Standards applied:	EN60079-0:2012 + A11:2013 EN60079-11:2012
Marking:	Ex II II 1 GD Ex ia IIC T6 Ga(-20°C≤Ta≤+55°C) Ex ia IIIC T90°C Da(-20°C≤Ta≤+55°C) IECEx BAS 09.0148X Certificate No: BAS02ATEX1230X
Notified Body:	SGS Baseefa Rockhead Business Park Staden Lane, Buxton, Derbyshire, SK17 9RZ, UK. Number: 1180

The Authorised Signatory to this declaration, on behalf of the manufacturer, is identified below:
Name: David Address: Ntron Limited
Mullaghboy Industrial Estate
Navan
Co. Meath
Ireland, C15 XD61

Signature: 

15 Description of Product
The Series of Oxygen Sensors is designed to provide an electrical signal in proportion to the percentage oxygen present in the measured atmosphere. Alternative sensor types are as follows:

Model OC-2/202/224	Standard Oxygen Sensor
Model OC- 7 /207	In-situ Oxygen Probe
Model OC-16/216	Oxygen Sensor
Model OC-17/18/19/20	Oxygen Sensor
Model OC-21/22/23/24/221	ingle or Dual Sensor
Model Oxyprobe 200	Oxygen Probe
Model OC-25	Oxygen Sensor
Model OC-47	Oxygen Sensor
Model OC-26	Oxygen Sensor
Model OC-26M	Oxygen Sensor (Metal Enclosure)
Model OC-28	Oxygen Sensor
Model OC-28M	Oxygen Sensor (Metal Enclosure)
Model OC-25M	Oxygen Sensor (Metal Enclosure)

Each Oxygen Sensor circuit consists of an electrochemical cell together with a resistor encapsulated within a

plastic or metal enclosure. For the Dual Sensor versions two circuits are incorporated in one enclosure. An aperture at the bottom of the enclosure allows for gas transfer. External connections are made via an integral plug and socket.
This apparatus is not designed for use in oxygen enriched atmospheres greater than 21 % oxygen.
Input Parameters (Models OC-2, OC-7, OC-16 to OC-18, OC-21 to OC-24, OC-28, OC-28M, OC-47, OC-202, OC-207, OC-216, OC-221 and OC-224):
Ui = 30V, Ii= 120mA, Pi= 0.55W, Ci= 0, Li= 0
Input Parameters (Oxyprobe 200, Models OC-19, OC-20, OC-25, OC-25M, OC-26 and OC-26M): Ui = 12V, Ii= 120mA, Pi= 0.55W, Ci= 1.2µF, Li= 0 16 Report Number GB/BAS/ExTRl 8.0198
17 Specific Conditions of Use

1. Care must be taken when installing equipment with plastic enclosures or plastic parts of enclosures to ensure that the equipment is protected from any situations that could cause a build-up of static charge. The equipment must not be installed into locations in which it could come into contact with, through normal or abnormal circumstances, fast moving dust laden air/gas or non-conductive fluids. The equipment must be cleaned only with a damp cloth.
2. The metal enclosure of the OC-25M, OC-26M and OC-28M Oxygen sensors are a potential source of electrostatic discharge. The OC-25M, OC-26M and OC-28M Oxygen sensors must be installed in its end-use application in a manner where the metal enclosure is earthed.

18 Essential Health and Safety Requirements
In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:
Clause Subject
1 .2. 7 L VD type requirements
1.2.8 Overloading of equipment (protection relays, etc.)
1.4.1 External effects
1.4.2 Aggressive substances, etc.
19 Drawings and Documents
New drawings submitted for this issue of certificate:
Number Sheet Issue Date Description E165 1 of I 4 03-07-2018
Sensor Certification Drawing Model OC-17 & 18 I OC-19 & 20
El95 1 of 1 5 15-08-2018
Sensor Certification Drawing Model OC-21, OC-221, OC-22, OC-23, OC-24, OC-25 & OC-47 E523 1 of 1 0 09-08-2018
Model OC-26 and OC-28 Sensors Certification Drawing
Current drawings which remain unaffected by this issue:
Number Sheet Issue Date Description
El48 1 of 1 G 23/10/2014 Standard Oxygen Sensor Model OC-2, OC-202 & OC- 224
El20 1 of 1 5 30/10/14 Model OC-16/0C-216 Oxygen Sensor Certificate Drawing
E292 1 of 1 4 30/10/2014 Oxyprobe 200 Oxygen Sensor El49 1 of 1 G 30/10/2014 In-Situ Oxygen Probe with
Model OC-7, OC-207 Oxygen Sensor Certification Drawing
Certificate History

Certificate No.	Date	Comments
BASO2ATEX1230	3 September 2002	The release of the prime certificate. The associated test and assessment against the requirements of EN50014:1997 + A mendments 1 & 2, EN50020:1994 and EN50284 is document ed in Test Report No. 02(C)0079.
BASO2ATEX1230/1	26 November 200 3	To permit the inclusion further sensor types, a change of the f irst part of the marking to 0 **II** 1GD and a change to input par ameters for certain types, documented in Test Report No. 03(C)0659.
BASO2ATEX1230/2	3 March 2005	To permit minor changes to the labelling and the inclusion of f urther sensor types, documented in Test Report No. 05(C)01 11.

Certificate No.	Date	Comments
BAS02ATEX1230X Issu e 3	14 May 2010	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the c urrent design meets the requirements of 81460079-0:2004, E1460 079- I 1:2007, EN6 I 241-0:2006 & 81461241-11:2006, and includ es revision of the equipment marking in accordance with EN60079 -0:2009. At the same time Pi for the unit has been reduced from 1 W to 0.75W. Also, in order to comply with the later standards, suffi x 'X' has been added to the Certificate number. These changes ar e documented in Test Reports GB/BAS/ExTR09.0232/00 & GB/BAS/ExTR09.0233/00.
BASO2ATEX1230X Issu e 4	29 July 2010	This issue introduces a new sensor model known as OxyExtract. T his model is documented in Test Report GB/BAS/ExTRI0.0156/00 and has been added to the list in the main schedule.
BASO2ATEX1230X Issu e 5	I October 2010	To permit minor changes to encapsulation in the OxyExtract model and to confirm that all sensors comply with EN60079-0:2009. Cha nges are documented in Test Report GB/BAS/ExTR10.0222/00
BASO2ATEX1230X Issu e 6	23 November 2 010	To permit the name OxyExtract to be changed to *Oxyprobe 200.* N o Test Report required for this change.
BASO2ATEX1230X Issu e 7	15 July 2011	To permit changes to drawing E148, including the removal of som e internal oxygen cell types and the addition of Sensor type OC-22 4. At the same time the Certificate title and the description in the S chedule have been modified to reflect the way in which type numb ers appear on the certification labels. Changes are documented in Test Report GB/BAS/ExTR11.0171/00
BASO2ATEX1230X Issu e 8	18 March 2013	To permit various changes to the Oxyprobe 200 including; Alternat ive electrochemical cell, minor changes to the enclosure, the inclu sion of additional optional components and to confirm the new inp ut parameters. To permit additional equipment, 0C-25 to be incorp orated in to this certificate To add an additional of condition of safe use stating that "Models OC-2, OC-17, 0C-18, OC-19 and OC-20 must be housed inside an IP-54 rated enclosure." Changes are do cumented in Test Report GB/BAS/ExTR13.0051/00

BASO2ATEX1230X Issue 9	6 January 2015	To permit modification of the input parameters and extension of the rated ambient to -20°C to +55°C. To allow the inclusion of an alternative oxygen sensor forming new models 0C-202, OC-207, OC-216 and 0C-221 To confirm that the Series of Oxygen sensors has been assessed against IEC 60079-0:2011 and IEC 60079-11:2011 with respect to the differences from IEC 60079-0:2004, IEC 60079-0:2007, IEC 60079-11:2006, IEC 61241-0:2004 and IEC 61241-11:2005 and that none of the differences affect the equipment. Changes are documented in Test Report GB/BAS/ExTR14.0565/00 Change of Company Name
Certificate No.	**Date**	**Comments**
BA SO2 ATEXI230X Issue 10	3 December 2015	To permit the inclusion of an alternative Oxygen Sensor forming new Model 0C-47. Changes are documented in Test Report GB/BAS/ExTR15.0350/00
BA SO2ATEX1230X Issue 11	3 September 2018	To permit the inclusion of an alternative Oxygen Sensor forming new Models 0C-25M, OC-26, 0C-26M, OC-28 and 0C-28M. Certificate also permits new constructions for sensors OC-19 and OC-20. Changes are documented in Test Report GB/BAS/ExTRI 8.0198/00. Project 18/0344.

For drawings applicable to each issue, see original of that issue.

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D-ZE-12069-03-00

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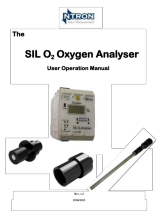
Documents / Resources

	NTRON SIL O2 Oxygen Analyser [pdf] Instruction Manual SIL O2 Oxygen Analyser, SIL O2, Oxygen Analyser, Analyser

References

- User Manual

Manuals+, **Privacy Policy**

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