

## Stratos® e 2402 Oxy



### Display

Simultaneous display of conductivity/concentration and temperature; large unit symbols. Icons supply operating messages and signal unusual operating states. Status indicators provide information on the current operating status. Eye-catching alarm signaling by red, flashing LED.

### Calibration

Reliable reminder due to integrated calibration timer. Calibration on saturation or concentration. Automatic sensor standardization with monitoring of slope and drift. Zero point calibration. Display of sensor slope and zero point each calibration. Evaluation of the electrode status with Sensoface®.

### Sensor monitoring Sensoscheck®

Continual monitoring of the sensor for short-circuit and broken cables. Recognition of defects, indication and alarm triggering.

### Interface

Together with the SE 706 and SE 707 sensors, this device is particularly suited to the requirements of the chemical industry, water/waste-water technology as well as biotechnology.

The AC/DC VariPower® power supply unit 20 to 253 V is suitable for almost all power systems across the world. Measured value output via galvanically isolated current outputs 0(4) to 20 mA with alarm 22 mA. Convenient control of the peripherals through alarm and limit contacts.

### The facts

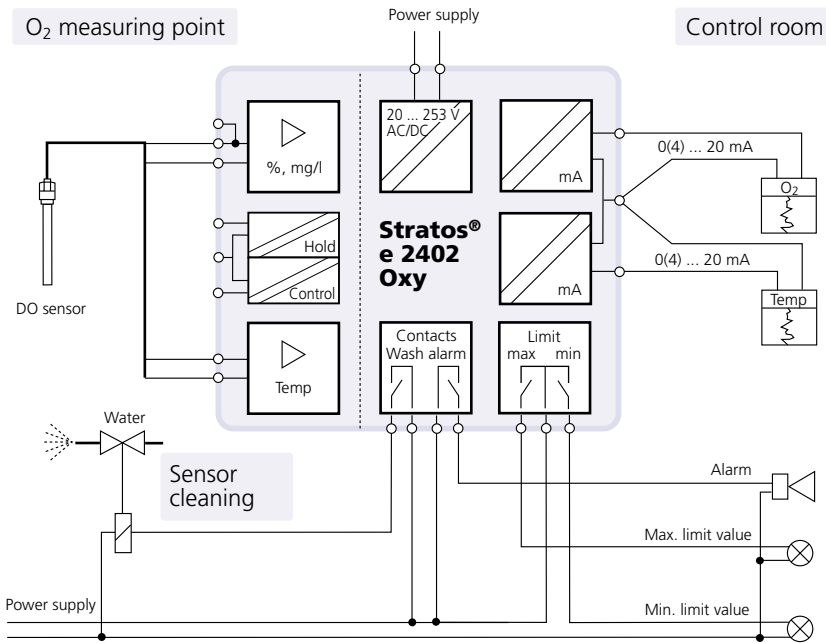
- **Second current output for temperature measurement**
- **PID process controller via relay contacts**  
(pulse frequency/pulse length)
- **VariPower® power supply**  
20 ... 253 V AC/DC
- **Two preset parameter sets for different applications**
- **Hold input, galvanically isolated**
- **Hazardous area applications zone 2**  
(FM, CSA CI 1, Div 2)
- **Four floating relay contacts**
- **Sensoscheck® sensor monitoring**
- **Timer-controlled cleaning function**
- **Robust, tightly sealed PBT enclosure**
- **For wall, pipe/post or panel mounting**
- **Easy installation with pre-assembled enclosures**
- **Large, clear display**
- **°C/°F temperature scale**
- **Easy, intuitive operation**
- **Lightning protection**
- **Optical alarm message with red LED**
- **Comprehensive service functions for monitoring the measuring equipment**

Warranty  
**3 years!**

#### Warranty

*Defects occurring within 3 years from delivery date shall be remedied free of charge at our works (carriage and insurance paid by sender).*

## Connection



## Product line

<b>Stratos® e 2402 Oxy</b>	Analyzer for measurement of dissolved oxygen	Order No. <b>2402 Oxy</b>
<b>Mounting accessories</b>	See Accessories chapter (page 121)	

## Terminal assignment

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
24 to 230 V ac/dc	wash	alarm	rel.2	rel.1	+	-	+	+	contr.	-	+	hold	+	anode	ref. el.	guard	cathode	do not connect	
power													RTD		RTD		shield		
contacts													E		D		C		
output																			
input																			

MAX. RELAY CONTACT RATING: AC < 253 V / < 3 A / < 750 VA  
DC < 30 V / < 3 A / < 90 W, RESISTIVE

NI, CLI, DIV2, GPA, B, C, D, T4  
 NI, CLI, ZN2, GPIIC, T4  
 ENCLASURE TYPE 2 Tamh -20 to +55 °C Control Dwg. 194,030-210  
 WARNING -EXPLOSION HAZARD- DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.  
 WARNING -BONDING BETWEEN CONDUIT IS NOT AUTOMATIC AND MUST BE PROVIDED AS PART OF THE INSTALLATION. SEE INSTALLATION INSTRUCTIONS.  
 AVERTISSEMENT -RISQUE D'EXPLOSION- AVANT DE DECONNECTER L'EQUIPEMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DESIGNÉ NON DANGEREUX.

Made in Germany  
00000/000000 F-2402OXY

## Specifications

<b>DO input</b>	Sensor type A: SE 706 Sensor type B: SE 707
Measuring current	0 ... 1800 nA
Resolution	0.0 ... 199.9 % / 200 ... 500 %
Saturation (−10 ... 80 °C)	0 ... 500 %
Measuring error <sup>1,2,3)</sup>	0.5 % meas. val. + 0.5 %
Concentration (−10 ... 80 °C)	0.00 ... 50.00 mg/l 0.00 ... 50.00 ppm
Measuring error <sup>1,2,3)</sup>	0.5% meas. val. + 0.05 mg/l or 0.05 ppm
Adm. guard current	≤ 20 µA
Polarization voltage*)	0 ... 1000 mV
Process pressure*)	0.000 ... 9.999 bars (... 999.9 kPa / ... 145.0 psi)
Salt correction*)	00.00 ... 45.00 g/kg
<b>Sensor standardization</b>	
Operating modes	O <sub>2</sub> saturation (automatic)      O <sub>2</sub> concentration (automatic) Product calibration              Zero point calibration
Calibration range	Zero point    ±2 nA
Sensor Type A	Slope          25 ... 130 nA (at 25 °C, 1013 mbar)
Calibration range	Zero point    ±2 nA
Sensor Type B	Slope          200 ... 550 nA (at 25 °C, 1013 mbar)
Calibration timer *)	0000 to 9999 h
Pressure correction*) manual	0.000 ... 9.999 bar / 999.9 kPa / 145.0 psi
<b>Sensocheck®</b>	Monitoring for short circuits / open circuit (can be disabled)
<b>Sensoface®</b>	Provides information on the condition of the sensor, evaluation of zero point/slope, response time, calibration interval, Sensocheck®
<b>Temperature input*)</b>	NTC 22 kOhm / NTC 30 kOhm*), 2-wire connection, adjustable
Measurement range	−20.0 to +150.0 °C / −4 to +302 °F
Adjustment range	10 K
Resolution	0.1 °C / 1 °F
Measurement error <sup>1,2,3)</sup>	<0.5 K (<1 K at >100 °C)

\*) User-defined  
2) ± 1 count

1) According to IEC 746 part 1, at nominal operating conditions  
3) Plus sensor error

## Specifications, continued

<b>HOLD input</b>	Galv. isolated (OPTO coupler)
Function	Switches device to HOLD mode
Switching voltage	Inactive: 0 ... 2 V (AC/DC) HOLD active: 10 ... 30 V (AC/DC)
<b>CONTROL input</b>	Galv. isolated (OPTO coupler)
Function	Control input for automatic cleaning system
Switching voltage	Inactive: 0 ... 2 V (AC/DC) Active: 10 ... 30 V (AC/DC)
<b>Output 1</b>	0/4 to 20 mA, max. 10 V, floating (galvanically connected to output 2)
Measured variable*)	O <sub>2</sub> saturation / O <sub>2</sub> concentration
Overrange*)	22 mA with error messages
Output filter*)	Low-pass, filter time constant: 0 ... 120 s
Measurement error <sup>1)</sup>	<0.3 % of current value +0.05 mA
Start/end of scale*)	Configurable within the selected measurement range
Permissible span	5 ... 500 % / 0.5 ... 50 mg/l (ppm)
<b>Output 2</b>	0/4 ... 20 mA, max. 10 V, floating (galvanically connected to output 1)
Measured variable	Temperature
Overrange*)	22 mA with temperature error messages
Output filter*)	Low-pass, filter time constant: 0 ... 120 s
Measurement error <sup>1)</sup>	<0.3% of current value +0.05 mA
Start/end of scale*)	-20 ... 150 °C / -4 to 302 °F
Permissible span	20 ... 220 K (36 ... 396 °F)
<b>Alarm contact</b>	Relay contact, floating
Contact ratings	AC < 250 V / < 3 A / < 750 VA    DC < 30 V / < 3 A / < 90 W
Contact response	N/C (fail-safe type)
Response delay*)	0000 ... 0600 s
<b>Limit values</b>	Output via relay contacts R1, R2 Contacts R1, R2 floating, but inter-connected
Contact ratings	AC < 250 V / < 3 A / < 750 VA    DC < 30 V / < 3 A / < 90 W
Contact response*)	N/C or N/O

\*) User-defined

1) According to IEC 746 part 1, at nominal operating conditions

## Specifications, continued

<b>Limit values</b>	
Response delay*)	0000 ... 9999 s
Switching points*)	Within the measurement range
Hysteresis*)	000.0 ... 050.0 % / 00.00 ... 05.00 mg/l (ppm)
<b>PID process controller</b>	Output via relay contacts R1, R2 (Relay R1 below setpoint, relay R2 above setpoint)
Setpoint specification*)	0 ... 500% / 0.00 ... 50.00 mg/l (ppm)
Neutral zone*)	000.0 ... 050.0 % / 00.00 ... 05.00 mg/l (ppm)
P-action*)	Controller gain $K_p$ : 0010 ... 9999 %
I-action*)	Reset time $T_r$ : 0000 ... 9999 s (0000 s = no integral action)
D-action*)	Rate time $T_d$ : 0000 ... 9999 s (0000 s = no derivative action)
Controller type*)	Pulse length controller or pulse frequency controller
Pulse period*)	0001 ... 0600 s, min. ON time 0.5 s (pulse length controller)
Max. pulse frequency*)	0001 ... 0180 min <sup>-1</sup> (pulse frequency controller)
<b>Cleaning function*)</b>	Relay contact, floating, for controlling a simple rinsing system or an automatic cleaning system
Contact ratings	AC < 250 V / < 3 A / < 750 VA    DC < 30 V / < 3 A / < 90 W
Contact response*)	N/C or N/O
Interval*)	000.0 ... 999.9 h (000.0 h = cleaning function switched off)
Cleaning time*)	0000 ... 1999 s
<b>Display</b>	LC display, 7 segment with symbols
Main display	Character height 17 mm, unit symbols 10 mm
Secondary display	Character height 10 mm, unit symbols 7 mm
Sensoface®	3 status indicators (friendly, neutral, sad Smiley)
Mode indication	5 mode indicators 'meas', 'cal', 'alarm', 'cleaning', 'config' 18 further icons for configuration and messages
Alarm indication	Red LED with alarm or HOLD, user-defined
<b>Keypad</b>	5 keys: [cal] [conf] [▶] [▲] [enter]
<b>Service functions</b>	
Current source	Current specifiable for output 1 and 2 (00.00 ... 22.00 mA)
Manual controller	Controller output entered directly (start of control process)

\*) User-defined

1) According to IEC 746 part 1, at nominal operating conditions

