

# Process Analysis Systems

Chem

Energy

Pharm

Food

Water

## Stratos® Eco 2405 Oxy

### Dissolved-Oxygen Measurement

Simultaneous display of measured value and temperature; unit symbols shown in plain text. Icons supply operating messages

and signal unusual operating states. Mode indicators show the current operating mode.



### Suitable sensors

- customary amperometric sensors with (e.g. -675 mV) or without polarization voltage
- temperature sensors NTC 22 kohms, NTC 30 kohms

### Recommended Installation Sets

#### • Flow

SE 703 ARF 201  
ZU 0323



#### • Inline

SE 703 ARF 101



#### • Immersion

SE 703 ARD 230





**Product Line**

Order No.

**Stratos® Eco 2405 Oxy** process analyzer for measuring dissolved oxygen

**2405 Oxy**

**Mounting Accessories** (see page 566)

Order No.

Pipe-mount kit

**ZU 0274**

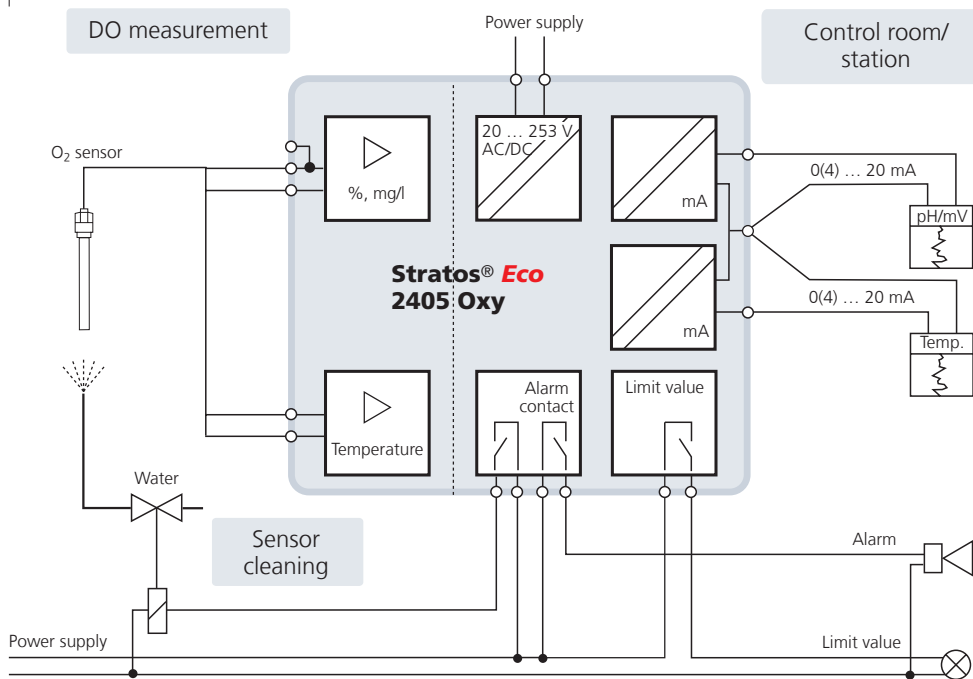
Panel-mount kit

**ZU 0275**

Protective hood

**ZU 0276**

**Connection**



**Terminal Assignments**

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	clean	alarm	do not connect	rel. 1	+	out 2	-	out 1	+	do not connect	RTD anode	RTD ref. el.	shield guard	cathode	do not connect	made in Germany													
power										contacts										do not connect									

MAX. RELAY CONTACT RATING: AC < 250 V / < 3 A / < 750 VA, DC < 30 V / < 3 A / < 90 W, RESISTIVE

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.  
 WARNING -SUBSTITUTION OF COMPONENTS MAY IMPAIR SAFETY.  
 WARNING -CLEAN ONLY WITH ANTISTATIC MOISTENED CLOTH.  
 CAUTION -USE SUPPLY WIRES SUITABLE FOR 30°C ABOVE SURROUNDING AMBIENT AND RATED AT LEAST 250 V. USE SIGNAL WIRES SUITABLE FOR AT LEAST 250 V.  
 AVERTISSEMENT -RISQUE D'EXPLOSION- AVANT DE DECONNECTER L'EQUIPEMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DESIGNÉ NON DANGEREUX.

NI, CLI, DIV2, GPA, B, C, D, T4  
 NI, CLI, ZN2, GPIIC, T4  
 CLI DIV2 GPA, B, C, D, T4  
 Ex nA IIC T4 CSA 1342049  
 Control Dwg. 194.130-330  
 ENCLOSURE TYPE 2  
 Tamb - 20 to + 55 °C

75433/000000 F-2405OXY

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### Specifications

#### O<sub>2</sub> input

Measuring current	-2 ... +1800 nA
Resolution (at $V_{pol} \leq 800$ mV and $V_{ref} \leq 200$ mV)	0.05 nA
Saturation (-10 ... +80 °C)	0 ... 200%
Measurement error <sup>1,2,3)</sup>	0.5 % meas.val. + 0.5 %
Concentration (-10 ... +80 °C)	0.00 ... 20.00 mg/l 0.00 ... 20.00 ppm
Measurement error <sup>1,2,3)</sup>	0.5 % meas.val. + 0.05 mg/l (0.05 ppm)
Permissible guard current	≤ 20 µA
Polarization voltage*)	0 ... 1000 mV      -1000 ... 0 mV
Process pressure*)	0.000 ... 9.999 bars (... 999.9 kPa/ ... 145.0 PSI)
Salinity correction*)	00.00 ... 45.00 g/kg

#### Sensor standardization

Operating modes	O <sub>2</sub> saturation (automatic)      O <sub>2</sub> concentration (automatic) product calibration, zero calibration
Calibration range	zero      ±2 nA  slope      25 ... 130 nA (at 25 °C, 1013 mbars)
Calibration timer*)	0000 ... 9.999 h
Pressure correction*)	0.000 ... 9.999 bars/999.9 kPa/ 145.0 PSI

#### Sensocheck®

monitoring for short circuits/open circuits (can be disabled)

#### Sensoface®

provides information on the sensor condition (evaluation of zero/slope, response time, calibration interval, Sensocheck®)

#### Temperature input\*)

NTC 22 kohms/NTC 30 kohms, 2-wire connection, adjustable

Measuring range	-20.0 ... +150.0 °C/-4 ... +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)

**Specifications – continued**

**Output 1**

	0/4 ... 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 in the case of error messages
Output filter*)	low-pass, filter time constant 0 ... 120 s
Measurement error <sup>1)</sup>	< 0.3 % current value + 0.05 mA
Start/end of scale	as desired within range
Span allowed	5 ... 200 %/0.5 ... 50 mg/l (ppm)

**Output 2**

	0/4 ... 20 mA, max. 10 V, floating (galvanically connected to output 1)
Measured variable	temperature
Overrange*)	22 mA in case of temp error messages
Output filter*)	low-pass, filter time constant 0 ... 120 s
Measurement error <sup>1)</sup>	< 0.3 % current value + 0.05 mA
Start/end of scale	-20 ... +150 °C / -4 ... +302 °F
Span allowed	20 ... 170 K/36 ... 306 °F

**Alarm contact**

	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	10 s	

**Limit contact**

	relay contact, floating	
	AC < 250 V / < 3 A / < 750 VA	DC < 30 V / < 3 A / < 90 W
Contact response*)	N/C or N/O	
Delay*)	0000 ... 9999 s	
Setpoints*)	within selected range	
Hysteresis*)	0.00 ... 5.00 pH / 0 ... 500 mV	

**Cleaning contact**

	"clean" relay contact	
	AC < 250 V / < 3 A / < 750 VA	DC < 30 V / < 3 A / < 90 W
Contact response*)	N/C or N/O	
Rinsing interval*)	000.0 ... 999.9 h (000.0 h = cleaning function switched off)	
Rinse duration*)	0000 ... 1999 s	

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### Specifications – continued

#### Display

Main display

Secondary display

Sensoface®

#### Mode indication

Alarm indication

#### Keypad

#### Service functions

Current source

Device self-test

Display test

Last error

Sensor monitor

#### Data retention

#### Protection against electric shock

#### Power supply

#### Nominal operating conditions

Ambient temperature

Transport/Storage temp

Relative humidity

#### EMC

#### Explosion protection

LC display, 7-segment with icons

character height 17 mm, unit symbols 10 mm

character height 10 mm, unit symbols 7 mm

3 status indicators (friendly, neutral, sad face)

4 mode indicators "meas", "cal", "alarm", "config"  
further icons for configuration and messages

red LED in case of alarm

5 keys: [cal] [conf] [▶] [▲] [enter]

current specifiable for output 1 and 2 (00.00 ... 22.00 mA)

automatic memory test (RAM, FLASH, EEPROM)

display of all segments

display of last error occurred

display of direct, uncorrected sensor signal (electrode)

parameters and calibration data > 10 years (EEPROM)

protective separation of all low-voltage circuits against mains by double insulation to EN 61010-1

24 (-15 %) ... 230 (+10 %) V AC/DC  
approx. 5 VA/2.5 W AC: 45 ... 65 Hz  
overvoltage category II, Class II

-20 ... +55 °C

-20 ... +70 °C

10 ... 95 %, not condensing

EN 61326-1, EN 61326-2-3

emitted interference: Class B (residential area) Class A: for mains > 60 V DC

immunity to interference: Industry

FM NI, Class I Div 2, Groups A, B, C & D T4, T<sub>a</sub> = 55 °C; Type 2

NI, Class I Zone 2, Group IIC T4, T<sub>a</sub> = 55 °C; Type 2

CSA Class I Div 2, Groups A, B, C and D, T4 Ex nA IIC T4

For up-to-date information, please visit [www.knick.de](http://www.knick.de)

Isolation Amplifiers  
Transmitters

Indicators

Process Analytics

Portable Meters

Laboratory Meters

Sensors

Fittings

**Knick** 

### Specifications – continued

#### Enclosure

molded enclosure made from PBT (polybutylene terephthalate)

#### Color

bluish gray, RAL 7031

#### Assembly

– wall mounting  
– pipe mounting ZU 0274, Ø 40 ... 60 mm, □ 30 ... 45 mm  
– panel mounting ZU 0275  
cutout to DIN 43 700, sealed against panel

#### Dimensions (mm)

H x W x D: 144 x 144 x 105

#### Ingress protection

IP 65/NEMA 4X

#### Cable glands

3 knockouts for cable glands M20 x 1.5  
2 knockouts for 1/2" NPT or rigid metallic conduit

#### Weight

approx. 1 kg

\*1) user-defined

<sup>1)</sup> to IEC 746 Part 1, at nominal operating conditions

<sup>2)</sup> ±1 count

<sup>3)</sup> plus sensor error