

Stratos® Eco 2405 pH

pH Measurement

Simultaneous display of pH value/ORP and temperature; unit symbol as plain text.

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



Suitable sensors

- all customary pH sensors with nominal zero point at pH 7
- combination electrodes or separate glass and reference electrodes
- a broad selection of temperature sensors (Pt 100, Pt 1000, NTC 30 kohms, NTC 8.55 kohms, or Balco 3 kohms)
- common metallic ORP electrodes (gold, platinum)

Recommended Installation Sets

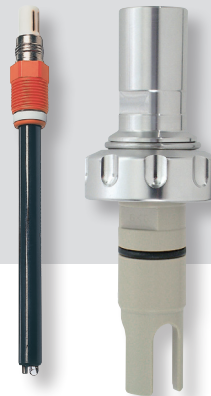
• Flow

SE 531 ARF 201
ZU 0323



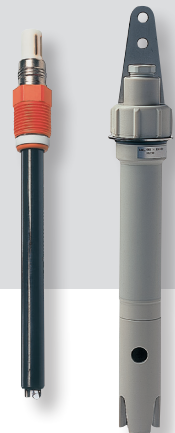
• Inline

SE 531 ARI 106



• Immersion

SE 531 ARD 230



Product Line

Order No.

Stratos® Eco 2405 pH process analyzer for measuring pH values

2405 pH

Mounting Accessories (see page 542)

Order No.

Pipe-mount kit

ZU 0274

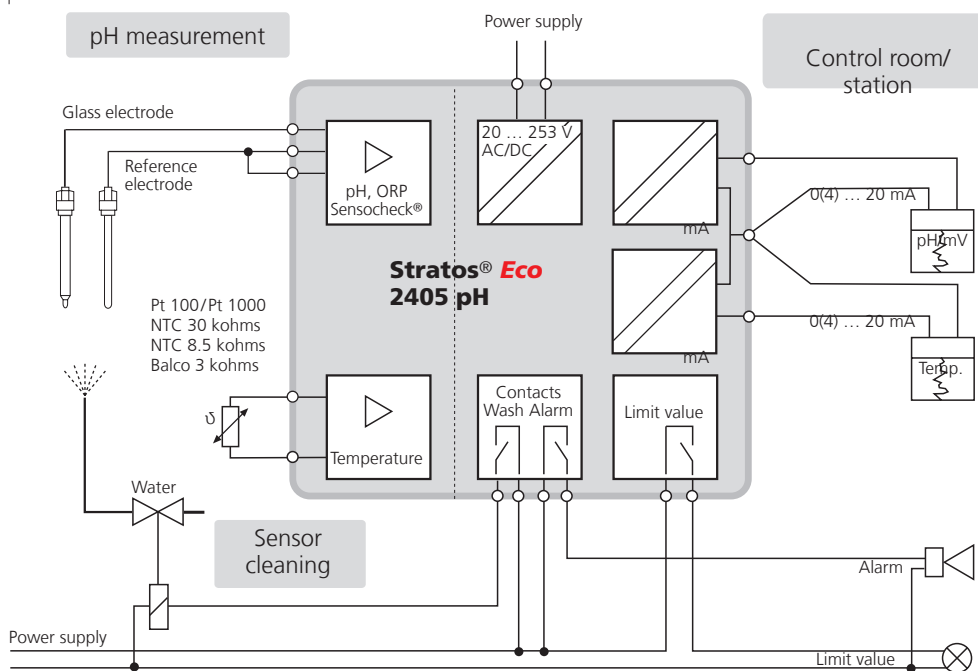
Panel-mount kit

ZU 0275

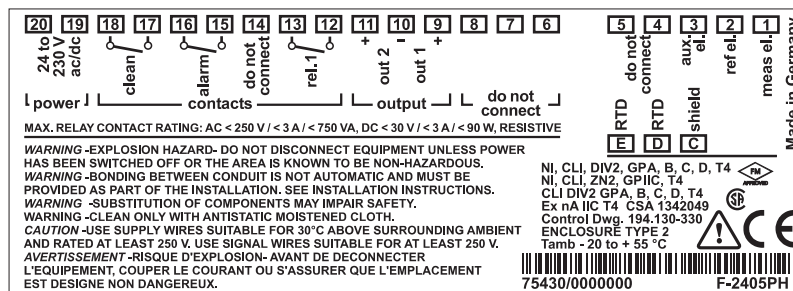
Protective hood

ZU 0276

Connection



Terminal Assignments



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Specifications

pH/mV input	input for pH or ORP sensors	
Measuring range	-1500 ... 1500 mV	
Display range	pH value: -2.00 ... 16.00 ORP: -1999 ... 1999 mV	
Glass electrode input ¹⁾	input resistance	> 0.5 x 10 ¹² ohms
	input current	< 2 x 10 ⁻¹² A
Reference electrode input ¹⁾	input resistance	> 1 x 10 ¹⁰ ohms
	input current	< 1 x 10 ⁻¹⁰ A
Measurement error ^{1,2,3)}	pH value: < 0.02	TC: 0.002 pH/K (display)
	mV value: < 1 mV	TC: 0.1 mV/K
pH sensor standardization*	pH calibration	
Operating modes	BUF calibration with Calimatic® automatic buffer recognition: Buffer sets: -00- Knick 2.00/4.01/7.00/9.21 -01- Mettler Toledo 2.00/4.01/7.00/9.21 -02- Merck/Riedel de Haen 2.00/4.00/7.00/9.00/12.00 -03- Ciba (94) 2.06/4.00/7.00/10.00 -04- NIST technical 1.68/4.00/7.00/10.01/12.46 -05- NIST standard 1.679/4.006/6.865/9.180 -06- HACH 4.00/7.00/10.18 -07- WTW technical buffers 2.00/4.01/7.00/10.00 MAN manual calibration with input of individual buffer values DAT data entry of pre-measured electrodes	
Max. calibration range	asymmetry potential: ±60 mV; slope: 80 ... 103 % (47.5 ... 61 mV/pH)	
ORP sensor standardization*	ORP calibration	
	max. calibration range	Δ: -700 ... 700 mV
Calibration timer	0000 ... 9999 h	
Sensocheck®	automatic monitoring of glass electrode (can be disabled)	
Sensoface®	provides information on the sensor condition, evaluation of zero/slope, response time, calibration interval, Sensocheck®	
Temperature input*	Pt 100 / Pt 1000 / NTC 30 kohms / NTC 8.55 kohms/Balco 3 kohms; 2-wire connection, adjustable	
Measuring range	Pt 100 / Pt 1000	-20.0 ... +200.0 °C (-4 ... +392 °F)
	NTC 30 kohms	-20.0 ... +150.0 °C (-4 ... +302 °F)
	NTC 8.55 kohms	-10.0 ... +130.0 °C (14 ... 266 °F)
Adjustment range	10 K	
Resolution	0.1 °C/1 °F	
Measurement error ^{1,2,3)}	< 0.5 K (< 1 K for Pt 100; < 1 K for NTC > 100 °C)	
Temperature compensation of process medium	linear -19.99 ... +19.9 %/K (reference temp. 25 °C)	

Specifications – continued

Output 1	0/4 ... 20 mA, max. 10 V, floating (galvanically connected to output 2)
Process variable*)	pH or mV value
Overrange*)	22 mA in the case of error messages
Output filter*)	low-pass, filter time constant: 0 ... 120 s
Measurement error ¹⁾	< 0.3 % current value + 0.05 mA
Start/end of scale*)	configurable within the measuring range for pH or mV
Span allowed	pH 2.00 ... 18.00/200 ... 3000 mV
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 ¹⁾	< 0.3 % current value + 0.05 mA
Start/end of scale*)	20 ... 200 °C/-4 ... +392 °F
Span allowed	20 ... 220 K (36 ... 396 °F)
Alarm contact	"alarm" relay contact, floating AC < 250 V/< 3 A/< 750 VA DC < 30 V/< 3 A/< 90 W
Contact response	N/C (fail-safe type)
Alarm delay	10 s
Limit contact	"R1" 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*)	as desired within 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

Process Analysis Systems

Stratos® Eco 2405 pH

Specifications – continued

Display	LC display, 7-segment with icons
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 face)
Mode indication	4 mode indicators "meas", "cal", "alarm", "config" further icons for configuration and messages
Alarm indication	red LED in case of alarm
Keypad	5 keys: [cal] [conf] [▶] [▲] [enter]
Service functions	
Current source	current specifiable for output 1 and 2 (00.00 ... 22.00 mA)
Device self-test	automatic memory test (RAM, FLASH, EEPROM)
Display test	display of all segments
Last error	display of last error occurred
Sensor monitor	display of direct, uncorrected sensor signal
Data retention	parameters and calibration data > 10 years (EEPROM)
Protection against electric shock	protective separation of all low-voltage circuits against mains by double insulation to EN 61010-1
Power supply	24 (-15 %) ... 230 (+10 %) V AC/DC approx. 5 VA/2.5 W AC: 45 ... 65 Hz overvoltage category II, Class II
Nominal operating conditions	
Ambient temperature	-20 ... +55 °C
Transport/Storage temp	-20 ... +70 °C
Relative humidity	10 ... 95 %, not condensing
EMC	EN 61326-1, EN 61326-2-3 emitted interference: Class B (residential area) Class A: for mains > 60 V DC immunity to interference: Industry
Explosion protection	FM NI, Class I Div 2, Groups A, B, C & D T4, T _a = 55 °C; Type 2 NI, Class I Zone 2, Group IIC T4, T _a = 55 °C; Type 2 CSA Class I Div 2, Groups A, B, C and D, T4 Ex nA IIC T4

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

¹) to IEC 746 Part 1, at nominal operating conditions

²) ±1 count

³) plus sensor error