

Stratos **Eco** 2405 Cond

Conductivity Measurement

Simultaneous display of conductivity/
resistance/salinity and temperature;
large unit symbols.

Icons provide operating notes and
signal unusual operating states; status
displays provide information on the
current operating mode.



Connectible Sensors

- All known types of 2-electrode sensors
- All known types of 4-electrode sensors
- Freely selectable cell constants 0.005 to 20 cm⁻¹
- Selectable temperature detectors Pt100, Pt1000, NTC 30 kΩ, NTC 8.55 kΩ

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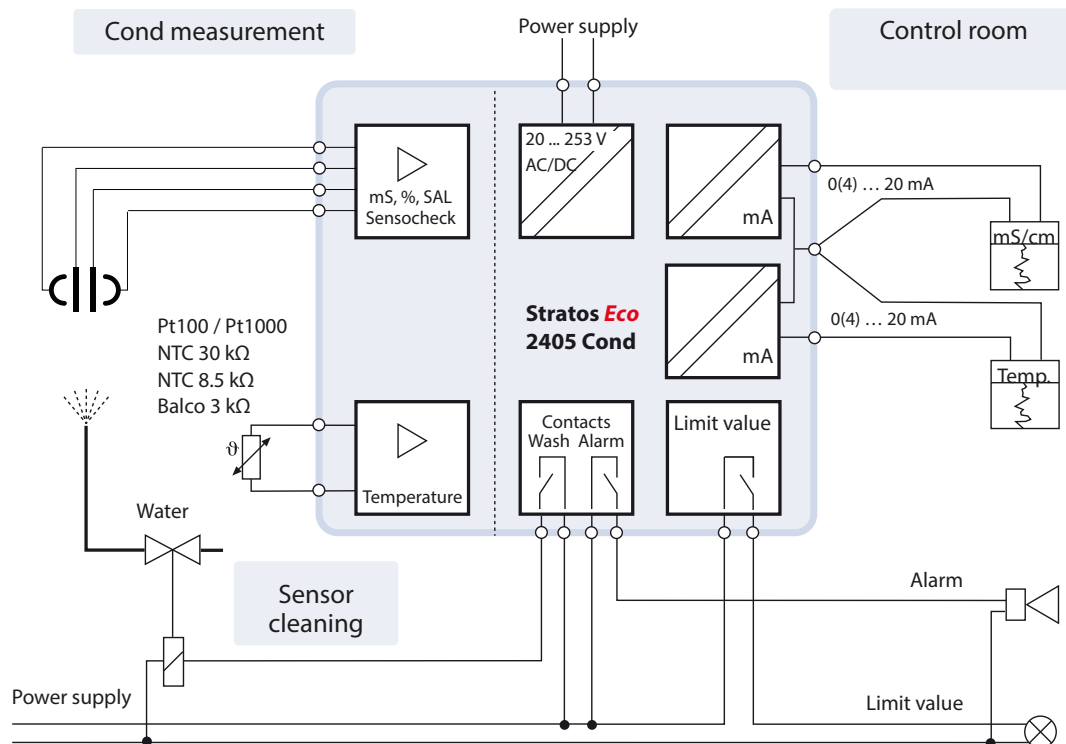
Product Range

		Order No.
Stratos Eco 2405 Cond	Process device for measuring conductivity with 2- and 4-electrode sensors	2405 Cond

Mounting Accessories

	Order No.
Pipe/post mount kit	ZU 0274
Panel mount kit	ZU 0275
Protective hood	ZU 0276

Wiring



Specifications

Conductivity input

Measuring ranges*)

Input for 2- or 4-electrode sensors

Measuring range 0.2 $\mu\text{S} \cdot \text{cm}$... 1000 $\text{mS} \cdot \text{cm}$

Conductivity

0.000 ... 9.999 $\mu\text{S}/\text{cm}$
 0.00 ... 99.99 $\mu\text{S}/\text{cm}$
 0.0 ... 999.9 $\mu\text{S}/\text{cm}$
 0 ... 9999 $\mu\text{S}/\text{cm}$
 0.000 ... 9.999 mS/cm
 0.00 ... 99.99 mS/cm
 0.0 ... 999.9 mS/cm
 0.000 ... 9.999 S/m
 0.00 ... 99.99 S/m

Resistivity 0.00 ... 99.99 $\text{m}\Omega \cdot \text{cm}$

Concentration 0.00 ... 9.99%

Salinity 0.0 ... 45.0‰ (0 ... 35 °C)

Response time (T90) < 1 s (Sensocheck off)

< 3 s (Sensocheck on)

Measurement error^{1,2,3)} < 1% meas. val. + 0.4 $\mu\text{S} \cdot \text{cm}$ **Concentration determination**

[1] NaCl 0.00 ... 9.99 wt% (0 ... 100 °C)
 [2] HCl 0.00 ... 9.99 wt% (-20 ... 50 °C)
 [3] NaOH 0.00 ... 9.99 wt% (0 ... 100 °C)
 [4] H₂SO₄ 0.00 ... 9.99 wt% (-17 ... 110 °C)
 [5] HNO₃ 0.00 ... 9.99 wt% (-17 ... 50 °C)

Sensor standardization

– Input of cell constant with simultaneous display of conductivity and temperature

– Input of conductivity of calibration solution with simultaneous display of cell constant and temperature

– Product calibration

– Temperature detector adjustment

Permissible cell constant 0.0050...19.9999 cm^{-1} **Sensocheck**

Polarization detection and monitoring of cable capacitance

Sensoface

Provides information on the sensor condition (Sensocheck)

Sensor monitor

Direct display of measured values from sensor for validation (resistance/temperature)

Temperature input*)Pt 100 / Pt 1000 / NTC 30 k Ω / NTC 8.55 k Ω (Betatherm), 2-wire connection, adjustable

Measuring range

Pt 100 / Pt 1000 -20.0 ... 200.0 °C / -4 ... 392 °F

NTC 30 k Ω -20.0 ... 150.0 °C / -4 ... 302 °FNTC 8.55 k Ω -10.0 ... 130.0 °C / 14 ... 266 °F

Resolution 0.1 °C/1 °F

Measurement error^{1,2,3)} < 0.5 K
 (< 1 K at Pt 100; < 1 K at NTC > 100 °C)

Temperature compensation*)
 (Reference temp 25 °C)

(OFF) without
 (LIN) Linear characteristic 00.00...19.99%/K
 (NLF) Natural waters acc. to EN 27888
 (NaCl) Ultrapure water with NaCl traces (0...120 °C)
 (HCl) Ultrapure water with HCl traces (0...120 °C)
 (NH₃) Ultrapure water with NH₃ traces (0...120 °C)

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Specifications

Output 1	0/4 ... 20 mA, max. 10 V, floating	(galvanically connected to output 2)
	Process variable ^{*)}	Conductivity, spec. resistivity, concentration or salinity
	Overrange ^{*)}	22 mA in the case of error messages
	Output filter ^{*)}	Low-pass, filter time interval 0 ... 120 s
	Measurement error ¹⁾	< 0.3% current value + 0.05 mA
	Start/end of scale ^{*)}	As desired within range
	Minimum span	5% of selected range
Output 2	0/4 ... 20 mA, max. 10 V, floating (galvanically connected to output 1)	
	Process Variable	Temperature
	Overrange ^{*)}	22 mA for temperature error reports
	Output filter ^{*)}	Low-pass, filter time interval 0 ... 120 s
	Measurement error ¹⁾	< 0.3 % current value + 0.05 mA
	Start/end of scale ^{*)}	-20 ... 300 °C / -4 ... 72 °F
	Permissible span	20 ... 320 K / 36 ... 576 °F
Alarm contact	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/O or N/C
	Delay ^{*)}	0000 ... 9999 s
	Setpoints ^{*)}	As desired within range
	Hysteresis ^{*)}	0...50% of range
Cleaning contact	"Clean" 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 disabled)
	Rinse duration ^{*)}	0000 ... 1,999 s
Display	LC display, 7-segment with icons	
	Primary display	Character height 17 mm, unit symbols 10 mm
	Secondary display	Character height 10 mm, unit symbols 7 mm
	Sensoface	3 status icons (friendly, neutral, sad face)
	Status display	4 status bars "meas," "cal," "Alarm," "config" More icons for configuration and reports
	Alarm indication	Red LED in case of alarm
Keypad	5 keys: [cal] [conf] ► [▲] [enter]	

Specifications

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 (sensor)

Data retention

Parameters and calibration data > 10 years (EEPROM)

Protection against electric shock

Protective separation of all extra-low-voltage circuits against mains by double insulation as per EN 61010-1

Power supply

24 V (-15%) ... 230 (+10%) V AC/DC	Approx. 5 VA/2.5 W AC: 45 ... 65 Hz Overvoltage category II, protection class II
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Nominal operating conditions

Ambient temperature	-20 ... 55 °C / -4 ... 131 °F
Relative humidity	10 ... 95%, non-condensing
Maximum operating height	2,000 m

Transport/Storage temperature

-20 ... 70 °C / -4 ... 158 °F

EMC

EN 61326-1, EN 61326-2-3	
Emitted interference	Class B (residential environment) Class A: for mains > 60 V DC

Immunity to interference	Industrial applications
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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

Housing

Molded enclosure made of PBT (polybutylene terephthalate), glass bead reinforced	
Color	Black
Mounting	– Wall mounting – Post/pipe mounting ZU 0274 Ø 40 ... 60 mm □ 30 ... 45 mm – Panel installation ZU 0275 Cutout as per DIN 43 700, sealed against panel
Dimensions (mm)	H x W x D 144 x 144 x 105
Protection	IP 65/NEMA 4X
Cable glands	3 knockouts for M20 x 1.5 cable glands 2 knockouts for NPT ½" or rigid metallic conduit
Weight	Approx. 1 kg

^{*)} User-defined

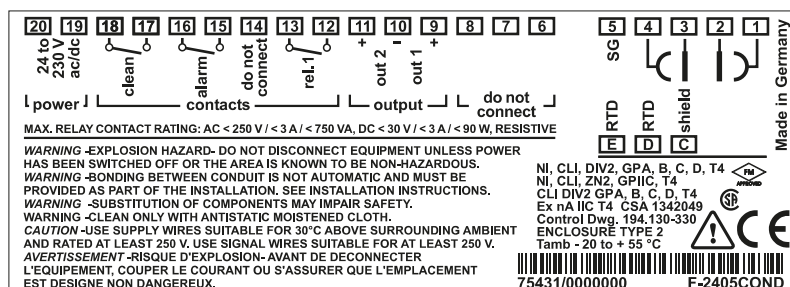
¹⁾ At nominal operating conditions

²⁾ ±1 digit

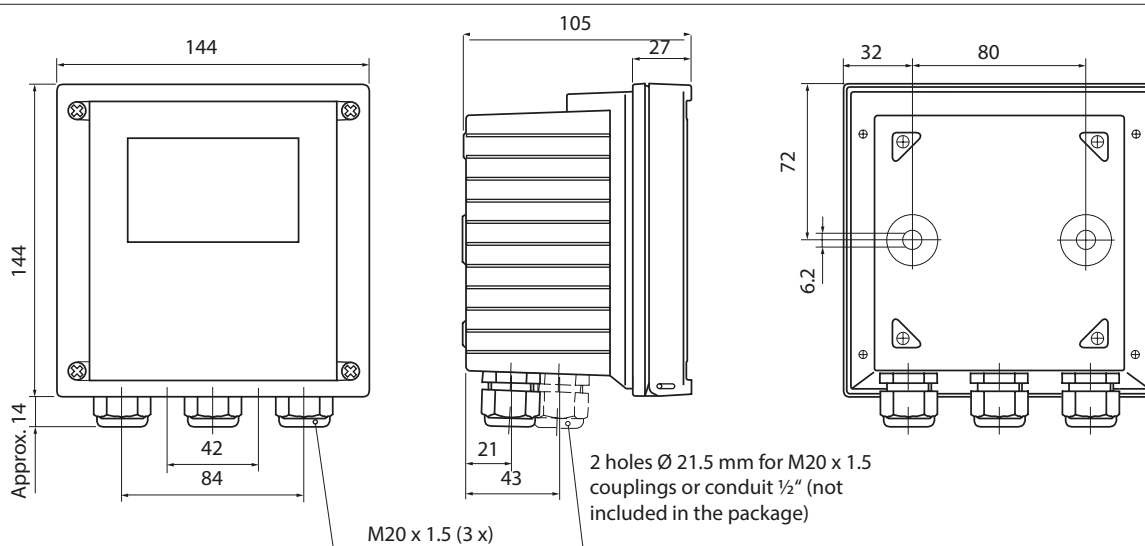
³⁾ Plus sensor error

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Terminal Assignments



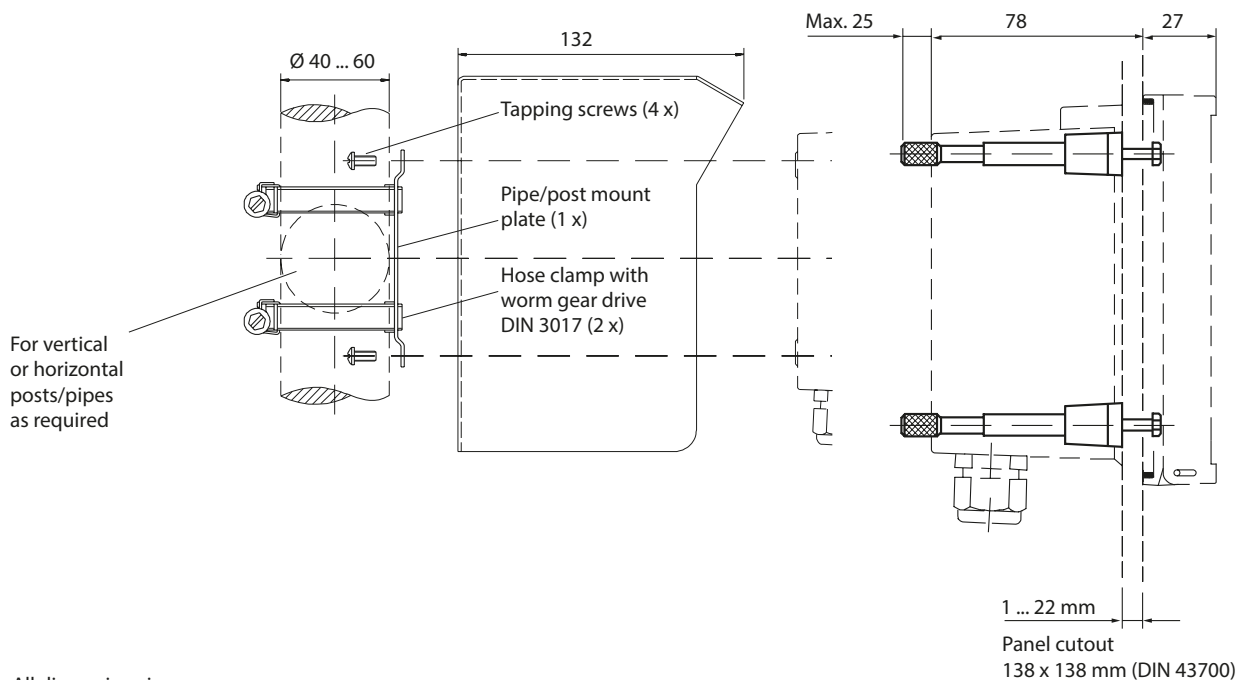
Dimension Drawing



Pipe/post mount kit ZU 0274

Protective hood ZU 0276

Panel mount kit ZU 0275



All dimensions in mm.