

Stratos® e 2211 (X) pH

Display

Simultaneous display of pH value/ORP and temperature, unit symbols as plaintext. 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. Automatic electrode standardization with check of response time and drift by Knick Calimatic®. All conventional buffer sets can be selected. Alternatively, also manual calibration or direct input of zero point and slope for service purposes. Display of the electrode data after every calibration. Evaluation of the electrode status with Sensoface®.

Sensor monitoring Sensoscheck®

Maximum reliability due to continual monitoring of glass and reference electrode. Recognition of electrode defects, indication and alarm triggering.

HART® communication

Integration in fully automatic process cycles is possible due to the remote control function via HART® communication. The device can also be fully configured via a handheld terminal or from the control room. Device data, measured values and messages can be retrieved at any time. Also available for hazardous area applications (2211 X pH).

The facts

- **Robust, tightly sealed molded enclosure**
- **Wall, pipe/post or panel mounting**
- **Easy installation with pre-assembled enclosure and plug-in terminals**
- **Optical alarm signal by red LED**
- **Sensocheck® continual sensor monitoring**
- **GainCheck® automatic device self-test**
- **International user interface with icons**
- **Large, clear display**
- **°C/°F temperature scale**
- **Additional mode indicators for**
 - Measuring mode
 - Calibration mode
 - Alarm
 - Wash contact
 - Configuration
- **Cal timer**
- **Integrated current source for simple monitoring of the peripherals**
- **HART® communication**
- **Hazardous and safe area applications**
- **Low supply voltage**

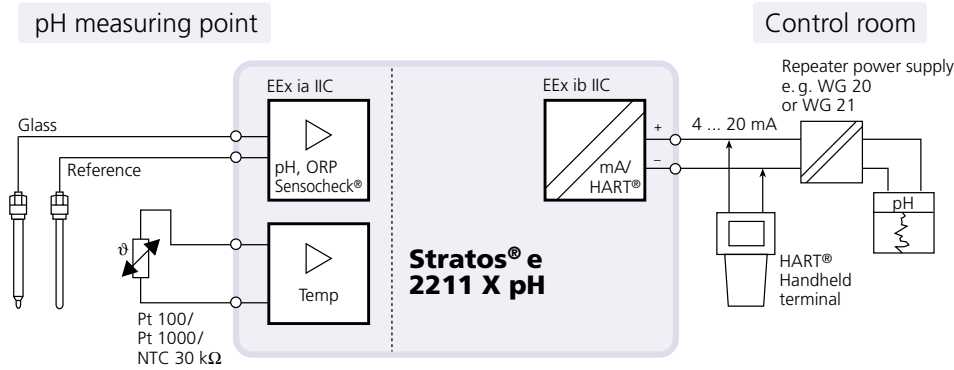


Warranty
3 years!

Warranty

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

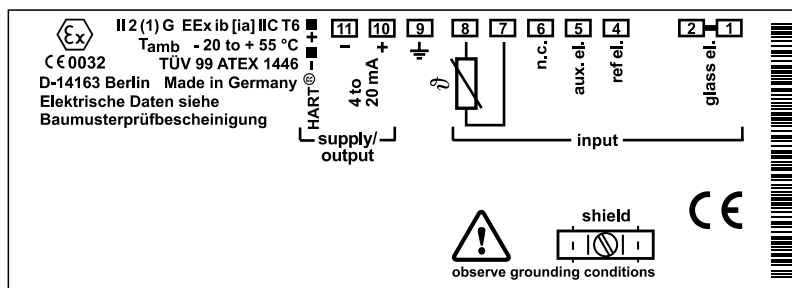
Connection



Product line

		Order No.
Stratos® e 2211 (X) pH	Stratos® (2-wire technology/HART®)	2211 pH
	Ex Stratos® (2-wire technology/HART®)	2211 X pH
Mounting accessories	See Accessories chapter (page 121)	

Terminal assignment



Specifications 2211 (X) pH

pH/mV input	Input pH or ORP electrodes or ISFET Input glass electrode or ORP electrode (e. g. platinum) Input reference electrode Input auxiliary electrode for impedance measurement (SG)																					
Measurement 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 mV value: <1 mV TC: 0.1 mV/K																					
Sensor standardization pH^{*)}	pH calibration																					
Operating modes	<p>BUF Calibration with Calimatic automatic buffer recognition:</p> <p>Buffer sets:</p> <table border="0"> <tr> <td>-01-</td> <td>Knick/Mettler-Toledo</td> <td>2.00 / 4.01 / 7.00 / 9.21</td> </tr> <tr> <td>-02-</td> <td>Merck/Riedel de Haen</td> <td>2.00 / 4.00 / 7.00 / 9.00 / 12.00</td> </tr> <tr> <td>-03-</td> <td>Ciba (94)</td> <td>2.06 / 4.00 / 7.00 / 10.00</td> </tr> <tr> <td>-04-</td> <td>NIST technical</td> <td>1.68 / 4.00 / 7.00 / 10.01 / 12.46</td> </tr> <tr> <td>-05-</td> <td>NIST standard</td> <td>1.679 / 4.006 / 6.865 / 9.180</td> </tr> <tr> <td>-06-</td> <td>HACH</td> <td>4.00 / 7.00 / 10.18</td> </tr> <tr> <td>-07-</td> <td>WTW technical buffers</td> <td>2.00 / 4.01 / 7.00 / 10.00</td> </tr> </table> <p>MAN Manual calibration with input of individual buffer values DAT Data entry of premeasured electrodes PRD Product calibration (via separate mode code)</p>	-01-	Knick/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
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Zero offset	±200 mV																					
Max. calibration range	Asymmetry potential: ± 60 mV; Slope: 80 ... 103 % (47.5 ... 61 mV/pH)																					
Sensor standardization ORP^{*)}	ORP calibration max. calibration range Δ: -700 ... +700 mV																					
Cal timer	0000 ... 9999 h																					
Sensocheck®	Automatic monitoring of glass and reference electrode (can be disabled)																					
Sensoface®	Provides information on the electrode status Evaluation of zero/slope, response, calibration interval, Sensocheck®																					
Sensor monitor	Direct display of measured values from sensor for validation resistance / temperature																					

*) User-defined
2) ± 1 count

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

Specifications, continued

Service functions	
Current source	Loop current, specifiable 3.8 ... 22 mA
Device self-test	Automatic memory testing (RAM, ROM, EEPROM)
Display test	Display of all segments
Last Error	Display of last error occurred
Sensor monitor	Display of the direct sensor signal (resistance/temperature)
Data retention	Parameters and calibration data >10 years (EEPROM)
EMC	EN 61326 Emitted interference: Class B (residential area) Class A: for mains > 60 V DC Immunity to interference: Industry
Explosion protection (2211 X)	II 2 (1) G EEx ib [ia] IIC T6 FM IS, Cl.1, Div1, Group A,B,C & D T4 NI, Cl.1, Div2, Group A,B,C & D T4
Nominal operating conditions	
Ambient temperature	-20 to +55 °C
Transport/storage temp.	-20 to +70 °C
Relative humidity	10 to 80 % not condensing
Supply voltage	12 to 30 V
Enclosure	Molded enclosure made of PBT (polybutylene terephthalate)
Color	Bluish gray RAL 7031
Assembly	– Wall mounting – Pipe mounting: Ø 40 to 60 mm, □ 30 to 45 mm – Panel mounting, cutout to DIN 43 700 Sealed against panel
Dimensions	H 144 mm, W 144 mm, D 105 mm
Protection	IP 65/NEMA 4X (USA, Canada: indoor use only)
Cable glands	3 breakthroughs for cable glands M20x1.5 2 breakthroughs for NPT 1/2" or Rigid Metallic Conduit
Weight	Approx. 1 kg

EC Type Examination Certificates

