

# Process Analysis Systems

Chem

Energy

Pharm

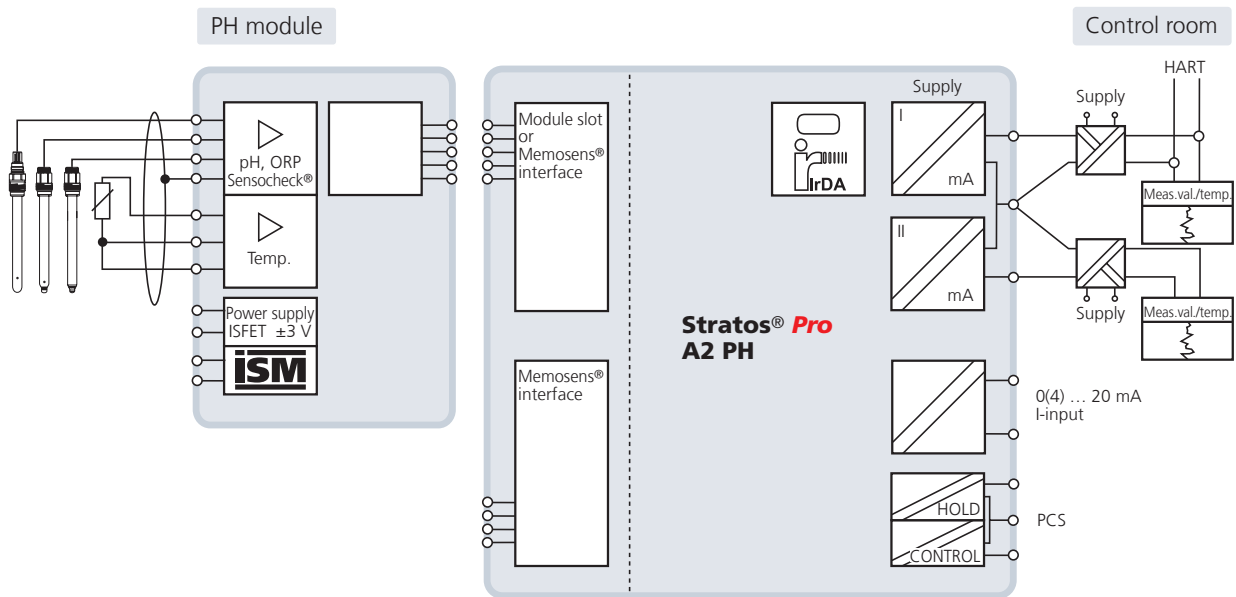
Food

Water

## Stratos® Pro A2 PH

### Connection

Connection of the PH with any desired analog sensor or with ISM or ISFET sensors  
 Model used: Stratos® Pro A201N-PH-1



### Terminal Assignments of Stratos® Pro PH Module

**Knick** Module **PH**  
 MK-PH 015 X  
 No. 0000000 pH / ORP / °C  
 Stratos Pro A...  
 KEMA 08 ATEX 0100  
 IECEX KEM08.0020  
 see Control drawing 212.002-110  
 D-14163 Berlin 00000/000000/0726 0044

pH Sensor

SHIELD	RTD	RTD (GND)	ISM (DATA)	ISM (GND)	- 3 V	+ 3 V	SG	REF EL.	MEAS EL.
K	I	H	G	F	E	D	C	B	A

### Terminal Assignments of Stratos® Pro 2-Wire Devices

18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
N.C.	4 to 20 mA	N.C.	N.C.	CONTROL	N.C.	HOLD	HART	+	4 to 20 mA	+	4 to 20 mA	+	WH/CL	YE	GN	BN	
Out 2			Digital-In			HART J		Supply/Out 1,2 HART		I-In		RS 485					

WARNING: DO NOT SEPARATE MODULE WHEN ENERGIZED

## Specifications

### Inputs

pH/mV	input for pH sensors (glass or ISFET) or ORP sensors		
Display range	pH value: -2.00 ... +16.00 ORP: -1999 ... +1999 mV		
ISM (TAN)	interface for operation with ISM (digital sensors)		
Temperature	Pt 100 / Pt 1000 / NTC 30 kohms		
Display range for temperature	-20.0 ... +150.0 (+200.0) °C (-4.0 ... +302.0 (+392.0) °F)		
Current input (TAN)	analog, 0/4 ... 20 mA for external temperature signal		
HOLD input, digital	0 ... 2 V (AC/DC)	HOLD inactive	
	10 ... 30 V (AC/DC)	HOLD active	
CONTROL input, digital	parameter set selection	0 ... 2 V (AC/DC)	parameter set A
		10 ... 30 V (AC/DC)	parameter set B
	flow	pulse amplitude 10 ... 30 V DC pulse input for flow measurement 0 ... 100 pulses/s display: 00.00 ... 99.99 l/h message via 22 mA, alarm contact or limit contacts	

### Outputs

Output 1, Output 2	4 ... 20 mA current loops, 22 mA for error message, HART communication (TAN) at output 1, supply voltage 14 ... 30 V		
Process variable*)	pH or mV value or temperature		
Characteristic	linear or bilinear		
Output filter*)	PT <sub>1</sub> filter, filter time constant: 0 ... 120 s		
Power output	for operating an ISFET adapter ±3 V/0.5 mA		

### Sensor standardization

Operating modes	- calibration with Calimatic® automatic buffer recognition - manually, data entry or using the product buffer sets: Knick, Mettler Toledo, Merck/Riedel de Haen, Ciba (94), NIST, HACH, WTW, Hamilton, Reagecon, user-defined buffer table		
ISFET	operating point ±200 mV		
ORP-Calibration range*)	-700 ... +700 mV		
Adaptive calibration timer	interval 0000 ... 9999 h		

### Temperature compensation

TC of process medium	linear:	-19.99 ... +19.99 %/K, reference temperature 25 °C	
	table:	0 ... 100 °C, user-defined in 5-K steps	

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### Specifications – continued

#### Communication

HART communication (TAN)	HART version 6 digital communication by FSK modulation of output current 1 device identification, measured values, status and messages, parameter setting, calibration, records
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#### Diagnostics/Service

Diagnostics functions	calibration data, device self-test, display test
Sensocheck®	automatic impedance monitoring of glass and reference electrode
Sensoface®	information on the sensor condition (zero/slope, response time, calibration interval, Sensocheck®)
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time
FDA CFR 21 Part 11	– access control by editable passcodes – logbook entry and flag via HART in the case of configuration changes – message and logbook entry when enclosure is opened
Service functions	current source
Sensor monitor	display of direct sensor signals (mV/temperature/resistance ...)
IrDA interface	infrared service interface for firmware updates

#### Approvals

Explosion protection (A2xxX)	IECEx	Ex ib[ia] IIC T / zone 0 Ex ia IIC T4 / Ex iaD 20 IP 6X T 85 °C
	ATEX	II 2(1) G Ex ib[ia] IIC T4 / II 1 G Ex ia IIC T4 II 1 D Ex iaD 20 IP6x T85 °C / II 2 D Ex iaD 21 IP6x T85 °C
	FM	C/US NII/2/ABCD/T4 / S/II,III/2/FG/T4, Type 4X
		C IS/I,II,III/1/ABCDEFGH/T4 / I/O/Ex ia IIC T4, Entity, Type 4X
	C I/2/Ex nA IIC T4 / 22/Ex tD T85 °C; Type 4X	
	US IS/I,II,III/1/ABCDEFGH/T4 / I/O/AEx ia IIC T4, Entity, Type 4X	
	US I/2/AEx nA IIC T4 / 22/AEx tD T85 °C, Type 4X	
CSA	IS, Class I,II,III Div 1, GP A,B,C,D,E,F,G T4, Entity, Type 4X	
	AIS Class I,II,III Div 1, GP A,B,C,D,E,F,G T4, Entity, Type 4X	
	Class I, Zone 1, AEx ia IIC T4, Entity, Type 4X	
NEPSI	Ex ib[ia] IIC T4 / Ex ia IIC T4 / DIP A20 TA,T6	
GOST	1Exib[ia]IIC T4 / 0ExiaIIC T4 / DIP A20 TA 85 °C / DIP A21 TA 85 °C	
KOSHA	Ex ib[ia] IIC T4	
Explosion protection (A2xxB)	IECEx	Ex nA II T4 / Ex tD A22 IP5X T 85 °C
	ATEX	II 3 G Ex nA II T4 / II 3 D Ex tD A22 IP5X T85 °C
	FM	C/US NII/2/ABCD/T4 / S/II,III/2/FG/T4, Type 4X
		C I/2/Ex nA IIC T4 / 22/Ex tD T85 °C, Type 4X
	US I/2/AEx nA IIC T4 / 22/AEx tD T85 °C, Type 4X	
	CSA	C/US Class I,II,III Div 2, GP A,B,C,D,E,F,G T4, Type 4X
		C Ex nA II T4 / DIP/II,III/2/EF, Type 4X
	US AEx nA II T4 / II, III/22/AEx tD 22, T85 °C, Type 4X	
	NEPSI	Ex nA II T4 / DIP A22 TA,T6
	GOST	2ExnAII T4 / DIP A22 TA 85 °C

## Specifications – continued

### Device data

Display	LC display with colored backlighting, main display, secondary display, plain-text ticker line, icons, Sensoface®, status indication, alarm indication
Keypad	keys: meas, info, 4 cursor keys, enter
Power supply	see Outputs 1/2
Real-time clock	different time and date formats selectable power reserve > 5 days
EMC	EN 61326-1 (general requirements) emitted interference: class B (residential area) immunity to interference: industry EN 61326-2-3

### Nominal operating conditions

Ambient temperature	-20 ... +65 °C
Transport/Storage temperature	-20 ... +70 °C
Relative humidity	10 ... 95 %, not condensing
Enclosure	molded enclosure, PBT/PC, glass-reinforced
Assembly	- wall mounting - pipe mounting: Ø 40 ... 60 mm, □ 30 ... 45 mm - panel mounting
Dimensions (mm)	H x W x D: 148 x 148 x 117
Cable glands	3 knockouts for cable glands M20 x 1.5 2 knockouts for 1/2" NPT or rigid metallic conduit
Control panel cutout	138 mm x 138 mm to DIN 43700
Ingress protection	IP 67/NEMA 4X outdoor
Weight	approx. 1.2 kg (1.6 kg incl. accessories and packaging)
Connections	terminals, conductor cross section max. 2.5 mm <sup>2</sup>

\*) user-defined