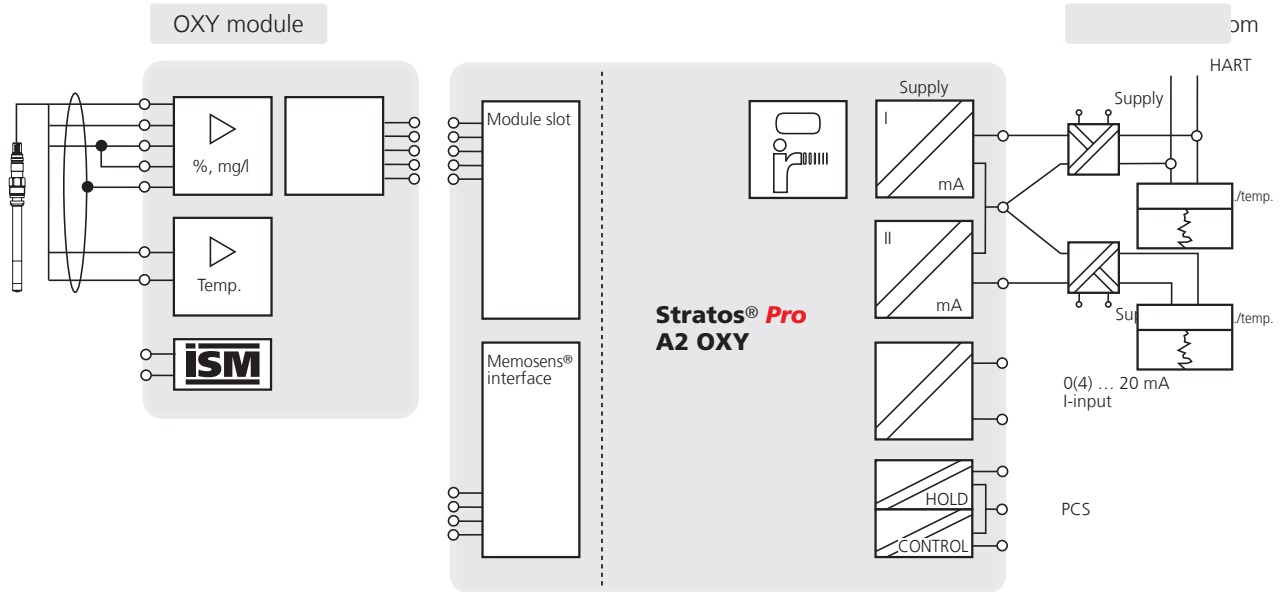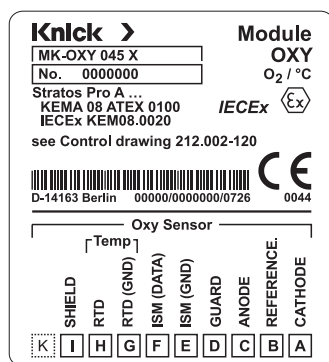# Stratos® *Pro* A2 OXY

Connection
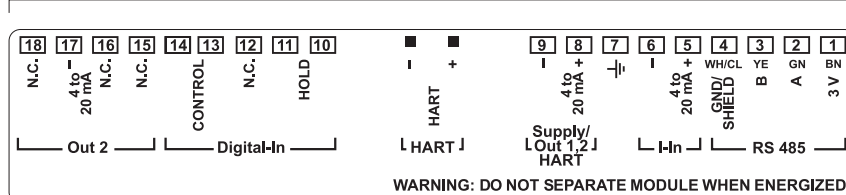
Connection of OXY module with SE 706 oxygen sensors, Mettler Toledo InPro 6800, Hamilton OXYFERM
Model used: Stratos® *Pro* A201N–OXY–1

OXY module

Supply

HART

Supply

I

mA

II

mA

/temp.

Supply

/temp.

Module slot

Stratos® *Pro*
A2 OXY

0(4) … 20 mA
I-input

Memosens®
interface

HOLD

CONTROL

PCS

%, mg/l

Temp.

ISM

Terminal Assignments of Stratos® *Pro* OXY Module

Knick

Module

MK-OXY 045 X

OXY

No.   0000000

O₂ / °C

Stratos Pro A …
  KEMA 08 ATEX 0100
  IECEx KEM08.0020

IECEx

see Control drawing 212.002-120

D-14163 Berlin   00000/0000000/0726   0044

Oxy Sensor

Temp

SHIELD | RTD | RTD (GND) | ISM (DATA) | ISM (GND) | GUARD | ANODE | REFERENCE. | CATHODE

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

Supply/Out 1,2

GND/SHIELD | B | A | 3 V

Out 2   Digital-In   HART   Supply/Out 1,2   I-In   RS 485
                                HART

WARNING: DO NOT SEPARATE MODULE WHEN ENERGIZED

Specifications

Inputs

O$_2$ standard	sensors SE 703, SE 706 and SE 707 (Mettler Toledo InPro 6800, Hamilton OXYFERM)
O$_2$ trace measurement (TAN)	sensors SE 706/707, Mettler Toledo InPro 6800/6900/6950 and Hamilton OXYFERM/OXYGOLD
Operating modes	GAS measurement in gases DO measurement in liquids

Input ranges*)

Polarization voltage	0 … –1000 mV, default –675 mV (resolution < 5 mV)
Measuring current	–600 (–10000) … 2 nA, resolution 10 pA (166 pA)
Permissible guard current	≤ 20 µA
Measurement error[1,2,3]	< 0.5 % meas. val. + 0.05 nA + 0.005 nA/K
Display ranges with standard sensors "10"	saturation 0.0 … 600.0 %
	concentration 0.00 … 99.99 mg/l (ppm)
	volume concentration in gas 0.00 … 99.99 vol %
Display ranges with trace sensors "01"	saturation 0.000 … 150.0 %
	concentration 0 … 9999 µg/l (ppb)/10.00 … 20.00 mg/l (ppm)
	volume concentration in gas 0 … 9999 ppm (vol)/1.000 … 50.00 vol %
Display ranges with subtrace sensors "001"	saturation 0.000 … 150.0 %
	concentration 0.0 … 9999 µg/l (ppb)/10.00 … 20.00 mg/l (ppm)
	volume concentration in gas 0.0 … 9999 ppm (vol)/1.000 … 50.00 vol %

Input correction*)

Pressure correction	0.000 … 9.999 bars/999.9 kPa/145.0 PSI manually or through current input 0(4) … 20 mA		
Salinity correction	0.0 … 45.0 g/kg		
ISM (TAN)	interface for operation with ISM (digital sensors)		
Temperature	NTC 22 kohms/NTC 30 kohms		
Display range	–20.0 … +150.0 °C (–4.0 … +302.0 °F)		
Current input (TAN)	analog, 0/4 … 20 mA for external pressure compensation		
HOLD input, digital		0 … 2 V (AC/DC) 10 … 30 V (AC/DC)	HOLD inactive HOLD active
CONTROL input, digital	parameter set selection	0 … 2 V (AC/DC) 10 … 30 V (AC/DC)	parameter set A 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	

Stratos® *Pro* A2 OXY

Specifications – *continued*

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*)	O_2 saturation/O_2 concentration or temperature
Characteristic	linear
Output filter*)	PT_1 filter, filter time constant: 0 … 120 s

Sensor standardization

Operating modes*)	– adoption of calibration data from digital sensors – automatic calibration in air – automatic calibration in air-saturated water – product calibration – zero calibration	
Calibration range standard sensor "10"	zero point slope	±2 nA 25 … 130 nA (at 25 °C, 1013 mbars)
Calibration range trace sensor "01"	zero point slope	±2 nA 200 … 550 nA (at 25 °C, 1013 mbars)
Calibration range subtraces sensor "001"	zero point slope	±3 nA 2000 … 9000 nA (at 25 °C, 1013 mbars)
Calibration timer*)	0000 … 9999 h	
Pressure correction*)	manually 0.000 … 9.999 bars/999.9 kPa/145.0 PSI	

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

Diagnostics/Service

Diagnostics functions	calibration data, device self-test, display test
Sensocheck®	monitoring of membrane and electrolyte and the sensor wires for short circuits or open circuits
Sensoface®	provides information on the sensor condition (zero/slope, calibration interval, Sensocheck® and sensor wear)
Logbook (TAN)	100 events with date and time
Extended logbook (TAN)	Audit Trail: 200 events with date and time

Specifications – *continued*

Diagnostics/Service – *continued*

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 (sensor current, impedance, temperature, current input)
IrDA interface	infrared service interface for firmware updates

Approvals

Explosion protection (A2xxX)		
IECEx	Ex ib[ia] IIC T4 / 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	NI/I/2/ABCD/T4 / S/II,III/2/FG/T4, Type 4X
	C	IS/I,II,III/1/ABCDEFG/T4 / I/0/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/ABCDEFG/T4 / I/0/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]IICT4 / 0ExiaIICT4 / DIP A20 TA 85 °C / DIP A21 TA 85 °C	
KOSHA	Ex ib[ia] IIC T4	

Explosion protection (A2xxB)		
IECEx	Ex ib[ia] IIC T4 / 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	NI/I/2/ABCD/T4 / S/II,III/2/FG/T4, Type 4X
	C	IS/I,II,III/1/ABCDEFG/T4 / I/0/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/ABCDEFG/T4 / I/0/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]IICT4 / 0ExiaIICT4 / DIP A20 TA 85 °C / DIP A21 TA 85 °C	
KOSHA	Ex ib[ia] IIC T4	

Stratos® *Pro* A2 OXY

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 mm²

*) user-defined

M4Knick ›