

Modbus Register sc200 pH/ORP Module

V2.02

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
SENSOR	40001	Unsigned Integer	1	R		0 /65535	Measurement tag selection
ORP	40002	Float	2	R		-2100 /2100	ORP measurement
pH	40004	Float	2	R		-2 /14	pH measurement
TEMPERATURE	40006	Unsigned Integer	1	R		0 /65535	Temperature tag selection
TEMP C	40007	Float	2	R		-5.0 /105.0	temp in C ntc300
TEMP F	40009	Float	2	R		23.0 /221.0	temp in F ntc300
TEMP C	40011	Float	2	R		-20.0 /200.0	temp in C platinum
TEMP F	40013	Float	2	R		-4.0 /392.0	temp in F platinum
ORP diff cal value	40015	Float	2	R/W		-1500 /1500	ORP diff cal edit value
SERIAL NUMBER	40017	String	8	R/W			Sensor serial number
FUNCTION CODE	40025	Unsigned Integer	1	R/W		0 /65535	menu function code
NEXT STATE	40026	Unsigned Integer	1	R		0 /65535	menu next state
TEMP UNITS	40027	Unsigned Integer	1	R/W	U25 /26		Temp unit selection tag (C=25, F=26)
HISTORY T UNITS	40028	Unsigned Integer	1	R	U25 /26		Cal history - Temperature unit used (C=25, F=26)
DISPLAY FORMAT	40029	Unsigned Integer	1	R/W	0 /1		Display format of the main measurement (xx.xx=0, xx.x=1)
FILTER	40030	Unsigned Integer	1	R/W		0 /60	Measurement filter (0-60 sec)
TEMP ELEMENT	40031	Unsigned Integer	1	R/W	0 /1 /2 /4 /5		Temperature element type selection(PT100=0, PT1000=1, NTC300=2, Manuula=4, None=5)
USER TEMP	40032	Unsigned Integer	1	R		0 /65535	User temperature tag (unit) selection
USER TEMP C	40033	Float	2	R/W		?	User temperature in C
USER TEMP F	40035	Float	2	R/W		?	User temperature in F
SELECT BUFFER	40037	Unsigned Integer	1	R/W	0 /1 /2		Selected buffer set for pH calibration(4_7_10=0, DIN19267=1)
PURE H2O COMP	40038	Unsigned Integer	1	R/W	0 /1 /2 /8		Compensation type selection(None=0, Ammonia=1, Morpholine=2, User defined=8)
PURE H2O USER	40039	Float	2	R/W		-0.1 /0.1	User selected slope
OUTPUT MODE	40041	Unsigned Integer	1	R/W	0 /1 /2		Output mode selection during calibration(Active=0, Hold=1, Transfer=2)
MODULE SERIAL NO	40042	String	6	R			Card/module serial number
LEAVE	40048	Unsigned Integer	1	R/W	0 /1 /2		Cal exit flag(Quit=0, Back to cal=1, Leave=2)
EDIT VALUE	40049	Unsigned Integer	1	R		0 /65535	Measurement type selector tag for user cal value
EDIT pH VALUE	40050	Float	2	R/W		-2 /14	pH user value for calibration
EDIT ORP VALUE	40052	Float	2	R/W		-2100.0 /2100.0	ORP user value for calibration
SLOPE	40054	Unsigned Integer	1	R		0 /0	Measurement slope tag selector
SampleCalPtAUser pHORP	40059	Float	2	R		-5.0 /17.0	Pt A sample value
SampleCalPtBUser pHORP	40061	Float	2	R		-5.0 /17.0	Pt B sample value
BufferCalPtA pHORP	40063	Float	2	R		-5.0 /17.0	Pt A buffer value
BufferCalPtB pHORP	40065	Float	2	R		-5.0 /17.0	Pt B buffer value
BufferCalSB pHORP	40067	Float	2	R		-5 /15	Same buffer (error) value

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SOFTWARE VERS	40069	Float	2	R		0 /3.402823466 38529E+38	Version number
BOOTLOADER VER	40071	Float	2	R		0 /9.99	Boot code version
OFFSET	40073	Unsigned Integer	1	R		0 /16777216	Measurement Offset tag selector
pH OFFSET	40074	Float	2	R		-20 /20	pH Offset
ORP OFFSET	40076	Float	2	R		-2600.0 /2600.0	ORP offset
LOG INTERVAL	40078	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8		Datalog interval selector(5s=0,30s=1,1m=2,2m=3,5m=4,10m=5,15m=6,30m=7,60m=8)
SIGNAL	40079	Float	2	R		-2200 /2200	raw sensor signal value
ACTIVE ELECT	40081	Float	2	R		0 /10000	Calculated Active electrode
REF. ELECTRODE	40083	Float	2	R		0 /10000	Calculated Ref electrode
SENSOR DAYS	40085	Unsigned Integer	1	R		0 /32000	Sensor age in days
DRIVER VERS	40086	Unsigned Integer	1	R		0 /65535	Device driver version
PT A USER	40087	Float	2	R		-200 /400	Cal history - pt A user entered temperature
PT B USER	40089	Float	2	R		-200 /400	Cal history - pt B user entered temperature
PT A ACTUAL	40091	Float	2	R		-200 /400	Cal history - pt A actual temperature
PT B ACTUAL	40093	Float	2	R		-200 /400	Cal history - pt B actual temperature
PT A mV	40095	Float	2	R		0 /2500	Cal history - pt A mV
PT B mV	40097	Float	2	R		0 /2500	Cal history - pt B mV
TEMP OFFSET	40099	Float	2	R		-100 /200	Temperature offset
HTRY TEMP OFFSET	40101	Float	2	R			Cal history - Temperature offset
TEMP SLOPE	40103	Float	2	R		-10.0 /10.0	Temperature slope
HTRY TEMP SLOPE	40105	Float	2	R		-10.0 /10.0	Cal history - temperature slope
IMPED STATUS	40107	Unsigned Integer	1	R/W	0 /1		Impedance meas on/off selector(Disable=0, Enable=1)
MEAS UNITS	40108	Unsigned Integer	1	R	U27 /19		Units for use with meas limit(mV=19, pH=27)
MINIMUM	40109	Float	2	R		-2500 /0	Lower limit tag
Meas ORP Diff	40111	Float	2	R		-1500 /1500	ORP diff measurement
USER TEMP MIN	40113	Float	2	R		-25 /5	min limit of user temp
OFFSET MIN	40115	Float	2	R		-500 /500	Minimum offset limit
MAXIMUM	40117	Float	2	R		-500 /500	Max offset limit
TEMP MAX	40119	Float	2	R		0 /400	Max temp limit tag
USER TEMP MAX	40121	Float	2	R		0 /400	Max temp limit
MEAS MAX	40123	Float	2	R		0 /2500	Max measurement limit
OFFSET UNITS	40125	Unsigned Integer	1	R	U27 /19		Unit for offset limit(mV=19, pH=27)
SLOPE UNITS	40126	Unsigned Integer	1	R	U28 /19		Slope unit selector(mV=19, mV/pH=28)
PREDICT ENABLE	40127	Unsigned Integer	1	R/W	0 /1		Enable/disable predicted life (disable=0, enable=1)
PRED LIFE	40128	Time2	2	R			Predicted end of life
CAL REMINDER	40130	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9		Calibration reminder (OFF=0, 1_DAY=1, 7_DAYS=2, 30_DAYS=3, 60_DAYS=4, 90_DAYS=5, 6_MONTHS=6, 9_MONTHS=7, 1_YEAR=8, 2_YEARS=9)
OP ID REQD	40131	Unsigned Integer	1	R/W	0 /1		Operator ID required for cal (no=0, yes=1)

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READING.	40132	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10		Resume delay after cal (no=0, 1_min=1,2_min=2, 3_min=3, 4_min=4, 5_min=5, 6_min=6, 7_min=7,8_min=8, 9_min=9,10_min=10)
TIME	40135	Time2	2	R			Calibration time
CAL STATUS	40137	Unsigned Integer	1	R	0 /1		Calibration status(Fail=0, Pass=1)
CAL TYPE	40138	Unsigned Integer	1	R	0 /1 /2 /3 /4 /5 /16		Calibration type(Default=0, 1pt sample=1, 1pt buffer=2, 2pt sample=3, 2pt buffer= 4, 1 pt temp sample=15, 2 pt temp sample=16)
OP ID	40139	String	2	R/W			Operator ID for calibration
FORMAT TAG	40141	Unsigned Integer	2	R		0 /2000000000	Cal history - pH display format
DISP PH FORMAT	40143	Unsigned Integer	2	R		0 /2000000000	pH display format
PT A USER VAL	40145	Unsigned Integer	1	R		0 /0	Cal history - tag for pt A user entered value
PT A USER VAL pH	40146	Float	2	R/W		-2 /14	Cal history - pt A user entered pH value
PT A ORP VALUE	40148	Float	2	R		-2100 /2100	Cal history - pt A user entered ORP value
PT A ACTUAL mV	40150	Float	2	R/W		-2100 /2100	Cal history - pt A actual mV value
TEMPERATURE A	40152	Float	2	R/W		-20 /200	Cal history - pt A temp value
PT B USER VAL	40154	Unsigned Integer	1	R		-2100 /2100	Cal history - tag for pt B user entered value
PT B pH VALUE	40155	Float	2	R/W		-2 /14	Cal history - pt B user entered pH value
PT B ORP VALUE	40157	Float	2	R		-2100 /2100	Cal history - pt B user entered ORP value
PT B ACTUAL mV	40159	Float	2	R/W		-2100 /2100	Cal history - pt B actual mV value
TEMPERATURE B	40161	Float	2	R/W		-20 /200	Cal history - pt B temp value
CAL DAYS	40163	Unsigned Integer	1	R		0 /10000	Days since last calibration
SET ISO POINT	40164	Float	2	R/W		0.00 /14.00	Iso point setting
CAL MESSAGE	40166	Unsigned Integer	1	R	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14		Cal result (fail) message for display
CAL WARN MSG1	40167	Unsigned Integer	1	R	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14		Cal warning message
CAL WARN MSG2	40168	Unsigned Integer	1	R	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14		Cal warning message
TEMP COMP IMPED	40169	Float	2	R		0 /3.402823466 38529E+38	Temp corrected active impedance
T-COMP REF IMPED	40171	Float	2	R		0 /3.402823466 38529E+38	Temp corrected ref impedance
LOG FLOAT	40173	Float	2	R			Tag for event log involving float
LOG TEXT	40175	String	8	R			Tag for event log involving text
LOG INT	40183	Integer	1	R		-32768 /32767	Tag for event log involving integers
LOG PARAM	40184	String	8	R			Tag for event log involving passed parameter
DATE 1	40192	Time2	2	R			Cal history date 1
DATE 2	40194	Time2	2	R			Cal history date 2
DATE 3	40196	Time2	2	R			Cal history date 3
DATE 4	40198	Time2	2	R			Cal history date 4
DATE 5	40200	Time2	2	R			Cal history date 5
DATE 6	40202	Time2	2	R			Cal history date 6
TIME 1	40204	Time2	2	R			Cal history time 1

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
TIME 2	40206	Time2	2	R			Cal history time 2
TIME 3	40208	Time2	2	R			Cal history time 3
TIME 4	40210	Time2	2	R			Cal history time 4
TIME 5	40212	Time2	2	R			Cal history time 5
TIME 6	40214	Time2	2	R			Cal history time 6
PAGE NO:	40216	Unsigned Integer	1	R		0 /65535	Cal history page number
HIDDEN LINE	40217	Unsigned Integer	1	R		0 /65535	Cal history page hidden item
HIGHLIGHT LINE	40218	Unsigned Integer	1	R		0 /65535	Cal history page highlighted item
SensorType pHORP	40219	Unsigned Integer	1	R		0 /5	Test register for sensor type
ImpedanceUnits	40220	Unsigned Integer	1	R	U37 /36		Unit of act/ref impedance unit(kOhm=36, MOhm=37)
CalFailLimitOffset	40221	Float	2	R		-14.00 /14.0	Offset fail limit pH
CalFailLimitSlope	40223	Float	2	R		-1000.00 /1000.0	Slope fail limit pH
CalFailLimitORP	40225	Float	2	R		-2300.00 /2300.0	Offset val fail limit for ORP
TempElemLeakage	40227	Float	2	R/W			Temp element leakage - factory test
TestSwitch	40229	Unsigned Integer	1	R/W		0 /65535	Factory cal test switch setting
TestDutyCycle	40230	Unsigned Integer	1	R/W		1 /99	Factory cal test PWM duty cycle
TestFrequency	40231	Unsigned Integer	1	R/W		10 /10000	Factory cal test PWM duty cycle
TestADC24Counts	40232	Float	2	R		0 /3.402823466 38529E+38	Factory cal test raw ADC count
Test1c	40234	Float	2	R		0 /3.402823466 38529E+38	Factory test tag
Test2c	40236	Float	2	R		0 /3.402823466 38529E+38	Factory test tag
Test3c	40238	Float	2	R		0 /3.402823466 38529E+38	Factory test tag
Test4c	40240	Unsigned Integer	1	R		0 /65535	Factory test tag
CurrentMonSlopeCal	40241	Float	2	R/W		0 /3.402823466 38529E+38	Current monitor slope factory cal
CurrentMonOffsetCal	40243	Float	2	R/W			Current monitor offset factory cal
NewSensor	40245	Unsigned Integer	1	R/W	1 /0		New sensor flag(No=0, Yes=1)
ORP Int	40246	Integer	1	R		-2100 /2100	ORP (integer) value
pH Int	40247	Integer	1	R		-2 /14	pH (integer) value
TEMP C Int	40248	Integer	1	R		-20 /200	Temp in C (integer) value
TEMP F Int	40249	Integer	1	R		-4 /392	Temp in F (integer) value
TEMP CAL RAW	40250	Float	2	R		-999.9 /999.9	Raw temperature value
TEMP CAL OFFSET	40252	Float	2	R		-999.9 /999.9	Temperature offset value
TEMP CAL USER	40254	Float	2	R/W		-999.9 /999.9	Calibrated temperature value
FactCalpHSlope	40256	Float	2	R/W		0 /120.	Fact cal slope pH

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
FactCalpHOffset pHORP	40258	Float	2	R/W			Fact cal offset pH
FactCalPtA	40260	Float	2	R/W		0 /15	Fact cal pt A
PtBCounts	40262	Float	2	R/W		0 /15	Fact cal pt B
CalpHRawValue pHORP	40264	Float	2	R		-14000.0 /14000.0	Raw pH Value for cal
FactCalPtACts pHORP	40266	Float	2	R/W		0 /3.402823466 38529E+38	Fact cal pt a counts
FactCalPtBCts pHORP	40268	Float	2	R/W		0 /3.402823466 38529E+38	Fact cal pt b counts
TempCalCounts pHORP	40270	Float	2	R		0 /16777216	Fact cal counts for temperature
TempR1Value pHORO	40272	Float	2	R/W			Factory temp cal R1
TempR2Value pHORP	40274	Float	2	R/W			Factory temp cal R2
ADC10Count	40276	Float	2	R		0 /1030	Raw 10bit ADC count
DD CONTENT	40278	Unsigned Integer	1	R		0 /1000	Content version
SENSOR NAME	40279	String	8	R/W			Sensor name
SwitchSetting pHORP	40287	Unsigned Integer	1	R		0 /65535	The switch setting

ALL Sensors and Analyzer: Classified ERROR Word - Register 49930

Table 2 Error register

Bit	Error	Description
0	Calibration error	Faulty calibration detected
1	Electronic settings error	Faulty electronic calibration/settings
2	Cleaning error	Error in cleaning cycle detected
3	Measuring module error	Error in measuring module detected
4	System initialization	Inconsistent settings detected, reset to factory settings
5	Hardware error	Faulty hardware detected
6	Internal communication error	Internal communication error detected
7	Humidity error	Excessive humidity detected
8	Excessive temperature	Excessive temperature detected
9		
10	Sample feed warning	Error in sample feed detected
11	Questionable calibration warning	Accuracy of previous calibration inadequate
12	Questionable measurement warning	Accuracy of previous measurement inadequate/out of range
13	Safety warning	Safety equipment error detected
14	Reagent warning	Reagent warning, e.g. fill level < min detected
15	Service request warning	Service request detected

ALL Sensors and Analyzer: Classified STATUS Word - Register 49931

Table 3 Status register

Bit	Status 1	Description
0	Calibration activated	Calibration in progress, measurement value not up to date
1	Cleaning activated	Cleaning in progress, measurement value not up to date
2	Service mode activated	Device in "Service" mode, measurement value not up to date
3	General error message	General error detected, refer to error text for details
4	Measurement value channel 0, poor quality	Measurement accuracy is not within specified limits
5	Measurement value channel 0, range short-fall	Measurement value falls short of the specified range
6	Measurement value channel 0, range exceeded	Measurement value exceeds the specified range
7	Measurement value channel 1, poor quality	Measurement accuracy is not within specified limits
8	Measurement value channel 1, range short-fall	Measurement value falls short of the specified range
9	Measurement value channel 1, range exceeded	Measurement value exceeds the specified range
10	Measurement value channel 2, poor quality	Measurement accuracy is not within specified limits
11	Measurement value channel 2, range short-fall	Measurement value falls short of the specified range
12	Measurement value channel 2, range exceeded	Measurement value exceeds the specified range
13	Measurement value channel 3, poor quality	Measurement accuracy is not within specified limits
14	Measurement value channel 3, range short-fall	Measurement value falls short of the specified range
15	Measurement value channel 3, range exceeded	Measurement value exceeds the specified range