Modbus Register
9500 pH/ORP Module

v1.00

HACH®

Be Right™

9500 pH/ORP Module v1.00

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
pH	40004	Float	2	R		-2 /14	pH measurement
TEMP C	40011	Float	2	R		-20.0 /200.0	Temp in degC
TEMP F	40013	Float	2	R		-4.0 /392.0	Temp in degF
SERIAL NUMBER	40017	String	8	R/W			Sensor serial number
TEMP UNITS	40027	Unsigned Integer	1	R/W	U25 /26		Temp unit selection tag (C=25
HISTORY T UNITS	40028	Unsigned Integer	1	R	U25 /26		Cal history - Temperature unit used (C=25
FILTER	40030	Unsigned Integer	1	R/W		0 /60	Measurement filter (0-60 sec)
TEMP ELEMENT	40031	Unsigned Integer	1	R/W	0 /1 /4 /5		Temperature element type selection(PT100=0
User Temp in degC (when temp element = Manual)	40033	Float	2	R/W			User Temp in degC (when temp element = Manual)
User Temp in degF (when temp element = Manual)	40035	Float	2	R/W			User Temp in degF (when temp element = Manual)
SELECT BUFFER	40037	Unsigned Integer	1	R/W	0 /1 /2 /3		Selected buffer set for pH calibration(4_7_10=0
Temp Comp Slope value	40039	Float	2	R/W		-9.99 /9.99	Temp Comp Slope value in pH/C or pH/F (Applicable in pH)
OUTPUT MODE	40041	Unsigned Integer	1	R/W	0 /1 /2		Output mode selection during calibration(Active=0
Module Serial No	40042	String	6	R			Card/module serial number
pH SLOPE in mV/pH	40055	Float	2	R		-1000 /1000	pH slope in mV/pH (Applicable in pH)
Software Version	40069	Float	2	R		0 /200	Software Version
BootLoader version	40071	Float	2	R		0 /9.99	Boot code version
pH OFFSET	40074	Float	2	R		-20 /20	pH Offset (Applicable in pH)
LOG INTERVAL	40078	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8		Datalog interval selector(5s=0
Raw ORP value in mV	40079	Float	2	R		-2200 /2200	Raw ORP value in mV
REF. ELECTRODE	40083	Float	2	R		0 /10000	Calculated Ref electrode (MOhm)
Sensor days	40085	Unsigned Integer	1	R		0 /32000	Sensor age in days
Device Driver Firmware Version	40086	Unsigned Integer	1	R		0 /65535	Device Driver Firmware Version
IMPED STATUS	40107	Unsigned Integer	1	R/W	0 /1		Impedance meas on/off selector(Disable=0
MEAS UNITS	40108	Unsigned Integer	1	R	U27 /19		Units for use with meas limit(mV=19
OFFSET UNITS	40125	Unsigned Integer	1	R	U27 /19		Unit for offset limit(mV=19
PREDICT ENABLE	40127	Unsigned Integer	1	R/W	0 /1		Enable/disable predicted life (disable=0
PRED LIFE	40128	Time2	2	R			Predicted end of life
CAL REMINDER	40130	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5		Calibration reminder (OFF=0
READING.	40132	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10		Resume delay after cal (no=0
CAL STATUS	40137	Unsigned Integer	1	R	0 /1		Calibration status(Fail=0
Last Successful Calibration type	40138	Unsigned Integer	1	R	0 /1 /2 /3 /4 /17 /15		Last successful gas Calibration Type (1 = 1 Point sample Calibration
OP ID	40139	String	2	R/W			Operator ID for calibration

HACH®
Be Right™

9500 pH/ORP Module v1.00

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
Actual mV value (Point A)	40150	Float	2	R/W		-2100 /2100	mV value (Not Applicable in MANUAL or DEFAULT)
Actual mV (Point B)	40159	Float	2	R/W		-2100 /2100	Actual mV (Used only for pH)
Cal Days	40163	Unsigned Integer	1	R		0 /10000	Days since last calibration
Set ISO Point - pH (User Defined)	40164	Float	2	R/W		-99.99 /99.99	Set ISO Point - pH (User Defined)
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
ImpedanceUnits	40220	Unsigned Integer	1	R	U37 /36		Unit of act/ref impedance unit(kOhm=36
Offset limit for Cal failure	40221	Float	2	R		-14.00 /14.0	Offset limit for Cal Failure
Slope limit for cal failure in mV/pH (pH)	40223	Float	2	R		-1000.00 /1000.0	Slope limit for cal failure in mV/pH (pH)
offset limit for ORP cal failure	40225	Float	2	R		-2300.00 /2300.0	offset limit for ORP cal failure
NewSensor	40245	Unsigned Integer	1	R/W	1 /0		New sensor flag(No=0
Raw Temperatue in User selected units	40250	Float	2	R		-999.9 /999.9	Raw Temperatue in User selected units
Device Driver Content Version	40278	Unsigned Integer	1	R		0 /1000	Device Driver Content Version
SENSOR NAME	40279	String	8	R/W			Sensor name
Switch position in Card/Module	40287	Unsigned Integer	1	R		0 /65535	The switch position (2 = pH COMBO
Cal Slope pH in mV/pH (MANUAL)	40288	Float	2	R/W		0.01 /99.99	Cal Slope edited during MANUAL settings (Applicable in pH)
Cal Offset in mV (MANUAL)	40290	Float	2	R/W		-1000 /1000	Cal Offset edited during MANUAL settings (Applicable in pH)
PhBufferSb pHORP	40292	Unsigned Integer	1	R/W	0 /1 /2 /3		
Set ISO Point - Slope in mV/pH (User Defined)	40293	Float	2	R/W		0.01 /99.99	Set ISO Point - Slope in mV/pH (User Defined)
Set ISO Point - mV (User Defined)	40295	Float	2	R/W		-999.99 /999.99	Set ISO Point - mV (User Defined)
TEMP COMP UNITS	40297	Unsigned Integer	1	R	U48 /174		Unit used for temperature compensation
TemperatureOffset pHORP (in user selected unit)	40298	Float	2	R		-30 /30	TemperatureOffset pHORP (in user selected unit during calibration)
User Selected Temperature Units	40304	Float	2	R		0 /35	User Selected Temperature Units (25=degC
Last successful gas Calibration Type	40306	Float	2	R		0 /20	Last successful gas Calibration Type (1 = 1 Point sample Calibration
LogSetup pHORP	40308	Float	2	R		0 /10	Log Setup ((5s=0
Temp Element type	40310	Float	2	R		0 /10	Temp Element type (0= Pt100
Temp Offset in user units (Temp Cal)	40312	Float	2	R		-100 /200	Temp Offset in user units
Cal Offset (mV or pH)	40314	Float	2	R		-2600 /2600	Cal Offset (unit is mV for ORP cal
Calibration Type	40316	Float	2	R		0 /20	Calibration Type (1 = 1 Point sample Calibration

HACH®
Be Right™

9500 pH/ORP Module v1.00

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
Temp value in user units (Point A)	40318	Float	2	R		-100 /200	Temp value in user units (for 1 point calibration methods)
User selected Temp units	40320	Float	2	R		0 /35	User selected Temp units (25=degC
Display Format	40322	Float	2	R		0 /10	Diaplay format to display pH value (0 = XX.XX
Temp Compensation type	40324	Float	2	R		0 /10	Temp Compensation type (0 = NERNST
Temp Comp Slope Unit	40326	Float	2	R		0 /200	Temp Comp Slope Unit (48 = pH/C
ORP in mV	40328	Float	2	R		-2100 /2100	main measurement ORP value
ORP offset in mV	40330	Float	2	R		-2600 /2600	ORP offset in mV
Cal Reminder	40332	Float	2	R		0 /10	Cal Reminder (0 = OFF
Buffer type	40334	Float	2	R		0 /10	Buffer type (0 = 4
Operator ID required	40336	Float	2	R		0 /10	Operator ID required for cal (no=0
Impedance Status	40338	Float	2	R		0 /10	Impedance Status(0 = Disable
Slope in mV/pH	40340	Float	2	R		-1000 /1000	Slope in mV/pH (Applicable in pH)
Temp Value in user units (Point B)	40342	Float	2	R		-100 /200	Temp Value in user units (applicable in 2 point calibration methods)
New Sensor Select (Yes / No)	40344	Float	2	R		0 /10	New Sensor Select (1=Yes

HACH®
Be Right™

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