Modbus Register
CLx10

V1.10

HACH®

Be Right™

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
pH	40001	Float	2	R			pH measurement in pH
TEMP	40003	Float	2	R			Temperature measurement in C or F
CL2 PPM	40005	Float	2	R			Chlorine concentration in ppm
CL2 MG/L	40005	Float	2	R			Chlorine concentration in mg/L
CL2 PPB	40007	Float	2	R			Chlorine concentration in ppb
CL2 UG/L	40007	Float	2	R			Chlorine concentration in ug/L
INT PH MEAS	40009	Unsigned Integer	1	R			pH measurement in pH (x 100)
INT TEMP MEAS	40010	Unsigned Integer	1	R			Temperature measurement in C or F (x 10)
INT CL2 MEAS IN ppb or ug/L	40011	Unsigned Integer	1	R			Chlorine concentration in ppb or ug/L (x 1)
FLOW INDICATOR	40012	Unsigned Integer	1	R			0 - FLOW 1 - NO FLOW
SENSOR NAME	40014	String	6	R/W			Edit the sensor name (maximum 12 charater)
pH CONNECTED	40020	Unsigned Integer	1	R/W			Configure gateway with / without the pH & temperature sensor (0 = YES, 1 = NO)
SELECT UNIT	40021	Unsigned Integer	1	R/W			Units of chlorine (0 = AUTO ppb-ppm, 1 = AUTO ug/l-mg/l, 2 = FIXED ppm, 3 = FIXED mg/l)
DISPLAY FORMAT	40022	Unsigned Integer	1	R/W			Select display format for chlorine (0 = X.XXX, 1 = XX.XX, 2 = XXX.X, 3 = XXXX [AUTO])
FILTER	40023	Unsigned Integer	1	R/W			Filter in seconds for chlorine (0 - 60 s)
LOG SETUP	40024	Unsigned Integer	1	R/W			Chlorine log setup (0= DISABLED, 1 = 10 sec, 2 = 30 sec, 3 = 1 min, 4 = 5 min, 5 = 15 min, 6 = 60 min)
CAL MONITOR	40025	Unsigned Integer	1	R/W			Enable the Monitoring of the measurement value.(0 - ALL, 1-CL2 ONLY, 2-pH ONLY, 3-NONE)
SELECT RANGE	40027	Unsigned Integer	1	R/W			Measurement range for total chlorine and free chlorine(0 - 0-10PPM)
CL2 PARAM	40028	Unsigned Integer	1	R/W			Select chlorine parameter (0 = TOTAL CL2, 1 = FREE CL2)
Cl2 / pH CONFIDENCE LEVEL	40030	Unsigned Integer	1	R/W			Confidence level of pH monitor functionality for Cl2 ONLY / pH ONLY (%)
ALL CONFIDENCE LEVEL	40031	Unsigned Integer	1	R/W			Confidence level of pH monitor functionality for All (%)
LCC CONFIDENCE LEVEL	40032	Unsigned Integer	1	R/W			Confidence level of pH monitor functionality for LCC (%)
pH ERROR DEVIATION	40033	Float	2	R/W			pH error deviation value in pH for cal monitor functionality (pH)
pH WARNING DEVIATION	40035	Float	2	R/W			pH warning deviation in pH for the cal monitor functionality (pH)
CL2 ERROR DEVIATION	40037	Unsigned Integer	1	R/W			Chlorine error deviation (%)
CL2 WARNING DEVIATION	40038	Unsigned Integer	1	R/W			Chlorine warning deviation (%)
CL2/pH ACTIVATION TIME	40039	Unsigned Integer	1	R/W			Chlorine or pH activation time (Minutes)
CL2/pH DEACTIVATION TIME	40040	Unsigned Integer	1	R/W			Chlorine or pH deactivation time (Minutes)
ALL ACTIVATION TIME	40041	Unsigned Integer	1	R/W			Activation time for ALL (Minutes)
ALL DEACTIVATION TIME	40042	Unsigned Integer	1	R/W			Deactivation time for ALL (Minutes)
LCC ACTIVATION TIME	40043	Unsigned Integer	1	R/W			Activation time of low concentration calibration (Minutes)

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
LCC DEACTIVATION TIME	40044	Unsigned Integer	1	R/W			Deactivation time of low concentration calibration (Minutes)
DISPLAY FORMAT	40045	Unsigned Integer	1	R/W			Configure pH display format (0 = XX.XX, 1 = XX.X)
FILTER	40046	Integer	1	R/W			Filter value for pH in secs (0 - 60s)
LOG SETUP	40047	Unsigned Integer	1	R/W			Log setup for pH sensor (0= DISABLED, 1 = 10 sec, 2 = 30 sec, 3 = 1 min, 4 = 5 min, 5 = 15 min, 6 = 60 min)
SENSOR TYPE	40048	Unsigned Integer	1	R/W			Configure pH sensor type (0 = Differential pH, 1 = Combinational pH)
FILTER	40050	Unsigned Integer	1	R/W			Set the filter secs for temperature (0 - 60s)
LOG SETUP	40051	Unsigned Integer	1	R/W			Temperature log setup (0 = DISABLED, 1 = 10 sec, 2 = 30 sec, 3 = 1 min, 4 = 5 min, 5 = 15 min, 6 = 60 min)
SELECT UNITS	40052	Unsigned Integer	1	R/W			Select temperature units (25 = C, 26 = F)
CAL REMINDER	40054	Unsigned Integer	1	R/W			Chlorine calibration reminder (0-OFF, 1- 1 DAY, 2 - 7DAYS,3 - 20DAYS, 4 - 60DAYS, 5 - 90DAYS, 6 - 6MONTHS, 7- 9 MONTHS, 8 - 1 YEAR, 9 - 2 YEAR)
AUTO STAB	40056	Unsigned Integer	1	R/W			Auto stabilization state (OFF = 0, ON == 1)
AUTO STAB VALUE	40057	Unsigned Integer	1	R/W			Auto stabilization value for chlorine stabilzation (ppb or ug/L)
CL2 CALIB OPID	40058	Unsigned Integer	1	R/W			Do you want to enable OPID for Cl2 calibration(YES = 0, NO = 1)
BUFFER	40059	Unsigned Integer	1	R/W			Selection of pH buffer (0 = 4,7,10 , 1 = DIN 19267)
CAL REMINDER	40060	Unsigned Integer	1	R/W			pH calibration reminder (0-OFF, 1- 1 DAY, 2 - 7DAYS,3 - 20DAYS, 4 - 60DAYS, 5 - 90DAYS, 6 - 6MONTHS, 7- 9 MONTHS, 8 - 1 YEAR, 9 - 2 YEAR)
AUTO STAB	40061	Unsigned Integer	1	R/W			Auto stabilization for pH calibration(0 - OFF, 1 - ON)
AUTO STAB VALUE	40064	Float	2	R/W			Auto stabilization value for pH stabilization (in pH)
pH CALIB OPID	40066	Unsigned Integer	1	R/W			Do you want to enable OPID for pH calibration(YES = 0, NO = 1))
CAL REMINDER	40067	Unsigned Integer	1	R/W			Temperature calibration reminder (0-OFF, 1- 1 DAY, 2 - 7DAYS,3 - 20DAYS, 4 - 60DAYS, 5 - 90DAYS, 6 - 6MONTHS, 7- 9 MONTHS, 8 - 1 YEAR, 9 - 2 YEAR)
TEMP CALIB OPID	40068	Unsigned Integer	1	R/W			Do you want to enable OPID for temperature calibration(YES = 0, NO = 1))
OFFSET	40083	Float	2	R			Offset value of the chlorine (mV)
ELE CL2 CALIB OFFSET	40085	Float	2	R			Electrical chlorine calibration offset (mV)
SENSOR_ZERO	40087	Float	2	R			Zero offset of the sensor (mV)
OFFSET	40089	Float	2	R			Offset value of chlorine cal in CAL HISTORY records (mV)
CL2 RAW VALUE	40091	Float	2	R			Raw value of chlorine in mV
SENSOR DAYS	40093	Unsigned Integer	1	R			Days since the Chlorine sensor was installed
SLOPE	40094	Float	2	R			Slope of the chlorine (%)
SLOPE	40096	Float	2	R			Slope of chlorine calibration in CAL HISTORY records (%)
CAL VALUE	40098	Float	2	R			Chlorine Calibrated Value (ppm)
CAL DAYS	40100	Unsigned Integer	1	R			Days passed since last calibration

CLx10 V1.10

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
DRIVER VERS	40101	Unsigned Integer	1	R			Driver version of the sensor
CAL DAYS	40102	Unsigned Integer	1	R			Days passed since last calibration
SERIAL NUMBER	40103	String	6	R			Serial number of CL2 gateway
SOFTWARE VERS	40109	Float	2	R			Software version of CL2 Gateway
CAL DAYS	40111	Unsigned Integer	1	R			Days passed since last calibration
CAL VALUE	40114	Float	2	R			pH Calibration value (pH)
OFFSET	40116	Float	2	R			Offset value of pH (mV)
OFFSET	40118	Float	2	R			Offset value of pH in CAL HISTORY records (mV)
pH RAW VALUE	40120	Float	2	R			Raw value of pH in mV
SENSOR DAYS	40122	Unsigned Integer	1	R			Days since the pHsensor was installed
SLOPE	40123	Float	2	R			Slope of pH (mV/pH)
SLOPE	40125	Float	2	R			Slope of pH Calibration in CAL HISTORY records (mV/pH)
CAL VALUE	40127	Float	2	R			Temperature calibration value (C)
OFFSET (PT1000)	40129	Float	2	R			Offset temperature for PT1000 (C)
TEMP OFFSET	40131	Float	2	R			Offset of Temperature in CAL HISTORY records (-5C to 5C)
TEMP RAW VALUE	40133	Float	2	R			Raw value of temperature in mV
SENSOR DAYS	40135	Unsigned Integer	1	R			Days since the Temperature sensor was installed
RECORD NUM	40148	Unsigned Integer	1	R/W			Record number of chlorine
RECORD NUM	40149	Unsigned Integer	1	R/W			Record number of pH sensor(Verify Sensor type and Total records before editing)
RECORD NUM	40150	Unsigned Integer	1	R/W			Record number of temperature
TOTAL RECORDS	40151	Unsigned Integer	1	R			Total number of chlorine calibration records(Verify Sensor type and Total records before editing)
TOTAL RECORDS	40152	Unsigned Integer	1	R			Total number of pH calibration records
TOTAL RECORDS	40153	Unsigned Integer	1	R			Total number of temperature calibration records
TEMP MAX VALUE	40156	Float	2	R			Maximum value of temperature in C or F
TEMP MIN VALUE	40158	Float	2	R			Minimum value of temperature in C or F
pH SENSOR TYPE	40160	Unsigned Integer	1	R/W			Select the pH sensor type for the calibration history(0 - Diff_pH, 1- Combo_pH)
CL2 SENSOR TYPE	40161	Unsigned Integer	1	R/W			Select the sensor type for chlorine sensor(0 - TOTAL CL2 1 - FREE CL2)
BOOT VERS	40172	Float	2	R			Bootcode version of Cl2 Gateway
	40174	Float	2	R			Zero offset of the sensor (mV)
	40176	Float	2	R			Electrical chlorine offset (mV)
CL2 MIN VALUE	40188	Float	2	R			Minimum value of chlorine measurement
CL2 MAX VALUE(PPM or MG/L)	40190	Float	2	R			Maximum value of chlorine in ppm or mg/l
CL2 MAX VALUE(PPB or UG/L)	40192	Float	2	R			Maximum value of chlorine in ppb or ug/l

HACH®
Be Right™

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
OFFSET (NTC300)	40194	Float	2	R			Offset temperature for NTC300 (C)
CONTENT VERSION	40196	Unsigned Integer	1	R			Content version of the device driver file

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