Modbus Register
sc200 Conductivity Module

V2.02

HACH®

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sc200 Conductivity Module V2.02

Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
COND	40001	Float	2	R		0 /9999.0	The conductivity reading
TEMP C	40003	Float	2	R		-999.9 /999.9	The temperature reading in degree C
RESIST	40005	Float	2	R		0 /9999.0	The resistivity reading
TDS	40007	Float	2	R		0 /9999.0	The TDS reading
SALINITY	40009	Float	2	R		0 /1000.0	The salinity reading
MEASURE	40011	Unsigned Integer	1	R		0 /65535	The sensor measurement tag
PTUSERVAL	40012	Unsigned Integer	1	R		0 /0	The cal history point tag for user cal value
SELECT SPAN	40013	Unsigned Integer	1	R		0 /0	The cal history point tag for real measured value
HTRY RESIST	40014	Float	2	R		0 /9999999.9	The user resistivity value in cal history
HTRY ACTUAL RES	40016	Float	2	R		0 /9999999.9	The actual measured resistivity value in cal history
HTRY COND	40018	Float	2	R		0 /200000	The user conductivity value in cal history
HTRY ACTUAL CO	40020	Float	2	R		0 /200000	The actual measured conductivity value in cal history
HTRY TDS	40022	Float	2	R		0 /9999999.9	The user TDS value in cal history
HTRY ACTUAL TDS	40024	Float	2	R		0 /9999999.9	The actual measured TDS value in cal history
HTRY SAL	40026	Float	2	R		0 /9999.9	The user salinity value in cal history
HTRY ACTUAL SAL	40028	Float	2	R		0 /9999.9	The actual measured salinity value in cal history
HTRY ACTUAL TEMP	40030	Float	2	R		-20 /200	The temperature value in cal history
RESUME READING	40032	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10		The resume reading after cal: 0-MANUAL, 1-1_MIN, 2-2_MINS, 3-3_MINS, 4-4_MINS, 5-5_MINS, 6-6_MINS,7-7_MINS, 8-8_MINS, 9-9_MINS, 10-10_MINS
TEMP	40033	Unsigned Integer	1	R		0 /65535	The temperature measurement tag
TEMP F	40034	Float	2	R		-999.9 /999.9	The temperature reading in degree F
CELL K MIN	40036	Float	2	R		0 /15	The min. cell constant value
CELL K MAX	40038	Float	2	R		0 /15	The max. cell constant value
TEMP OFFSET	40040	Float	2	R		-9999999.9 /9999999.9	The temperature cal offset
TEMP SLOPE	40042	Float	2	R		-10.0 /10.0	The temperature cal slope value
CONDUCTIVITY UNITS	40044	Unsigned Integer	1	R/W	U50 /51 /59 /58 /34		The measurement units of conductivity: 50-uS/cm, 51-mS/cm,59-uS/m,,58-mS/m amd 34-S/m
COND UNITS I	40045	Unsigned Integer	1	R/W	U50 /51 /59 /58 /34		The conductivity units selection: uS/cm,mS/cm,S/cm,mS/m and S/m
RES MEAS UNITS	40046	Unsigned Integer	1	R/W	U37 /36 /155 /156		The measurement units of resistivity: 37-M ohm and 36-K ohm
RES UNITS I	40047	Unsigned Integer	1	R/W	U37 /36 /155 /156		The resistivity units selection: M ohm and K ohm
TDS UNITS	40048	Unsigned Integer	1	R/W	U2 /38		The measurement units of TDS: 2-ppm and 38-ppb
TDS UNIT	40049	Unsigned Integer	1	R/W	U2 /38		The TDS units selection: ppm and ppb
SALN MEASUNITS	40050	Unsigned Integer	1	R/W	U31		The measurement units of salinity: 31-ppt
MEAS UNITS	40051	Unsigned Integer	1	R	U50 /51 /59 /58 /34 /36 /37 /2 /38 /31		The measurement units selection
HTY COND UNITS	40052	Unsigned Integer	1	R	U50 /51 /59 /58 /34		The conductivity units in cal history
HTRY RES UNITS	40053	Unsigned Integer	1	R	U37 /36 /155 /156		The resistivity units in cal history
HTRY TDS UNITS	40054	Unsigned Integer	1	R	U2 /38		The TDS units in cal history

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
HTRY SAL UNITS	40055	Unsigned Integer	1	R	U31		The salinity units in cal history
TEMP UNITS	40056	Unsigned Integer	1	R/W	U25 /26		The temperature units
HTRY T UNITS	40057	Unsigned Integer	1	R	U25 /26		The temperature units in cal history
SET PARAMETER	40058	Unsigned Integer	1	R/W	0 /1 /2 /3		The measurement parameter selection:0-CONDUCTIVITY, 1-TDS, 2-SALINITY, 3-RESISTIVITY
DISPLAY FORMAT	40059	Unsigned Integer	1	R/W	0 /1 /2 /3 /4		The display format: 0-AUTO, 1-X.XXX, 2-XX.XX, 3-XXX.X, 4-XXXX
TAG FORMAT	40060	Unsigned Integer	2	R		0 /4294967295	The display format tag
HTRY TAG	40062	Unsigned Integer	2	R		0 /2000000000	The display format tag for cal history
FILTER	40064	Unsigned Integer	1	R/W		0 /200	The filter setting
CONFIG TDS	40065	Unsigned Integer	1	R/W	0 /1		The TDS configuration: 0-NaCl, 1-CUSTOM
SELECT FACTOR	40066	Float	2	R/W		0.01 /99.99	The TDS user factor
SELECT CELL K	40068	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7		The cell constant selection: 0-0.05, 1-0.5,2-1.0,3-5.0, 4-10.0, 5-0.01 Poly, 6-0.1 Poly and 7-1.0 Poly
CELL CONSTANT	40069	Float	2	R/W		?	The cell constant value
CELL CONST	40071	Float	2	R		0 /15.0	The cell constant K for cal history
CELL VAL	40073	Float	2	R		0 /15.0	The cell constant value for cal history
T COMP TYPE	40075	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5		The temperature compensation type: 0-LINEAR, 1-AMMONIA, 2-TEMP TABLE,3- NONE, 4-NATURAL WATER, 5-PURE WATER
TCOMP-TDS	40076	Unsigned Integer	1	R/W	0 /1 /2 /3		The TDS temperature compensation: 0-LINEAR, 1-AMMONIA, 2-TEMP TABLE, 3-NONE
T COMP SLOPE	40077	Float	2	R/W		0 /4	The linear temperature compensation slope
TCOMP REF TEMP	40079	Float	2	R/W		-20 /200	The linear temperaure compensation reference T value
TEMP ELEMENT	40081	Unsigned Integer	1	R/W	0 /1 /4		The temperature element type: 0-PT100, 1-PT1000, 4-MANUAL
SET MANUAL	40082	Unsigned Integer	1	R		0 /200	The user temperature value tag
USER TEMP	40083	Float	2	R/W		-20 /200	The user temperature value in degree C
USER TEMP F	40085	Float	2	R/W		0 /392.0	The user temperature value in degree F
OUTPUT MODE	40087	Unsigned Integer	1	R/W	0 /1 /2		The output mode during calibration: 0-ACTIVE, 1-HOLD, 2-TRANSFER
EDIT VALUE	40088	Unsigned Integer	1	R		0 /65535	The 1 point cal tag
1PT COND	40089	Float	2	R/W		0 /200000.0	The conductivity value in 1 point cal
1PT RES	40091	Float	2	R/W		0 /2000.0	The resistivity value in 1 point cal
1PT TDS	40093	Float	2	R/W		0 /10000.0	The TDS value in 1 point cal
1PT SALINITY	40095	Float	2	R/W		0 /20000.0	The salinity value in 1 point cal
NAME	40097	String	8	R/W			The sensor name
SOFT VERSION	40105	Float	2	R		0 /100	The application version
SERIAL NUMBER	40107	String	8	R/W			The sensor serial number
BOOTLOADER VERS	40115	Float	2	R		0 /9.99	The boot code version
FUNCTION CODE	40117	Unsigned Integer	1	R/W		0 /65535	The function code tag
NEXT STATE	40118	Unsigned Integer	1	R		0 /65535	The next state tag

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
SENS INTERVAL	40119	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8		The sensor data log interval: 0-5sec, 1-30sec, 2-1min, 3-2min, 4-5min, 5-10min, 6-15min, 7-30min, 8-60min
CAL LEAVE	40120	Unsigned Integer	1	R/W	0 /1 /2		The leave option during calibration: 0-QUIT CAL, 1-BACK TO CAL, 2-LEAVE CAL
SPAN K 0.05	40121	Unsigned Integer	1	R/W	0 /1 /2		The span for cell constant 0.05: 0-Span_0__1uS_cm, 1-Span_0___10uS_cm, 2-Span_0___100uS_cm
SPAN K 0,5	40122	Unsigned Integer	1	R/W	1 /2 /3		The span for cell constant 0.5: 1-Span_0___10uS_cm, 2-Span_0___100uS_cm, 3-Span_0___1000uS_cm
SPAN K 1	40123	Unsigned Integer	1	R/W	5 /6 /7		The span for cell constant 1.0:5-Span_0___20uS_cm , 6-Span_0___200uS_cm, 7-Span_0___2000uS_cm
SPAN K 5	40124	Unsigned Integer	1	R/W	2 /3 /4		The span for cell constant 5.0:2-Span_0___100uS_cm , 3-Span_0___1000uS_cm, 4-Span_0___10000uS_cm
SPAN K 10	40125	Unsigned Integer	1	R/W	7 /8 /9		The span for cell constant 10.0:7-Span_0___2000uS_cm , 8-Span_0___20000uS_cm, 9-Span_0___200000uS_cm
CAL CELL K	40126	Float	2	R		0.001 /100	The cell constant value during calibration
X	40128	Float	2	R/W		?	The x1 value in user table configuration
P2	40130	Unsigned Integer	1	R/W	0 /1		The x2 value in user table configuration
P3	40131	Unsigned Integer	1	R/W	0 /1 /2		The x3 value in user table configuration
P5	40132	Unsigned Integer	1	R/W	0 /1 /2 /3 /4		The x5 value in user table configuration
P4	40133	Unsigned Integer	1	R/W	0 /1 /2 /3		The x4 value in user table configuration
P6	40134	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5		The x6 value in user table configuration
P7	40135	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6		The x7 value in user table configuration
P8	40136	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7		The x8 value in user table configuration
P9	40137	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8		The x9 value in user table configuration
P10	40138	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9		The x10 value in user table configuration
Y	40139	Float	2	R/W		0 /99.99	The y value in user table configuration
SAVE TABLE	40141	Unsigned Integer	1	R/W	0 /1 /2		The save option in user table configuration: 0-SAVE_CHANGES_, 1-BACK_TO_TABLE, 2-CANCEL
TABLE ACTION	40142	Unsigned Integer	1	R/W	0 /1 /2		The action option in user table configuration:0-INSERT_POINT, 1-EDIT_POINT, 2-DELETE_POINT
R1CNTS	40143	Float	2	R		-999999.9 /999999.9	The range1 counts in zero cal
R2CNTS	40145	Float	2	R		-999999.9 /999999.9	The range2 counts in zero cal
R3CNTS	40147	Float	2	R		-999999.9 /999999.9	The range3 counts in zero cal
R4 CNTS	40149	Float	2	R		-999999.9 /999999.9	The range4 counts in zero cal
DRIVER VERS	40151	Unsigned Integer	1	R		0 /1000	The device driver version

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
CAL REMINDER	40152	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9		The cal reminder option: 0-OFF, 1-1DAY, 2-7DAYS, 3-30DAYS, 4-60DAYS, 5-90DAYS, 6-6 MONTHS, 7-9 MONTHS,8-1 YEAR,9- 2 YEARS
OP ID	40153	Unsigned Integer	1	R/W	0 /1		The OP ID:0-NO, 1-YES
MIN MEAS VALUE	40154	Float	2	R		-9999999.9 /9999999.9	The min. display value
MINIMUM	40156	Float	2	R		-25 /0	The min. temperature value
MAXIMUM	40158	Float	2	R		0 /400	The max. temperature value
MAX MEAS VALUE	40160	Float	2	R		-9999999.9 /9999999.9	The max. display value
CAL DATE	40162	Time2	2	R			The last calibration date
TIME	40164	Time2	2	R			The last calibration time
CAL STATUS	40166	Unsigned Integer	1	R	0 /1		The last calibration status
CAL TYPE	40167	Unsigned Integer	1	R	0 /7 /5 /6 /15 /16		The last calibration type: 0-DEFAULT, 7-1PT SAMPLE, 5-ZERO CAL, 6-DRY CAL, 15-1PT SAMPLE, 16-2PT SAMPLE
OP ID	40168	String	2	R/W			The operator initials
MESSAGES	40170	Unsigned Integer	1	R	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14		The cal message:0- CAL_READY, 1-CAL_OK, 2-TIME_EXP, 3-NO_BUFFER, 4-SLOPE_HI, 5-SLOPE_LOW, 6-OFFSET_HI,7-OFFSET_LOW, 8-PTS_CLOSE, 9-CAL_FAIL, 10-DO_LOW, 11-CAL_HIGH, 12-K_OUTRANGE, 13-UNSTABLE
CAL DAYS	40171	Unsigned Integer	1	R		0 /999	The days since last calibration
SENSOR DAYS	40172	Unsigned Integer	1	R		0 /999	The sensor operation days
CARD SERIAL NO	40173	String	6	R			The module serial number
SIGNALS	40179	Float	2	R		0.0 /2500.0	The sensor signal
LOG FLOAT	40181	Float	2	R		0 /0	The data log float type
LOG TEXT	40183	String	8	R			The data log text type
LOG INT	40191	Integer	1	R		-32768 /32767	The data log integer type
LOG PARAM	40192	String	8	R			The data log parameter
DATE 1	40200	Time2	2	R			The date 1 in cal history
DATE 2	40202	Time2	2	R			The date 2 in cal history
DATE 3	40204	Time2	2	R			The date 3 in cal history
DATE 4	40206	Time2	2	R			The date 4 in cal history
DATE 5	40208	Time2	2	R			The date 5 in cal history
DATE 6	40210	Time2	2	R			The date 6 in cal history
TIME 1	40212	Time2	2	R			The time 1 in cal history
TIME 2	40214	Time2	2	R			The time 2 in cal history
TIME 3	40216	Time2	2	R			The time 3 in cal history
TIME 4	40218	Time2	2	R			The time 4 in cal history
TIME 5	40220	Time2	2	R			The time 5 in cal history
TIME 6	40222	Time2	2	R			The time 6 in cal history
PAGE NO:	40224	Unsigned Integer	1	R		0 /65535	The page number in cal history
HIDDEN LINE	40225	Unsigned Integer	1	R		0 /65535	The hidden tag in cal history
HIGHLIGHT LINE	40226	Unsigned Integer	1	R		0 /65535	The highlight tag in cal history
SENSE	40227	Float	2	R		0 /5000.0	The sense voltage
DRIVE	40229	Float	2	R		0 /5000.0	The drive voltage

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
OFFSET	40231	Float	2	R		0 /5000.0	The offset voltage
VALUE	40233	Float	2	R		0 /99999.9	The sense/drive ratio
FACTORY CAL	40235	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6		The factory cal R list: 0-50k,1-25k,2-5k,3-2.5k,4-500,5-250 and 6-50
FACTORY CAL RV	40236	Float	2	R/W		0 /99999.0	The R value in fatory calibration
SELECT RANGE	40238	Unsigned Integer	1	R/W		0 /8	The range selection -0,1,2,3,4,5 and 6
GAIN VALUE	40239	Unsigned Integer	1	R		0 /65535	The range value
FACTORY CAL GAIN	40240	Float	2	R/W		0 /99999.9	The gain constant value for each range
T-FACTOR	40242	Float	2	R/W		0 /1500.0	The temperature element factor value
CAL ZERO	40244	Float	2	R		-1500.0 /1500.0	The zero cal value
SET FACTOR	40246	Float	2	R/W		-10.0 /10.0	The delta-correction value
SPAN	40248	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9		The current span
FACTORY CAL MODE	40249	Unsigned Integer	1	R/W		0 /5	The factory cal mode
TempElemLeakage CCO	40250	Float	2	R/W			The leakage current for temperature element
RawCondSignal CCO	40252	Float	2	R		0 /2000000	The raw conductance value
CondValue Int CCO	40254	Unsigned Integer	2	R		0 /9999999	The interger value of conductivity in uS/cm
ResistValue Int CCO	40256	Unsigned Integer	2	R		0 /9999999	The interger value of resistivity in ohm
TDSValue Int CCO	40258	Unsigned Integer	2	R		0 /9999999	The interger value of resistivity in ppm
SalinityValue Int CCO	40260	Unsigned Integer	1	R		0 /9999	The interger value of salinity in ppt
TempDegCMeas Int CCO	40261	Integer	1	R		-20 /200	The interger value of temperature in degree C
TempDegFMeas Int CCO	40262	Integer	1	R		-4 /400	The interger value of temperature in degree F
NewSensor CCO	40263	Unsigned Integer	1	R/W	1 /0		The new sensor option-0-NO, 1-YES
TempR1Value CCO	40264	Float	2	R/W		1900 /2500	The temperature circuit R1 value
TempR2Value	40266	Float	2	R/W		90 /150	The temperature circuit R2 value
TEMP CAL RAW	40268	Float	2	R		-999.9 /999.9	The raw temperature value
TEMP CAL OFFSET	40270	Float	2	R/W		-999.9 /999.9	The temperature offset value
TEMP CAL USER	40272	Float	2	R/W		-999.9 /999.9	The calibrated temperature value
CableLengthUnits CCO	40274	Unsigned Integer	1	R/W	U79 /81		The cable length units
CABLE LENGTH	40275	Float	2	R/W		0 /999	The cable length
DD CONTENT	40277	Unsigned Integer	1	R		0 /999	The device driver content version

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