# Modbus Register
# sc200 Conductivity Module

V2.02

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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 |

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## 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 |