# Modbus Register
# sc200 DO Module

V2.02

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# sc200 DO Module V2.02

| Name | Register | Data Type | Length | Access Mode | Discrete Range | Min / Max | Description |
|---|---|---|---|---|---|---|---|
| DO | 40001 | Unsigned Integer | 1 | R | | 0 /2000 | DO measure tag selection |
| DO | 40002 | Unsigned Integer | 1 | R | | 0 /2000 | DO alternate tag (unused) |
| TEMPERATURE | 40003 | Unsigned Integer | 1 | R | | 0 /65535 | Temperature tag selection |
| TEMP C | 40004 | Float | 2 | R | | 0 /50 | Calculated temp in C |
| TEMP F | 40006 | Float | 2 | R | | 32 /122 | Calculated temp in F |
| EDIT TEMP | 40008 | Float | 2 | R/W | | -200 /400 | Temp cal edit value tag selection |
| DO | 40010 | Float | 2 | R | | 0 /40 | DO in ppm |
| DO | 40012 | Float | 2 | R | | 0 /40 | DO in mg/l |
| DO | 40014 | Float | 2 | R | | 0 /200 | DO in % saturation |
| FUNCTION CODE | 40016 | Unsigned Integer | 1 | R/W | | 0 /65535 | Menu function code |
| NEXT STATE | 40017 | Unsigned Integer | 1 | R | | 0 /65535 | Menu next state |
| TEMP UNITS | 40018 | Unsigned Integer | 1 | R/W | U25 /26 | | Select unit of temp (C=25, F=26) |
| HTRY TEMP UNITS | 40019 | Unsigned Integer | 1 | R | U25 /26 | | Temp tag for cal history(C=25, F=26) |
| FILTER | 40020 | Unsigned Integer | 1 | R/W | | 0 /60 | DO Measurement filter selection (0-60) seconds |
| TEMP ELEMENT | 40021 | Unsigned Integer | 1 | R/W | 3 /4 | | Temperature element type selection (NTC30K=3, MANUAL=4) |
| USER TEMP | 40022 | Unsigned Integer | 1 | R | | 0 /65535 | User entered temp value tag selection |
| USER TEMP C | 40023 | Float | 2 | R/W | | 0 /50 | User entered temp value in C |
| USER TEMP F | 40025 | Float | 2 | R/W | | 32 /122 | User entered temp value in F |
| READING. | 40027 | 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) |
| PRESSURE UNITS | 40028 | Unsigned Integer | 1 | R/W | 45 /43 /13 /136 /62 /46 | | Units of pressure selection (m=13, ft=43, mmHg=45, inHg=46, KPa=62, mBar=136) |
| SALINITY UNITS | 40029 | Unsigned Integer | 1 | R/W | U55 /51 | | Units of salinity selection(mMol/l=55, mS/cm=51) |
| PRESSURE TAG | 40030 | Unsigned Integer | 1 | R | | 0 /65535 | Pressure tag selection |
| PRESSURE IN mmHg | 40031 | Float | 2 | R/W | | 539 /792 | PRESSURE IN mmHg |
| PRESSURE IN m | 40033 | Float | 2 | R/W | | -349.1 /2804.25 | PRESSURE IN m |
| PRESSURE IN ft | 40035 | Float | 2 | R/W | | -1145.3 /9200.316 | PRESSURE IN ft |
| PRESSURE IN mbar | 40037 | Float | 2 | R/W | | 718.606 /1055.91 | PRESSURE IN mbar |
| PRESSURE IN kPa | 40039 | Float | 2 | R/W | | 71.861 /105.591 | PRESSURE IN kPa |
| PRESSURE IN inHg | 40041 | Float | 2 | R/W | | 21.22 /31.181 | PRESSURE IN inHg |
| SALINITY TAG | 40043 | Unsigned Integer | 1 | R | | 0 /65535 | Salinity tag selection |
| SALINITY - MS | 40044 | Float | 2 | R/W | | 0 /76.09 | SALINITY in mS |
| SALINITY | 40046 | Float | 2 | R/W | | 0 /999.9 | Salinity in mMol/L |
| MEAS UNITS | 40048 | Unsigned Integer | 1 | R/W | 2 /0 /10 | | DO measurement unit selection(mg/l=0, ppm=2, % sat=10) |
| OUTPUT MODE | 40049 | Unsigned Integer | 1 | R/W | 0 /1 /2 | | Output mode selection tag(Active=0, Hold=1, Transfer=2) |

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|---|---|---|---|---|---|---|---|
| CAL LEAVE | 40050 | Unsigned Integer | 1 | R/W | 0 /1 /2 | | Cal leave flag(Quit=0, Back to cal=1, Leave=2) |
| CAL EDIT VALUE | 40051 | Unsigned Integer | 1 | R | | 0 /65535 | Cal edit value tag selection |
| CAL EDIT DO | 40052 | Float | 2 | R/W | | 0 /40 | Cal edit value ppm units |
| SOFTWARE VERS | 40054 | Float | 2 | R | | 0 /3.40282346638529E+38 | Software version |
| MODULE SERIAL NO | 40056 | String | 6 | R | | | MODULE SERIAL NO |
| BOOTLOADER VER | 40062 | Float | 2 | R | | 0 /9.99 | BOOTLOADER VER |
| SENS INTERVAL | 40064 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 /4 /5 /6 /7 /8 | | Log interval selection(5s=0,30s=1,1m=2,2m=3,5m=4,10m=5,15m=6,30m=7,60m=8) |
| CAL FACTOR | 40065 | Float | 2 | R | | -100 /100 | Partial oxygen cal factor |
| SENSOR SIGNAL | 40067 | Float | 2 | R | | -5000 /5000 | Sensor signal in mV |
| MEMBRANE DAYS | 40069 | Integer | 1 | R | | 0 /32000 | Membrane life in days |
| DRIVER VERS | 40070 | Unsigned Integer | 1 | R | | 0 /1000 | Device driver version |
| SLOPE | 40071 | Float | 2 | R | | -800 /800 | Calculated slope |
| SERIAL NUMBER | 40073 | String | 8 | R/W | | | Sensor SERIAL NUMBER |
| OP ID ON CAL | 40081 | Unsigned Integer | 1 | R/W | 0 /1 | | Operator ID required for cal (no=0, yes=1) |
| CAL REMINDER | 40082 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 /4 /5 /6 /7 /8 /9 | | Cal reminder selection (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) |
| CalEditDOValueSat DO | 40083 | Float | 2 | R/W | | 0 /200 | User cal edit value in % saturation |
| MAXIMUM | 40085 | Float | 2 | R | | 0 /200 | Meas max limit tag |
| 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 AB mV |
| OFFSET | 40099 | Float | 2 | R | | | Temperature offset |
| HTRY TEMP OFFSET | 40101 | Float | 2 | R | | | Cal history - Temperature offset |
| TEMP SLOPE | 40103 | Float | 2 | R | | -10.0 /10.0 | Cal - temperature slope |
| HTRY TEMP SLOPE | 40105 | Float | 2 | R | | -10.0 /10.0 | Cal history - temperature slope |
| CAL DATE | 40107 | Time2 | 2 | R | | | Calibration date |
| CAL TIME | 40109 | Time2 | 2 | R | | | Calibration time |
| CAL STATUS | 40111 | Unsigned Integer | 1 | R | 0 /1 | | Calibration status(Fail=0, Pass=1) |
| CAL TYPE | 40112 | Unsigned Integer | 1 | R | 0 /13 /7 /14 /15 /16 /5 | | Calibration type(Defult=0,Zero=5, Sample=7, Air=13, Saturation=14, 1pt Sample=15, 2pt SAmple=16 ) |
| DO CAL | 40113 | Float | 2 | R | | 0 /200 | Measured DO at calibration |
| DO CAL MV | 40115 | Float | 2 | R | | -5000 /5000 | Measured mV at calibration |
| DO CAL TEMP | 40117 | Float | 2 | R | | -20 /200 | Measured temperature at calibration |
| DO CAL UNIT | 40119 | Unsigned Integer | 1 | R | 2 /0 /10 | | DO unit at calibration(mg/l=0, ppm=2, % sat=10) |
| OP ID | 40120 | String | 2 | R/W | | | Calibration operator ID/initials |

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|---|---|---|---|---|---|---|---|
| CAL DAYS | 40122 | Unsigned Integer | 1 | R | | 0 /10000 | Days since last calibration |
| MSGS | 40123 | Unsigned Integer | 1 | R | 0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14 | | Cal message |
| CAL WARN MSG | 40124 | Unsigned Integer | 1 | R | 0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14 | | Cal status messages for display |
| LOG FLOAT | 40125 | Float | 2 | R | | | Tag for event log involving float |
| LOG TEXT | 40127 | String | 8 | R | | | Tag for event log involving text |
| LOG INT | 40135 | Integer | 1 | R | | -32768 /32767 | Tag for event log involving integers |
| LOG PARAM | 40136 | String | 8 | R | | | Tag for event log involving passed parameter |
| DATE 1 | 40144 | Time2 | 2 | R | | | Cal history date 1 |
| DATE 2 | 40146 | Time2 | 2 | R | | | Cal history date 2 |
| DATE 3 | 40148 | Time2 | 2 | R | | | Cal history date 3 |
| DATE 4 | 40150 | Time2 | 2 | R | | | Cal history date 4 |
| DATE 5 | 40152 | Time2 | 2 | R | | | Cal history date 5 |
| DATE 6 | 40154 | Time2 | 2 | R | | | Cal history date 6 |
| TIME 1 | 40156 | Time2 | 2 | R | | | Cal history time 1 |
| TIME 2 | 40158 | Time2 | 2 | R | | | Cal history time 2 |
| TIME 3 | 40160 | Time2 | 2 | R | | | Cal history time 3 |
| TIME 4 | 40162 | Time2 | 2 | R | | | Cal history time 4 |
| TIME 5 | 40164 | Time2 | 2 | R | | | Cal history time 5 |
| TIME 6 | 40166 | Time2 | 2 | R | | | Cal history time 6 |
| PAGE NO: | 40168 | Unsigned Integer | 1 | R | | 0 /65535 | Cal history page number |
| HIDDEN LINE | 40169 | Unsigned Integer | 1 | R | | 0 /65535 | Cal history page hidden item |
| HIGH LIGHT LINE | 40170 | Unsigned Integer | 1 | R | | 0 /65535 | Cal history page highlighted item |
| SensorType DO | 40171 | Unsigned Integer | 1 | R | | 0 /5 | Test register for sensor type |
| NewSensor DO | 40172 | Unsigned Integer | 1 | R/W | 1 /0 | | New sensor flag(No=0, Yes=1) |
| DO Int | 40173 | Unsigned Integer | 1 | R | | 0 /2000 | DO (integer) |
| TEMP C int | 40174 | Integer | 1 | R | | -20 /200 | Temp C (integer) |
| TEMP F int | 40175 | Integer | 1 | R | | -4 /392 | Temp F (integer) |
| TEMP CAL RAW | 40176 | Float | 2 | R | | -999.9 /999.9 | Raw temp value at calibration |
| TEMP CAL OFFSET | 40178 | Float | 2 | R | | -999.9 /999.9 | Temp offset value at calibration |
| TEMP. CAL USER | 40180 | Float | 2 | R/W | | -999.9 /999.9 | Temp user value at calibration |
| FactCalSlope DO | 40182 | Float | 2 | R/W | | 0 /3.40282346638529E+38 | factory cal slope |
| FactCalOffset DO | 40184 | Float | 2 | R/W | | | factory cal offset |
| DOD ADCcount DO | 40186 | Unsigned Integer | 1 | R | | 0 /65535 | 10 bit ADC count for factory calibration |
| DD CONTENT | 40187 | Unsigned Integer | 1 | R | | 0 /1000 | device driver content version |
| NAME | 40188 | String | 8 | R/W | | | Sensor name |

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|---|---|---|---|---|---|---|---|
| DOcalADCcounts DO | 40196 | Float | 2 | R | | -16777216 /16777216 | adc counts during factory calibration |

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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 |