

Modbus Register Polymetron 9500 Inductive Conductivity Module

v1.02

Polymetron 9500 Inductive Conductivity Module v1.02

| Name | Register | Data Type | Length | Access Mode | Discrete Range | Min / Max | Description |
|----------------------|----------|------------------|--------|-------------|----------------|---------------------|--|
| Cond value in uS/cm | 40001 | Float | 2 | R | | 0 /9999.0 | The conductivity value in uS/cm |
| TEMP C | 40003 | Float | 2 | R | | -999.9 /999.9 | The temperature value in degree C |
| CONC VALUE | 40005 | Float | 2 | R | | 0 /200 | The concentration measurement.(Unit: %) |
| TDS VALUE | 40007 | Float | 2 | R | | 0 /99999 | The TDS measurement.(Unit: ppm) |
| SALINITY VALUE | 40009 | Float | 2 | R | | 2 /42 | The salinity measurement (Unit:ppt) |
| Cond value in mS/cm | 40013 | Float | 2 | R | | 0 /9999.0 | The conductivity value in mS/cm |
| Cond value in S/cm | 40015 | Float | 2 | R | | 0 /100.0 | The conductivity value in S/cm |
| SOLN VALUE | 40023 | Float | 2 | R | | 0 /9999.9 | The conductivity solution value |
| HTRY COND | 40039 | Float | 2 | R | | 0 /2000000 | The conductivity measurement in cal history.(Applicable for Conductivity/Resistivity) |
| HTRY CONC | 40043 | Float | 2 | R | | 0 /101 | The concentration measurement in cal history.(Applicable for Concentration) |
| HTRY TDS | 40047 | Float | 2 | R | | 0 /99999 | The TDS measurement in cal history.(Applicable for TDS) |
| HTRY SALINITY | 40051 | Float | 2 | R | | 0 /10000 | The salinity measurement in cal history.(Applicable for Salinity) |
| HTRY TGED FMAT | 40055 | Unsigned Integer | 2 | R | | 0 /2000000000 | The display format tag in cal history |
| HTRY COND SOLN | 40057 | Float | 2 | R | | 0 /2000000 | The conductivity solution value in cal history.(Applicable for Cond soln) |
| HTRY CELL VAL | 40063 | Float | 2 | R | | 2.0 /13 | The cell constant value in cal history |
| RANGE 1 | 40065 | Float | 2 | R | | -999999.9 /999999.9 | The zero value at range 1 in cal history |
| RANGE 2 | 40067 | Float | 2 | R | | -999999.9 /999999.9 | The zero value at range 2 in cal history |
| RANGE 3 | 40069 | Float | 2 | R | | -999999.9 /999999.9 | The zero value at range 3 in cal history |
| RANGE 4 | 40071 | Float | 2 | R | | -999999.9 /999999.9 | The zero value at range 4 in cal history |
| RANGE 5 | 40073 | Float | 2 | R | | -999999.9 /999999.9 | The zero value at range 5 in cal history |
| TEMP F | 40081 | Float | 2 | R | | -999.9 /999.9 | The temperature value in degree F |
| SENSOR NAME | 40087 | String | 8 | R/W | | | The sensor name |
| HTRY TEMP UNITS | 40097 | Unsigned Integer | 1 | R | U25 /26 | | The temperature units-C or F in cal history |
| FILTER | 40098 | Unsigned Integer | 1 | R/W | | 0 /200 | The filter value in Sec. |
| USER TEMP C | 40101 | Float | 2 | R/W | | -20 /200 | The temperature user value in degree C |
| USER TEMP F | 40103 | Float | 2 | R/W | | 0 /392 | The temperature user value in degree F |
| OUTPUT MODE | 40105 | Unsigned Integer | 1 | R/W | 0 /1 /2 | | The output mode during calibration:0-ACTIVE |
| CAL LEAVE | 40106 | Unsigned Integer | 1 | R/W | 0 /1 /2 | | The leave option during calibration:0-QUIT_CAL |
| SOFTWARE VERS | 40107 | Float | 2 | R | | 0 /100 | The application code version |
| SENSOR SERIAL NUMBER | 40109 | String | 8 | R/W | | | The sensor serial number |
| BOOTLOADER VERS | 40117 | Float | 2 | R | | 0 /9.99 | The boot code version |
| SENSOR DAYS | 40120 | Unsigned Integer | 1 | R | | 0 /32000 | The sensor operation days |
| DRIVER VERS | 40121 | Unsigned Integer | 1 | R | | 0 /999 | The device driver version |
| CELL CONSTANT | 40126 | Float | 2 | R/W | | 2 /13 | The cell constant value |
| SOLN REF TEMP | 40130 | Float | 2 | R/W | | -20 /200 | The reference temperature value entered by user in Conductivity solution calibration.(Unit:degC) |

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|-----------------------|----------|------------------|--------|-------------|--|-------------|--|
| SOLN TEMP SLOPE | 40132 | Float | 2 | R/W | | 0.0 /4.2 | The temperature slope entered by user in Cond Soln calibration.(Unit:%/degC) |
| LINEAR REF TEMP | 40134 | Float | 2 | R/W | | -20 /200 | The reference temperature value in linear T compensation(Unit : degC) |
| LINEAR TEMPSLOPE | 40136 | Float | 2 | R/W | | 0 /4 | The temperature slope value in linear T compensation(Unit: %/degC) |
| USER ENTER COND VALUE | 40140 | Float | 2 | R/W | | 0 /9999.99 | The conductivity value entered by user in sample calibration.(Applicable for Conductivity) |
| USER ENTER SOLN VAL | 40142 | Float | 2 | R/W | | 0 /9999.9 | The Soln value entered by user in soln calibration. |
| USER ENTER CONC VALUE | 40144 | Float | 2 | R/W | | 0 /200 | The concentration value entered by user in sample calibration:(Applicable for Concentration) |
| USER ENTER TDS | 40146 | Float | 2 | R/W | | 0 /99999.9 | The TDS value entered by user in sample calibration.(Applicable for TDS) |
| USER ENTER SALINITY | 40148 | Float | 2 | R/W | | 2 /42 | The salinity value enter by user in sample calibration.(Applicable for Salinity) |
| TDS FACTOR | 40156 | Float | 2 | R/W | | 0.01 /99.99 | The TDS factor (Unit:ppm/uS) |
| TABLE ACTION | 40158 | Unsigned Integer | 1 | R/W | 0 /1 /2 | | The action option in user table configuration:0-INSERT_POINT |
| X UNITS | 40160 | Unsigned Integer | 1 | R | U50 /51 /32 /37 /2 /31 /10 /25 /26 | | The X units in user table: 50-uS/cm |
| Y UNITS | 40161 | Unsigned Integer | 1 | R | U50 /51 /32 /37 /2 /31 /10 /25 /26 | | The Y units in user table:50-uS/cm |
| P2 | 40164 | Unsigned Integer | 1 | R/W | 0 /1 | | The X2 point in user table |
| P3 | 40165 | Unsigned Integer | 1 | R/W | 0 /1 /2 | | The X3 point in user table |
| P4 | 40166 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 | | The X4 point in user table |
| P5 | 40167 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 /4 | | The X5 point in user table |
| P6 | 40168 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 /4 /5 | | The X6 point in user table |
| P7 | 40169 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 /4 /5 /6 | | The X7 point in user table |
| P8 | 40170 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 /4 /5 /6 /7 | | The X8 point in user table |
| P9 | 40171 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 /4 /5 /6 /7 /8 | | The X9 point in user table |
| P10 | 40172 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 /4 /5 /6 /7 /8 /9 | | The X10 point in user table |
| RAW COND | 40175 | Float | 2 | R | | 0 /2000000 | The raw conductivity value- not temperature compensated |
| RAW COND SIGNAL | 40177 | Float | 2 | R | | 0 /2000000 | The raw conductance value |
| DATE | 40189 | Time2 | 2 | R | | | The last cal date |
| TIME | 40191 | Time2 | 2 | R | | | The last cal time |
| STATUS | 40193 | Unsigned Integer | 1 | R | 0 /1 | | The last cal status |
| OP ID | 40195 | String | 2 | R/W | | | The operator initials |
| CAL DAYS | 40197 | Unsigned Integer | 1 | R | | 0 /10000 | The days since last calibration. |
| MESSAGES | 40198 | Unsigned Integer | 1 | R | 0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14 | | The cal message:1-CAL_READY |
| CARD SERIAL NO | 40199 | String | 6 | R | | | The module serial number |

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|----------------------|----------|------------------|--------|-------------|----------------------------------|-----------------------|---|
| LOG FLOAT | 40205 | Float | 2 | R | | -9999999.9 /9999999.9 | The float data type in configuration-change event |
| LOG TEXT | 40207 | String | 8 | R | | | The text data type in configuration-change event |
| LOG INT | 40215 | Integer | 1 | R | | -32768 /32767 | The integer data type in configuration-change event |
| LOG PARAM | 40216 | String | 8 | R | | | The parameter in configuration-change event |
| DATE 1 | 40224 | Time2 | 2 | R | | | The date 1 in cal history |
| DATE 2 | 40226 | Time2 | 2 | R | | | The date 2 in cal history |
| DATE 3 | 40228 | Time2 | 2 | R | | | The date 3 in cal history |
| DATE 4 | 40230 | Time2 | 2 | R | | | The date 4 in cal history |
| DATE 5 | 40232 | Time2 | 2 | R | | | The date 5 in cal history |
| DATE 6 | 40234 | Time2 | 2 | R | | | The date 6 in cal history |
| TIME 1 | 40236 | Time2 | 2 | R | | | The time 1 in cal history |
| TIME 2 | 40238 | Time2 | 2 | R | | | The time 2 in cal history |
| TIME 3 | 40240 | Time2 | 2 | R | | | The time 3 in cal history |
| TIME 4 | 40242 | Time2 | 2 | R | | | The time 4 in cal history |
| TIME 5 | 40244 | Time2 | 2 | R | | | The time 5 in cal history |
| TIME 6 | 40246 | Time2 | 2 | R | | | The time 6 in cal history |
| PAGE NO. | 40248 | Unsigned Integer | 1 | R | | 0 /65535 | The page number in cal history |
| RESUME READING | 40251 | Unsigned Integer | 1 | R/W | 0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 | | The resume reading time delay after calibration:0-IMANUAL |
| VALUE | 40255 | Float | 2 | R | | 0 /999999.9 | The sense/drive ration value |
| SENSE | 40257 | Float | 2 | R | | 0 /5000.0 | The sense value |
| DRIVE | 40259 | Float | 2 | R | | 0 /5000.0 | The drive value |
| OFFSET | 40261 | Float | 2 | R | | 0 /5000 | The offset value |
| SET RES VALUE | 40267 | Float | 2 | R/W | | 0 /999999 | The resistor value for factory cal |
| SELECT RANGE | 40269 | Integer | 1 | R/W | | 0 /5 | The range selection |
| SET GAIN | 40270 | Float | 2 | R/W | | 0 /999999.9 | The gain constant for each range |
| SET DELTA VALUE | 40272 | Float | 2 | R/W | | -99999.99 /99999.99 | The manual delta correction |
| PhaseShift ICO | 40279 | Unsigned Integer | 1 | R/W | | 0 /65535 | The phase shift value |
| PhaseShift ICO | 40280 | Unsigned Integer | 1 | R | | 0 /65535 | The phase shift value in cal history for zero calibration. |
| NewSensor ICO | 40289 | Unsigned Integer | 1 | R/W | 1 /0 | | The new sensor option - yes or no |
| TEMP CAL RAW | 40294 | Float | 2 | R | | -999.9 /999.9 | The temperture cal raw value (in user units) |
| TEMP CAL OFFSET | 40296 | Float | 2 | R/W | | -999.9 /999.9 | The temperature cal offset value. |
| TEMP CAL USER | 40298 | Float | 2 | R/W | | -999.9 /999.9 | The temperature value entered by user in temperature calibration. (in user units) |
| DD CONTENT | 40300 | Unsigned Integer | 1 | R | | 0 /999 | The device driver content version |
| RESIST VALUE | 40301 | Float | 2 | R | | 0 /2000000 | The resistivity measurement tag |
| RESISTIVITY UNIT | 40303 | Unsigned Integer | 1 | R/W | U155 /156 /169 | | The resistivity units selection.(155 - <Ohm>.cm |
| USER ENTER RES VALUE | 40304 | Float | 2 | R/W | | 0 /9999.99 | The resistivity value entered by user in sample calibration |
| HTRY TEMP OFFSET | 40306 | Float | 2 | R | | -200 /200 | The temperature offset calibration in cal history |
| CAL FACTOR | 40308 | Float | 2 | R | | 0 /2 | Calibration factor adjusted in Calibration for TDS |
| CAL SLOPE | 40310 | Float | 2 | R | | 0 /2 | Calibration slope adjusted in calibration for Conductivity and Resistivity |
| Calibration Slope | 40312 | Float | 2 | R | | 0 /2 | Calibration slope adjusted in sample calibration in TDS |

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|---------------------------|----------|-----------|--------|-------------|----------------|--------------|--|
| Calibration Factor | 40314 | Float | 2 | R | | 0 / 2 | Calibration factor adjusted in sample calibration |
| RES VALUE | 40316 | Float | 2 | R | | 0 / 1000000 | Measure resistor value in resistor calibration. |
| USER ENTER RES VALUE | 40318 | Float | 2 | R/W | | 0.01 / 10000 | Resistor value entered by user in resistor calibration. |
| AutoRangeHART ICO | 40320 | Float | 2 | R | | 0 / 10 | |
| COND UNIT | 40322 | Float | 2 | R | | 0 / 60 | The conductivity units list- (0-Auto (applicable only for conductivity)) |
| RESISTIVITY UNIT | 40326 | Float | 2 | R | | 0 / 180 | The resistivity units selection.(155 - <Ohm>.cm |
| TEMP UNIT | 40328 | Float | 2 | R | | 0 / 30 | The temperature units.(25 - degC or 26 - degF) |
| PARAMETERS | 40330 | Float | 2 | R | | 0 / 10 | The measurement parameter.(0-Conductivity |
| DISPLAY FORMAT | 40332 | Float | 2 | R | | 0 / 10 | The display format: (0-AUTO |
| TEMP ELEMENT | 40334 | Float | 2 | R | | 0 / 10 | The temperature element type - (0-PT100 |
| SENS INTERVAL | 40336 | Float | 2 | R | | 0 / 10 | The sensor data log interval:(0-5_sec |
| TEMP COMP TYPE | 40338 | Float | 2 | R | | 0 / 10 | The cond temperature compensation type-(0- linear |
| TDS FACTOR TYPE | 40340 | Float | 2 | R | | 0 / 10 | TDS compensation type - (0-NaCl or 1-Custom) |
| CONC COMP TYPE | 40342 | Float | 2 | R | | 0 / 10 | The concentration compensation type-(0-built-in or 1-user table) |
| BUILT-IN SET CHEMICAL | 40344 | Float | 2 | R | | 0 / 20 | The built-in conc compensation type:(1-H3PO4_0_40% |
| CAL REMINDER | 40346 | Float | 2 | R | | 0 / 10 | The cal reminder option: (0- OFF |
| OP ID ENABLE/DISABLE | 40348 | Float | 2 | R | | 0 / 10 | The OP ID:(0-Enable or 1- Disable) |
| FACT CAL RANGE | 40350 | Float | 2 | R | | 0 / 10 | The range number selection:(0-R1__1_OHM |
| CAL TYPE | 40352 | Float | 2 | R | | 0 / 50 | Calibration type during last calibration:(0=default |
| HTRY TEMP | 40354 | Float | 2 | R | | -100 / 200 | The temperature value in user selected unit in cal history |
| New Sensor Select(Yes/No) | 40356 | Float | 2 | R | | 0 / 10 | New Sensor Select(1=Yes |
| TDS TC TYPE | 40360 | Float | 2 | R | | 0 / 10 | The TDS temperature compensation type - (0-linear |

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 |